Tax Administration REVIEW

Inter-American Center of Tax Administrations
CIAT

Agencia Tributaria
State Agency of Tax Administration
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EDITORIAL POLICY

The Technical Cooperation Agreement signed by CIAT and the State Secretariat of Finance, the State Agency of Tax Administration (AEAT) and the Institute of Fiscal Studies (IEF) of Spain, provided for the commitment of editing a review that would serve to disseminat the different tax approaches in force in Latin America and Europe.

An Editorial Board formed by CIAT officials (the Executive Secretary, the Director of Tax Studies and Research, the Director of Training & Human Talent Development and Head of the Spanish Mission) is responsible for determining the topics and selecting the articles for each edition of the Review.

The articles are selected, through a public announcement made by the CIAT Executive Secretariat for each edition of the review. It is open to all officials of the Tax, Customs Administrations and/or Ministries of Economy and Finance of the CIAT member countries and associate member countries. Likewise, those members of the CIAT Community not belonging to any of the aforementioned entities may also participate, following evaluation by the Editorial Council.

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Editorial

Dear Reader:

We are pleased to present a new issue of the *Tax Administration Review*, intended for officials of the tax administrations of our organization's members and associate countries, as well as for the international tax community at large.

This publication is produced under the Technical Cooperation Agreement between CIAT, the Spanish Ministry of Finance, the Institute for Fiscal Studies (IEF), and the Spanish State Tax Administration Agency (AEAT).

This issue features eighteen articles addressing topics of particular relevance to contemporary tax administrations, including tax and reputational risk management, tax transparency, consumption taxation in the digital economy, tax citizenship, data quality and governance, digital transformation, artificial intelligence applied to fraud detection, tax identification numbers, and new tools for VAT management and assessment, among other topics of great interest.

The articles included in this issue offer practical experiences, case studies, and innovative proposals from various tax administrations and specialists, enriching the exchange of knowledge and best practices that characterizes our journal.

We are grateful for the strong response to our call for submissions and reaffirm our commitment to disseminating useful information that fosters learning, drives innovation, and promotes knowledge sharing within the international tax community.

Márcio Ferreira Verdi
CIAT Executive Secretary
Director of the Review

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Tax Revenue Impact in Mexico of Public Lists of Taxpayers Engaged in Simulated Transactions and Tax Noncompliance

Adán Ramírez Hernández
Araceli Guzmán Catarino
Mario Graff Guerrero

SYNOPSIS

This article examines the impact of publishing the names of taxpayers who engage in simulated transactions and fail to comply with various fiscal obligations on the country's tax revenue collection. Utilizing public data from the SAT and statistical information from INEGI based on year-over-year quarterly growth, a linear regression analysis was applied. The study finds that a 1.0% increase in the number of taxpayers published on these lists generates a 0.12% increase in tax revenue, demonstrating the significance of transparency in mitigating the incentive to commit tax infractions and be included in such listings.

KEYWORDS: Non-Compliance, Transparency, Linear Regression, Public Information, Simulated Transactions

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INTRODUCTION

The 2014 reform of the Federal Tax Code (CFF) aimed to increase transparency regarding situations that could affect public revenue and spending, as well as to establish a procedure for penalizing taxpayers who commit tax fraud using tax receipts. Consequently, the Tax Administration Service (SAT) began publishing lists of taxpayers, either suspected or confirmed—who failed to meet their tax obligations, have *tax credits*[1], cannot be located, or issue invoices for fictitious transactions.

In this context, this article aims to analyze the impact of these lists on tax revenue collection in Mexico, as well as the reactions and perceptions of risk they generate among other taxpayers.

1. IMPLEMENTATION OF THE PUBLIC LISTS UNDER SECTIONS 69 AND 69-B: PUBLISHED TAXPAYERS

Pursuant to the Decree amending, adding, and repealing various provisions of the Value-Added Tax Law, the Special Tax on Production and Services Law, and the Federal Tax Code, which took effect in 2014, which specifically amends and adds various paragraphs to Article 69 and adds Article 69-B to the Federal Tax Code, as well as its subsequent amendments, the Mexican tax authority is granted the power to publish on its website a list of taxpayers posing a commercial risk, due to their failure to comply with their tax obligations, that is, they fail to file periodic returns, have final or determined tax liabilities that, although enforceable by the authority, remain unpaid or unsecured; or, although registered in the Federal Taxpayers Registry (RFC), are listed as unlocatable; or whose digital seal certificates have been revoked; or who have tax liabilities that have been canceled or forgiven; in addition to publishing a list of taxpayers who have used receipts for tax purposes to support nonexistent transactions, without having provided the tax authority with evidence of their validity within the legal deadline of 30 days following publication.

Regarding the taxpayer information that the tax authority may publish in the lists, the last paragraph of Article 69 of the Federal Tax Code provides as follows:

> "**Article 69.**
>
> …
>
> The Tax Administration Service will publish on its website **the name, business name,** and **Federal Taxpayer Identification Number** of those who fall under any of the circumstances referred to in the preceding paragraph."
>
> *The highlighted text is my own.*

Therefore, if taxpayers disagree with this publication, they may follow the appropriate clarification procedure to submit the evidence they deem necessary and thereby refute the allegations discussed herein.

In this case, Table 1 shows that, as of today, 243,844 taxpayers have been listed for having outstanding tax liabilities, which is the main reason for being included on the list, while a total of 174,296 taxpayers are on the same list because they had *tax credit* that were settled in the past. The most serious reason for publication—simulated transactions (issuance of unsubstantiated invoices)—involves a total of 11,067 taxpayers.

It should be noted that there are grounds for publication that do not specify the amount of the debt settled or outstanding for the listed taxpayers, or, as in the case of those with simulated transactions, figures regarding the amount of tax evasion have been presented in

1 Translator's note: In Mexican tax law, "tax credits" refers to tax debts or outstanding liabilities.

communications from the Tax Administration Service (SAT) without a defined frequency for such disclosures.

Other cases listed in Table 1, such as the revocation of certificates for issuing electronic invoices, represent preventive measures aimed at curbing conduct that erodes tax revenue—such as the simulation of transactions—by requiring taxpayers to resolve their irregularities with the tax authority; consequently, 50,356 taxpayers are identified within this group.

One of the SAT's recent publications pertains to taxpayers who are part of public and government entities, totaling 568 taxpayers. The combination of all these publications contributes to increasing the perception of risk among other taxpayers, as it makes clear that any taxpayer engaging in irregular conduct will be publicly identified.

Table 1

Taxpayers listed by type of discrepancy and amounts paid from the first quarter of 2014 through the most recent date published on November 10, 2025

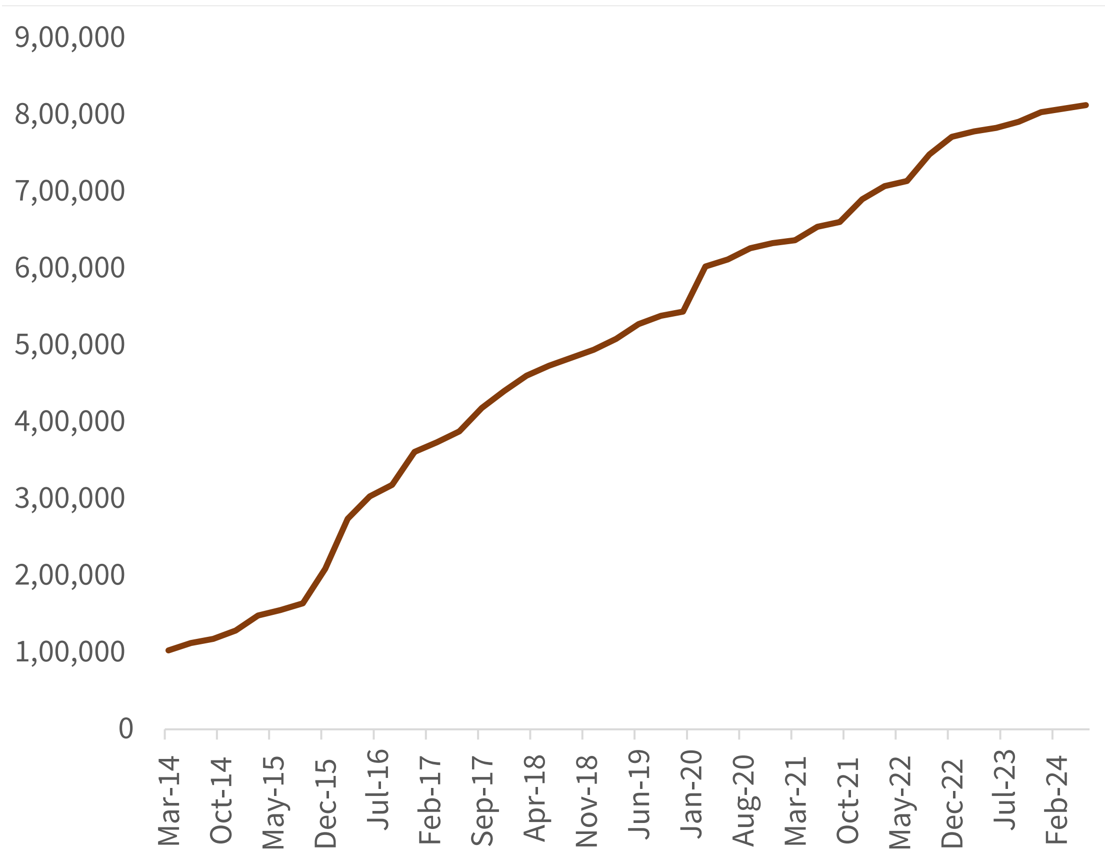
Type of inconsistency	Taxpayers	Amount of debt paid off or outstanding (in millions of pesos)
Canceled *tax credits*	174,296	467,428
Reduction of Fines	68,400	21,456
Waived in Commercial Proceedings	16	8,805
Reduction of Surcharges	4	102
Waived by Decree	7	82
Other Waivers	8,083	271,926
Tax credits written off as uncollectible due to the debtor's inability to pay or insolvency	21,707	572,742
Return on Investment	73	125
Enforceable tax liabilities	6,021	Not available
Definitive tax liabilities	243,844	Not available
Untraceable taxpayers	53,440	Not applicable
Taxpayers with court judgments	551	Not available
Taxpayers whose certificate to issue electronic invoices was revoked	50,356	Not applicable
Non-compliant public and government entities	568	Not applicable
Taxpayers with simulated transactions	11,067	Not applicable
Taxpayers with alleged simulated transactions	704	Not applicable
Taxpayers who refuted the presumption of simulated transactions	338	Not applicable

Source: Author's compilation using data from SAT (2025).

2. PUBLISHED LISTS: FEEDBACK AND CONSEQUENCES FOR TAXPAYERS

To date, the number of taxpayers whose information has been made public exceeds 800,000, as shown in Figure 1, which reflects the SAT's ongoing monitoring of taxpayers who commit irregularities.

Figure 1
Taxpayers subject to Articles 69 and 69B of the Federal Tax Code



Source: Author's compilation using the list of published items 69 and 69B of the CFF available on SAT website (2025).

However, it is important to note the consequences and reactions of taxpayers to the publication of these SAT lists.

Positive aspects

Voluntary compliance. Through these measures, Mexico's Tax Administration Service encourages taxpayers to voluntarily comply with their tax obligations and regularize their affairs, given that they are being monitored and that noncompliance could harm their tax and business standing.

Fiscal transparency. Taxpayers perceive the authorities' efforts to combat tax avoidance and evasion by publicizing the details of those who engage in improper practices, thereby fostering greater confidence in the country's tax system, particularly among those who comply with the law.

Protection against tax risks. This measure is useful for the public as a means of minimizing and managing risks in commercial and service transactions with suppliers and customers, as it provides an opportunity to assess their overall tax status.

Negative aspects

Commercial impact. Customers and suppliers often avoid conducting business or service transactions with individuals and entities listed under Articles 69 and 69B, which reduces growth opportunities, leads to the loss of business partners and contracts, and may cause operational instability due to the inability to issue tax receipts.

Social impact. A taxpayer's public image may be tarnished, even if their inclusion on one of the lists is based on a presumption made by the tax authority, resulting in the loss of potential business opportunities.

Administrative and legal implications. Being listed on these frequently cited SAT lists can be comparable to appearing on a credit bureau's blacklist, that is, having a negative credit history that financially affects the business entity. Taxpayers often need to invest in professional services to conduct the procedures required to clarify or refute the allegations—procedures that in some cases may take considerable time to resolve—or, alternatively, to pursue legal recourse.

In such situations, the publication of these lists generally results in increased revenue collection, without entailing increased costs for the authority due to the exercise of in-depth monitoring or, where applicable, the initiation of verification proceedings.

Official figures on tax evasion through the fabrication of transactions

There are few publicly available figures regarding the total amount of tax evasion caused by companies that are either fictitious or engage in sham transactions; however, on December 3, 2023, the Senate, in Press Release No. 570, stated that as of that date in 2023, there were 10,953 companies conducting sham transactions totaling approximately 2.739 trillion pesos, that is, nearly 153.73 billion U.S. dollars (USD) in 2023 terms, according to IDC Online (2023).

Another official figure was reported on October 2, 2025, by the Federal Attorney General, indicating that from 2022 to 2025, invoicing networks evaded 54,698 million pesos in taxes—nearly 2.8 billion U.S. dollars (USD) in 2025 terms (*Sin Embargo*, 2025).

3. IMPACT ON TAX REVENUE

Open data from the Tax Administration Service (SAT, 2025), available on its institutional website www.sat.gob.mx, and unseasonally adjusted Quarterly Gross Domestic Product data with a 2018 base year, published by the National Institute of Statistics and Geography (INEGI, 2025) at www.inegi.gob.mx, were used for this analysis. The dataset covers the period from the first quarter of 2014 to the second quarter of 2025. The following variables were considered:

I. Published taxpayers, which include all taxpayers published pursuant to Articles 69 and 69B of the Federal Tax Code.

II. Recorded tax debts: the number of debts registered in SAT's portfolio.

III. Number of payments; payments submitted through the new electronic payment system and the tax return and payment service, excluding paper submissions.

IV. In-Depth Monitoring Actions; Number of actions through contact, classified by SAT as in-depth monitoring actions, excluding the Tax Mailbox, letters, email, calls, and SMS messages. This program was known prior to 2022 as "Collection Shortfalls" and was renamed that year as "In-Depth Monitoring."

V. VP2 Actions (Tax Mailbox, Letters, Email, and Calls); Number of contact-based actions classified by the SAT as deep surveillance actions via the Tax Mailbox, letters, email, calls, and SMS messages. This program was known prior to 2022 as "*differences in tax payments*" and was renamed "Deep Surveillance" starting that year.

VI. Compliance monitoring activities: number of compliance monitoring activities, including digital seal certificates (CSD) blocks, the Tax Mailbox, letters, emails, text messages, SMS messages, demands, and requests from state authorities. These activities pertain to monitoring compliance with tax obligations such as tax returns and payments.

VII. Total audit actions: Number of audit actions conducted using methods such as home visits, desk audits, rulings, mass audits, strategic audits, various verifications, or external audits.

VIII. Electronic receipts: Number of digital tax receipts issued online during the period.

IX. Taxpayers who obtained their first e-signature certificate; Total number of taxpayers obtaining an e-signature certificate for the first time, including individuals and legal entities.

X. Active taxpayers: taxpayers registered as active in the SAT registry.

XI. Taxpayers excluding wage earners; Taxpayers by tax regime, excluding those under the wage earner regime.

XII. GDP at nominal prices; Quarterly GDP, base year 2018, not seasonally adjusted.

XIII. Federal Government Tax Revenue; revenue from income tax, value-added tax, special tax on production and services, imports, exports, tax on new automobiles, tax on hydrocarbon exploration and extraction, as well as other taxes such as the flat-rate corporate tax (IETU), tax on cash deposits (IDE), vehicle ownership/use tax (ISTUV), ancillary taxes, and the asset tax (IMPAC), as applicable in different years.

Based on this information, the year-over-year growth rates for each variable are calculated; the rate is estimated as follows:

$$Year - over - year\ growth\ rate = \frac{X_t - X_{t-s}}{X_{t-s}}$$

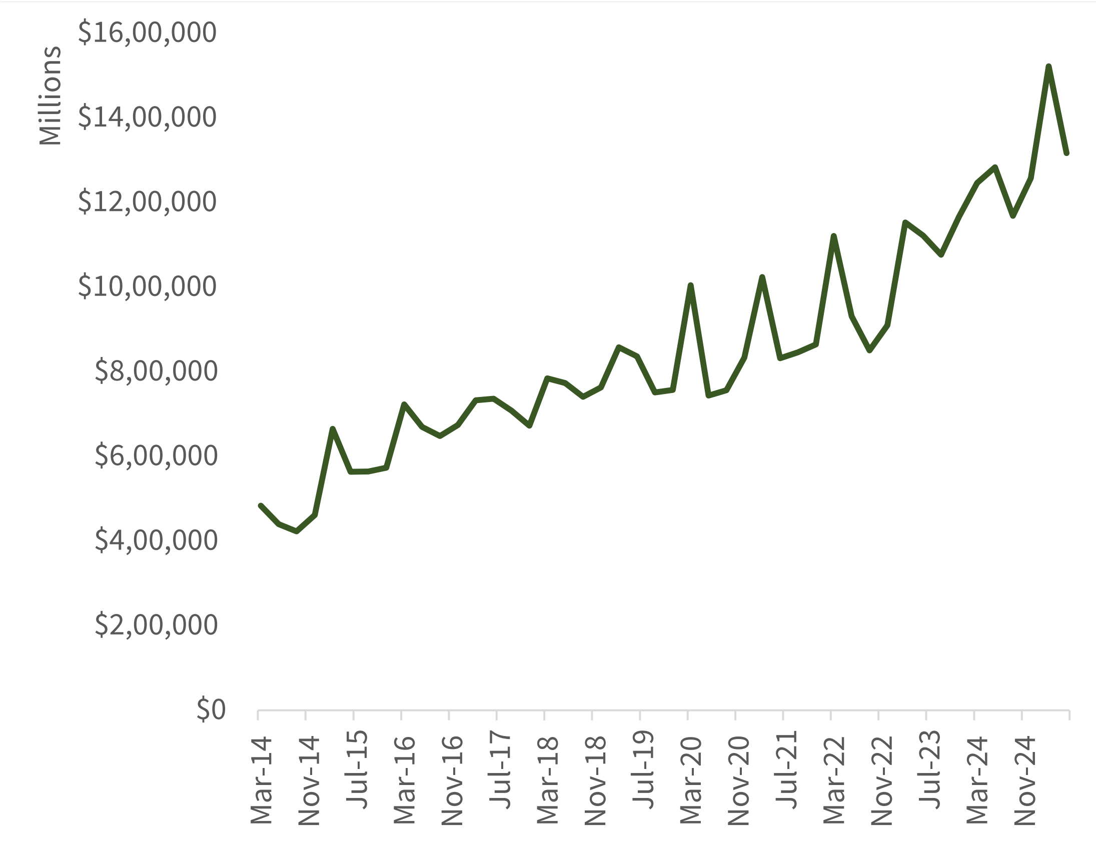
Where:
X_t = value of variable X for the quarter
X_{t-s} = value of variable in the same quarter of the previous fiscal year

For example, considering the *published taxpayers* variable: in the quarter ending March 2014 there were 102,972 published taxpayers, while by March 2015 there were 148,164. Therefore, we have 148,164 minus 102,972 divided by 148,164, which results in 0.439; expressed as a percentage, this gives us a year-over-year growth rate of 43.9%. The same transformation was applied to all variables, comparing each quarter to the corresponding quarter of the preceding fiscal year.

The relationship of the target variable—Federal Government Tax Revenue—was identified using open data from SAT (2025). The remaining variables constitute explanatory variables, with COVID-19 added as an additional explanatory variable to account for its impact from the second quarter of 2020 through the first quarter of 2021.

During the period analyzed, sustained growth in the Mexican Federal Government's tax revenue was observed; particularly noteworthy is the stability of this revenue during the COVID-19 pandemic, followed by continued growth in subsequent years.

Graph 2
Federal Government Tax Revenue



Source: Compiled by the author using open data from the SAT, available on the SAT website (2025).

The results confirm the negative impact of the COVID-19 shock, as it is clear and quantifiable; on the other hand, technological and traceability measures, as well as transparency initiatives (electronic receipts, compliance monitoring, and increased public disclosure), show a positive association with higher revenue growth. Therefore, policies that promote electronic invoicing and targeted enforcement actions appear effective, as does transparency regarding taxpayers with irregularities (those publicly disclosed) so that other taxpayers can identify them.

Negative effects are identified for “Taxpayers who obtained their first certificate” and “Active taxpayers,” which must be thoroughly investigated, with particular attention paid to the registration of new taxpayers, as these may be related to various unusual behaviors such as: the length of time they remain active as taxpayers, their relationship with other taxpayers, and their participation as shareholders or business partners, the relationship between their tax addresses and their physical locations, the transactions they carry out, as well as the volumes and amounts they invoice, among others. In this regard, there could be an influx of taxpayers who reduce tax revenue as potential simulators of transactions; therefore, it would be necessary to strengthen monitoring of the taxpayer registry and the analysis of electronic invoicing data.

The model explains a substantial portion of the variation in federal tax revenue because the selected variables account for between 47.2% and 58.8% of the variation in tax revenue.

The main findings of the model include the following:

- Covid-19: A 1 percentage point (p.p.) increase in the Covid-19 variable is associated with a ≈0.18 p.p. decline in the revenue growth rate. In economic terms: pandemic-related shocks reduce tax revenue.
- Published taxpayers: a 1 p.p. increase in the number of published taxpayers is associated with an increase of ≈0.12 p.p. in the revenue growth rate. This suggests that greater transparency/visibility is correlated with higher tax revenue.
- Number of payments: no significant results are obtained; there is insufficient evidence that changes in the number of payments affect revenue growth.
- In-depth monitoring activities: each additional 1 percentage point in this variable increases the revenue growth rate by approximately 0.0048 percentage points; the effect is small in magnitude.
- Compliance enforcement actions: These have a moderate positive effect, as an additional 1 percentage point is associated with a +0.05-percentage point increase in revenue growth. This could indicate the relative effectiveness of compliance actions on tax collection.
- Total number of tax audits: This has a marginal effect, indicating a possible positive effect of small magnitude; further analysis of this result is needed.
- Electronic receipts indicate that a 1 percentage point increase in electronic invoicing growth is associated with approximately a 0.45 percentage point increase in tax revenue growth. This result is consistent with the fact that greater use of receipts improves traceability and tax collection; furthermore, its effect is relevant and significant. This is consistent with evidence showing that electronic invoicing has increased tax revenue, according to Barreix et al. (2025).
- Taxpayers who obtained their first e-signature certificate have a negative and significant effect, as a 1 percentage point increase in new certificates is associated with a –0.14 p.p. decrease in revenue growth. This could indicate that increases in new certificates may coincide with administrative regularizations or the inclusion of taxpayers with a low tax base who initially lower the average, or it may measure a phenomenon such as the incorporation of taxpayers who reduce the tax base.
- Active taxpayers: the results indicate that a 1 percentage point increase in active taxpayers is associated with a –0.73 percentage point decrease in revenue growth. This could suggest a change in the composition of taxpayers (more low-revenue taxpayers) or the inclusion of taxpayers who reduce the tax base.

CONCLUSION

The study's findings confirm that publishing lists of taxpayers in tax noncompliance has a positive effect on tax revenue collection by encouraging voluntary compliance and transparency. Technological measures such as electronic invoicing and targeted monitoring also show a significant association with revenue growth.

However, negative effects on the registration of new taxpayers are identified, suggesting that some may be linked to sham practices or have a low tax base. The statistical model explains between 47.2% and 58.8% of the variation in tax revenue, validating the hypothesis that the public visibility of non-compliant taxpayers influences the tax behavior of others; it is recommended to strengthen traceability mechanisms, taxpayer registry cleansing, and risk analysis to prevent new registrations from negatively affecting tax collection.

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TECHNICAL APPENDIX

Correlations with the explanatory variable

Pearson's correlations between the various explanatory variables and the dependent variable are analyzed, using the following formula for sample data.

$$r_{xy} = \frac{\sum_{i=1}^{n} (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{n} (x_i - \bar{x})^2} \sqrt{\sum_{i=1}^{n} (y_i - \bar{y})^2}}$$

Where:

X_i = Variable X; Yi = Variable Y; r_{xy} = Pearson's correlation coefficient, which takes values between –1 and 1, indicating a negative or positive linear relationship.

Table 2 shows the results of the Pearson correlation between the dependent variable and the independent variables.

Table 2
Correlation between the independent variables and federal government tax revenue

Variables	Federal Government Tax Revenue
Federal Government Tax Revenue	100%
In-depth monitoring activities	45%
Published on compliance lists	29%
Taxpayers (excluding wage earners)	28%
GDP at nominal prices	28%
Compliance monitoring activities	24%
Active taxpayers	15%
Digital tax receipts	14%
Number of payments	6%
Enhanced audit activities via Mailbox, Letters, Mail, and calls	2%
Total audit engagements	1%
Recorded tax debts	–5%
Taxpayers who obtained their first e-signature certificate	–14%
COVID-19	–35%

Source: Author's compilation using open data from SAT (2025) and unadjusted quarterly GDP data with a 2018 base year from INEGI (2025), with estimates performed in Colab (2025).

Correlations between explanatory variables

Pearson correlations among the explanatory variables were identified to determine which ones should be excluded from the linear regression. Table 3 presents the main correlations, which reveal that the variables "Covid19" and "*Taxpayers who obtained their first e-signature certificate*" are highly correlated with GDP at nominal prices; therefore, these variables were removed. Furthermore, there is a strong relationship between active taxpayers and taxpayers excluding wage earners, leading to the exclusion of the wage earners variable.

Table 3
Higher correlations among the explanatory variables

Correlation	Covid-19	Taxpayers who obtained their first e-signature certificate	GDP at nominal prices
Covid-19	1.00	–0.51	–0.64
Taxpayers with a first e-signature certificate	–0.51	1.00	0.61
GDP at nominal prices	–0.64	0.61	1.00
Correlation	**Number of Payments**	**Enforcement actions**	
Number of Payments	1.00	0.65	
Compliance monitoring actions	0.65	1.00	
Correlation	**Active taxpayers**	**Taxpayers (excluding wage earners)**	
Active taxpayers	1.00	0.91	
Taxpayers (excluding wage earners)	0.91	1.00	

Source: Author's compilation using open data from SAT (2025) and unadjusted quarterly GDP data with a 2018 base year from INEGI (2025), with estimates performed in Colab (2025).

To assess the significance of the "published taxpayers" variable on tax revenue, an ordinary least squares model was generated, as shown in Table 4. Although this model explains very little of the variation in tax revenue—with an R-squared of 0.09 (adjusted 0.06)—which indicates that approximately 6–9% of the variation is explained by the published taxpayers variable; furthermore, the model's p-value of 0.06 generally indicates that the regressor has an effect slightly above the conventional threshold of 0.05. However, the model supports the main hypothesis that the list published under Articles 69 and 69B has an impact on tax revenue, and therefore a regression with all explanatory variables was subsequently performed.

Table 4
Results of the linear regression model based on the list of publications cited in Articles 69 and 69B

Dep. variable:	Federal Government Tax Revenue	R-squared	0.09
Model:	Ordinary Least Squares	Adjusted R-squared	0.06
Method:	Least Squares	F-statistic	3.7
Observations:	42	Prob(F-statistic)	0.06
Residual term:	40	Log-likelihood	38.9
Model term:	1	AIC	–73.9
Covariance type:	Robust	BIC	–70.4

Variable	Coefficient	Standard error	t	P>|t|	[0.025	0.975]
constant	0.0839	0.0021	4.042	0	0.042	0.126
Published	0.1194	0.062	1.923	0.062	–0.006	0.245

Omnibus	3.948	Durbin-Watson	1.13
Prob (Omnibus)	0.139	Jarque-Bera (JB)	3.06
Skewness	0.653	Prob (JB)	0.22
Kurtosis	3.201	Cond. No.	4.33

Source: Compiled by the author using data from SAT (2025) and INEGI (2025) via Colab (2025).

In the regression model with all explanatory variables shown in Table 5, it can be observed that a substantial portion of the variation in federal tax revenue is explained, with an R-squared of 0.588 and an adjusted $R^2 = 0.472$; furthermore, the overall test of the model as a whole is significant ($F = 5.079$, $p = 0.00027$). The residuals exhibit normality and no evidence of autocorrelation. However, the high Condition Number (639) suggests potential collinearity among the predictors; nevertheless, the model yields relevant results. Since all variables are measured as year-over-year growth rates (%), the interpretation of the coefficients is straightforward in terms of approximate elasticities: a one-percentage-point increase in an independent variable corresponds to a change in the tax revenue growth rate equal to the estimated coefficient.

Table 5

Results of the linear regression model including all variables, except those with high multicollinearity

Variable Dep.	Federal Government Tax Revenue			R-squared		0.588
Model	Ordinary Least Squares			Adjusted R-squared		0.472
Method:	Least Squares			F-statistic		5.079
Observations	42			Prob(F-statistic)		0.00027
Residual term	32			Log-likelihood		55.71
Model term	9			AIC		–91.42
Type of covariance	Robust			BIC		–74.04
Variable	**Coefficient**	**Standard error**	**t**	**P>|t|**	**[0.025**	**0.975]**
Constant	0.1244	0.034	3.623	0.001	0.054	0.194
COVID-19	–0.1789	0.053	–3.388	0.002	–0.286	–0.071
Published	0.124	0.053	2.325	0.027	0.015	0.233
Number of payments	–0.0011	0.001	–1.38	0.177	–0.003	0.001
In-depth audits	0.0048	0.002	2.575	0.015	0.001	0.009
Compliance audits	0.0515	0.02	2.543	0.016	0.01	0.093
Total audits conducted	0.0519	0.03	1.752	0.089	–0.008	0.112
Electronic receipts	0.4463	0.201	2.218	0.034	0.037	0.856
Taxpayers with first e-signature certificate	–0.1399	0.04	–3.461	0.002	–0.222	–0.058
Active taxpayers	–0.7319	0.325	–2.251	0.031	–1.394	–0.07
Omnibus		3.948		Durbin-Watson		1.131
Prob (Omnibus)		0.139		Jarque-Bera (JB)		3.055
Skewness		0.653		Prob (JB)		0.217
Kurtosis		3.201		Condition Number		4.33

Source: Compiled by the author using data from SAT (2025) and INEGI (2025) via Colab (2025)

Location of published taxpayers

The list of non-compliant taxpayers and those engaged in simulated transactions is currently available to the public at www.sat.gob.mx, under the Procedures and Services menu, in More Procedures and Services, under the Risk or Vulnerable Activities section. Users can consult the information based on the alleged grounds for non-compliance, including taxpayers who have been issuing receipts without possessing the assets, personnel, infrastructure, or material capacity—directly or indirectly—to provide the services or to produce, market, or deliver the goods covered by such receipts.

The information is publicly accessible, and the database compiled for this study is available on GitHub:

https://github.com/aurevoir82/Publicados

Criminal-Tax Risk Management and Corporate Integrity: Proposal for a Fiscal Integrity and Transparency Registry (RITFI)

Agustina María Ortiz Dendarys

SYNOPSIS

This article examines the scope of Article 19 of Law No. 27,430 (2017) and proposes the creation of the Fiscal Integrity and Transparency Registry (RITFI) as a tool to objectively evaluate taxpayers' fiscal behavior. The proposal is based on OECD standards, the RITE model of Argentina (Registry of Integrity and Transparency for Companies and Entities), and international compliance experiences. The study develops verifiable indicators, risk matrices, and assessment criteria applicable in both administrative and judicial settings. RITFI would make it possible to distinguish technical errors from intentional misconduct, direct criminal prosecution toward more serious cases, and provide greater predictability, institutional efficiency, and legal certainty.

KEYWORDS: Corporate Criminal Tax Liability, Integrity Programs, RITE, OECD Compliance Standards, Law No. 27,799, RITFI.

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The opinions expressed herein are strictly personal and academic and do not represent the institutional position of ARCA (Agencia de Recaudación y Control Aduanero).

INTRODUCTION

Argentina's criminal tax system faces a structural dilemma: while the tax administration must prosecute intentional conduct with significant revenue impact, it must also avoid unnecessary criminal investigations arising from mere errors, technical divergences, or reasonable interpretations.

Article 19 of the Criminal Tax Regime (Law No. 27,430) was designed to provide a rational safeguard: it allows the authority not to file a criminal complaint the obvious emergence that the punishable conduct has not been verified, whether due to interpretative or technical issues, or the absence of objective elements evidencing intent.

This safeguard has recently been strengthened by Law No. 27,799 (Official Gazette, Jan. 2, 2026), known as the "Tax Innocence Law," which reformed the Criminal Tax Regime by expanding, notably, the grounds for not filing criminal charges through the addition of subsections (c) and (d) and by enshrining a framework for voluntary compliance in law[1]. This new scenario underscores the relevance of the tool proposed here: the greater the number of scenarios in which the enforcement officer must assess whether the taxpayer's conduct warrants a criminal complaint, the greater the need for objective, standardized, and verifiable criteria that make it possible to distinguish and predict—to the extent possible—whether a particular conduct is subject to criminal liability.

This paper proposes a specific public policy based on current regulations (Articles 13 and 19 of the RPT): the creation of the Fiscal Integrity and Transparency Registry (RITFI), an institutional tax compliance mechanism that could be managed by ARCA, inspired by the RITE (Anti-Corruption Office under Law 27,401), international models of corporate criminal compliance (Spain, Italy, the United Kingdom, Chile, the U.S.), and OECD standards.

The RITFI would allow:

- establish objective criteria for assessing intent, whether in administrative or judicial proceedings,
- distinguish between criminal and tax risks, either as a basis for exemption from liability or as a factor in applying the discretionary prosecution principle or mitigating the penalty,
- provide clarity regarding the application of Article 19,
- recognize best business practices,
- strengthen tax crime prevention without legislative reforms.

The hypothesis is clear: the existence of a validated tax compliance program provides relevant evidence for ruling out intent and streamlining criminal proceedings, thereby improving institutional efficiency and legal certainty.

Thus, this paper argues that it is essential to establish an institutional mechanism that allows for the distinction between technical errors and intentional misconduct and streamlines criminal prosecution. To this end, it proposes the creation of the Fiscal Integrity and Transparency Registry (RITFI), a verifiable system based on OECD standards that would serve as objective

1 It should be noted that, at the time of writing, the aforementioned law was still a bill. Consequently, the necessary updates were made to reflect the changes brought about by the implementation of this new regime, which also reinforces the hypothesis previously put forward.

evidence for the application of Article 19 of the Criminal Tax Regime (RPT), thereby improving the predictability and targeted application of punitive measures.

To this end, we will outline the current regulatory framework, examine comparative experiences, and present our proposal along with its resulting legal implications.

1. COMPARATIVE EXPERIENCES

Given that the conditions are in place to develop a compliance program in accordance with current regulations, as outlined in Principle 2 of the "Ten Global Principles for Combating Tax Crimes" (OECD, 2021); the Seoul Declaration of September 14 and 15, 2006; the Maturity Model for the Investigation of Tax Crimes; and the guidelines on the design of national strategies against tax crimes (OECD, 2019); these call on us to develop a strategy for tax crimes, adopt preventive, risk-based approaches, and strengthen interagency cooperation and transparency in tax administration, in accordance with the objectives of tax administration performance management as set forth in the TADAT, noting that the latter could be administered by the Tax Authority.

Thus, the RITFI, through the analyzed guidelines, would develop objective indicators on organizational behavior to distinguish technical errors from intentional conduct in line with a strategy to combat evasion, prioritizing cases according to severity, intent, repetition, and compliance structure.

Furthermore, the OECD advocates that corporate compliance and ethics programs be considered when assigning criminal and administrative liability. A taxpayer's ability to demonstrate that they have a robust tax compliance system in place can be decisive in determining whether or not there was fraud or artifice, as required by Argentine criminal tax law.

Likewise, the RITFI can be articulated with the standards of transparency and predictability required within the framework of the Incentive Regime for Large Investments (RIGI). This regime, recently introduced as a tool to promote economic development, provides tax, customs, and foreign exchange benefits to large-scale investment projects, if standards of legality and transparency are met.

In this sense, adherence to the RITFI could become an additional parameter of trust and compliance for companies interested in joining the RIGI, as well as for those that, when not complying with these standards, can be recognized as a good practice or reputational condition to access certain benefits. This articulation would make it possible to coordinate the axes of tax compliance, institutional integrity, and investment attraction in a common framework of legality and sustainable development.

In summary, both the OECD strategy and the RIGI agree that a modern and efficient tax system requires tax administrations capable of managing risks, recognizing voluntary compliance, and directing their resources to the most serious cases. The RITFI would operate as an operational bridge between these international demands and the local institutional reality, which also includes smaller business structures.

Based on comparative experience this is the situation we find ourselves in:

Country/ Regime	Regulations	Nature of the *compliance*	Effects on criminal/ administrative liability	Distinctive notes
Spain	UNE 19602 (Technical standard for Tax Compliance)	National technical standard, voluntary, but highly referential	Exculpatory or mitigating if the effective implementation of the system is proven	Model based on tax risk management; reference for judges and administration
Italy	Legislative Decree 231/2001	System of organization and management models	Full exemption if the model was adequate and effective; reduction of penalty if it was implemented late	A strong conceptual foundation in "organizational fault liability"
United Kingdom	Criminal Finances Act 2017	*Compliance* to prevent facilitation of tax evasion	Strict corporate criminal liability, with defense based on reasonable procedures	Introducing the "failure to prevent tax evasion offense"
Chile	Law on Economic Crimes N° 21.595 (2023)	Integrated corporate management systems	Exemptions and mitigations by appropriate compliance programs	Extends corporate criminal liability to tax and economic crimes
United States	DOJ Guidelines + Programs of Corporate *Compliance* (practice-based)	*Compliance* as a "bargaining chip"	No criminal prosecution (declination) if cooperation, restitution, and robust implementation of the program are demonstrated.	Highly discretionary system; negotiated on a case-by-case basis with the prosecutor

Consequently, and based on the generic analysis conducted in the respective countries, we arrive at the following conclusions:

(i) the importance of a national technical standard (e.g., UNE 19602).

(ii) the express recognition of corporate criminal liability (e.g., it is contemplated in all the countries mentioned).

(iii) defenses based on previous *compliance*.

(iv) independent oversight; and,

(v) systems that were implemented progressively, starting with mitigation and moving towards exemptions.

In this situation, under the guidelines of experience and comparative regulations, we set out to propose the basis of the RITFI.

2. CURRENT REGULATORY FRAMEWORK

2.1. The criminal liability of legal entities Criminal Tax Regime

The criminal liability of legal entities requires a simultaneous analysis in its substantive and procedural aspect, since only the integration of both levels allows us to understand its scope in the Criminal Tax Regime.

In the procedural aspect, jurisprudence has been adapting the rules originally intended for human persons, an evolution consolidated in Title VI of the

Federal Criminal Procedural Code, which specifically regulates proceedings against legal entities.

From the substantive point of view, the responsibility of the entity – whether public or private – is based on its "own act", consisting of the organizational defect that facilitates the commission of the crime and, through the provisions of articles 13 and 14, own sanctions are established—suspension of activities, forfeiture of benefits, revocation of legal personality, publication of the sentence—and criteria for grading them, mainly linked to the existence or absence of internal controls and the surveillance capacity of the organization. For its part, the applicable limitation period must be calculated in accordance with the penalty provided for the basic offense, even if such penalties are not materially applicable to the legal person.

Finally, Law No. 27,401—although inapplicable directly to tax crimes – introduced a relevant paradigm shift: it installed the notion of self-regulation, integrity programs and organizational responsibility, which has been taken as an interpretative guideline also in criminal tax matters, especially in cases where the internal structure of the entity, its control mechanisms and due diligence are decisive to evaluate its ability to prevent or facilitate the commission of the crime. Establishing a specific registry (RITE).

This regulation is what allows us to make progress in designing the criminal tax regime and in accordance with the guidelines of art. 19, a specific compliance program, and necessary given the recent expansion of foreseen assumptions.

2.2. Article 19 of the Criminal Tax Regime (RPT)

This regulation provides for those cases in which the formulation of a criminal complaint will not correspond. Thus, in the elevation of the project that is currently in force under Law No. 27,799, it was indicated that an attempt was made to *"[...] To rationalize the current criminal tax regulations in order to order the exercise of the punitive power of the National State, directing it to punish in a proportional, effective and targeted manner those behaviors that imply a real and significant damage to the public treasury and social security systems. This means leaving behind a disproportionate sanctioning structure, which criminalizes minor infractions with equal severity as large evasion artifice, and adopting an approach that prioritizes prevention, the recovery of resources and equity in the treatment of taxpayers."* (Chamber of Deputies of the Argentine Nation, 2025). A guideline that we consider relevant for defining the integrity program in terms of the risks to be considered and resources to mitigate them.

Beyond the purpose outlined above, at present—and in the absence of the provisions envisaged under Law No. 27,430, given that it is a procedural statute and in the context of tax amnesties in that period—this concept has an antecedent in Article 19 of Law No. 24,769, in which the concept of an "artifice" was explored in greater depth. In this regard, it was determined that there was no artifice in the case of a difference in the interpretation of the law when a consultation was made with the tax authority; the immediate deposit made prior to the notice of assessment in cases of breach of duty; the inference of intent based on presumptions, rather than on external and concrete facts constituting the artifice, scheme, concealment, or deception capable of misleading the tax authorities (Ortiz Dendarys A., 2019).

2.2.1. Assumptions provided for in art. 19 of the Criminal Tax Regime (RPT)

Following the entry into force of Law No. 27,799, four provisions are established that allow for the decision not to file a criminal complaint, namely:

a) the obvious emergence that the punishable conduct has not been verified (due to the factual circumstances or behavior of the taxpayer that involves a matter of regulatory interpretation or technical accounting aspects of settlement).

b) when the tax or social security assessment is based on the presumptions set forth in the relevant procedural laws, without any other evidence to substantiate the alleged unlawful act.

c) when the taxpayers have expressed, in a well-founded and duly justified manner, the interpretative and/or technical-accounting settlement criterion, by formal presentation to the collection agency, prior to or simultaneously with the presentation of the return, provided that the invoked criterion does not turn out to be a means aimed at misrepresenting the tax base; and,

d) when the submission of original and/or corrective tax returns has been made before there is notification of the start of inspection.

Regarding the first of these, the inclusion of "manifestly" is noteworthy, meaning that it must be clear, evident, or obvious, so that there should be no remaining issues of fact and evidence to be clarified, and that there must be reliably established facts that, in a clear, evident, or obvious manner, allow the charge to be dismissed as atypical (Criminal, Misdemeanor, and Minor Offenses Appeals Chamber, Third Division, 2018).

Likewise, the "*factual circumstances*", would not arise from a mere obscurity in the rule or a constitutional challenge; the presence of error will be admitted (Supreme Court of Justice of the Nation, 1996)[2] considering the cases in which the taxpayer proved a normal, reasonable, prudent and appropriate behavior to the situation and despite his diligence due to serious and manageable circumstances, he could and should have reasonably believed (Ferré Olivé, 2018), that his action would harm neither the legal precept (National Tax Court, 1961)[3] nor the public treasury Supreme Court of the Province of Buenos Aires (SCJBA, 1982), that is, the tax duty. And, so, analogous to the excusable error provided for by the tax procedure law and can serve as a parameter by virtue of the normative derivation of the Criminal Tax Regime – quality of a special subject, among others-.

Consequently, even if the taxpayer interprets a legal transaction in a way that the tax authorities consider incorrect, and even when said interpretation is disputed regarding its scope and applicability, the modern trend is that it does not give rise to criminal liability, since this type of conduct is borderline from the perspective of the crime of tax evasion and falls on the edge of the line—even if it does not stem from a direct violation of regulations—but, paradoxically, these are cases that often exhibit a certain degree of formality.

Based on the foregoing, this would not constitute a tax evasion artifice, since, if the issue at hand is the interpretation of tax law, then it is assumed that the subject matter of this task is made explicit; and thus, however unreasonable the criteria used by the taxpayer to determine their tax liability may seem, if the transactions are recorded and accounted for, we are not dealing with a case of tax evasion (Laporta, 2013, pp. 282–284).

Under these circumstances, the following scenarios would apply: (i) the deductibility of bad debt expenses;

2 Where it was stated that "*If the taxpayer did not claim that it was actually and effectively impossible to bring his or her individual conduct into compliance with the requirements of Law 23,549, nor did he or she argue that the provisions of the law were unclear or that the text gave rise to doubts regarding his or her tax status; nor did he or she challenge the reasonableness of the penalty provided for in Article. 7° of the law, The ruling—which, in response to the claim of unconstitutionality, held that the failure to establish the "mandatory savings" was due to an excusable error that should serve as a ground for exemption from liability—is untenable.*".

3 Where it was stated: "*there is an excusable error if the offender's conduct stems from the application of tax rules that are difficult to interpret*".

(ii) the incorrect recognition of depreciation on the balance sheet; (iii) the transfer of funds or assets to third parties in connection with alleged unpaid economic interests; (iv) while the formalities required for VAT payments must be met in order for such payments to be considered valid for tax purposes, a mere violation of these formalities cannot be regarded as a sufficient artifice to establish tax evasion (Ortiz Dendarys A., 2019).

Thus, within the category of issues involving the interpretation of regulations, there are technical adjustments; and under this heading, includes cases where there may be a discrepancy between the taxpayer's interpretation of the elements involved in the tax assessment process and the interpretation ultimately adopted by the tax authority—provided that the taxpayer's interpretation is legally reasonable for the purpose of paying taxes in the manner in which they did so—(Galván Greenway, 2005, p. 2). This is because, in the latter's view, the technical adjustment lacks the element of fraud or artifice required for tax crimes.

In addition, an economic factor—though not the only one—is to be considered when analyzing the punishable conduct.

The second scenario would not be a matter for the integrity program to consider because it falls exclusively within the purview of the prosecuting authority. As can be seen from the case law consulted, a determination based on a presumption is not in itself sufficient for a criminal conviction, but it can support the complaint—since certainty as to the materialization of the offense is not required—and warrant the subsequent initiation of a criminal investigation to verify whether such presumption stems from tax evasion maneuvers, up to and including prosecution (Ortiz Dendarys A., 2019). In this way, these indications – complying with the necessary reliability rules – (Ferré Olivé, 2018) must be analyzed in accordance with the constitutional principles governing substantive and procedural criminal law.

The incorporation of subparagraph (c) clearly represents the potential of Article 19 as a platform for *compliance*.

Thus, while subparagraphs (a) and (b) operate as *ex post* evaluations: the collecting agency retrospectively analyzes whether the conduct was punishable or whether the adjustment was based exclusively on presumptions. Subparagraph (c), on the other hand, introduces an ex-ante transparency mechanism. It invites the taxpayer to adopt a proactive behavior by externalizing his judgment before the conflict arises. And that logic, the registration in advance, is that of integrity programs. The coincidence is not accidental: prevention is the axis of all *compliance*.

In addition, the paragraph requires formality and substantiation: a generic statement is not enough. The externalization must be "founded and duly justified", through "formal presentation". In practice, this requires the taxpayer to conduct a documentation and analysis exercise that similarly replicates the structure of a compliance program: identify the interpretative risk, evaluate alternatives, adopt a well-founded position, and leave a record. Those who already have internal tax review protocols can comply with this requirement; those who do not have them will be incentivized to implement them.

Another relevant aspect: subparagraph (c) universalizes a mechanism that until now existed only for a specific regime. In fact, as we noted in our analysis of the Large Investment Incentive Regime (Ortiz Dendarys A., 2025), Law No. 27,742 already provided for the disclosure of the criterion as a ground for non-prosecution but limited to offenses under the RIGI and subject to an additional regulatory provision—Art. 106 of Decree 749/2024—. The reform extends this possibility to the entire criminal tax regime, without limitation of the applicable criminal type. The fact that, in the event of a conflict with the specific regime, it would be necessary to determine whether the later provision or the special provision prevails does not alter the substance of the matter: the mechanism is no longer the exclusive feature of a special regime but rather a general tool of the system.

Ultimately, the limit is the misrepresentation of the tax base. This concept, which differs from the approach taken in Article 1 of the RPT, constitutes a gray area that warrants clarification. Consequently, and for the purposes of eligibility for an integrity program, it is proposed that there be three categories: reasonable interpretation, which triggers protection and precludes a complaint; misrepresentation, which precludes eligibility but does not necessarily constitute a crime; and a deliberate artifice, which constitutes a criminal offense. A robust fiscal integrity program would be, precisely, the instrument to prove that the conduct is in the first zone (Ortiz Dendarys A., 2026).

Regarding the last subparagraph, this safeguard operates on a temporal basis, regardless of payment; as stated explicitly, it remains in effect until notification of the commencement of the audit.

From the point of view of compliance, this subsection rewards something that integrity programs promote as a central value: self-detection and spontaneous correction. An effective system of internal controls (including regular audits, reconciliations between accounting and tax records, and pre-review protocols) objectively increases the likelihood of detecting errors before the tax authority initiates an audit. The link between the quality of internal controls and protection against criminal prosecution is thus direct.

In comparative law, this logic recognizes a relevant antecedent in the self-declaration (Selbstanzeige) of the German Tax Code, which allows the taxpayer who voluntarily declares the omitted income and pays the debt in full to be exempted from criminal liability (Cordero González, 2007, pp. 80–88). But the Argentine model goes further: it does not require payment as a condition, further reinforcing the value of declarative spontaneity. It remains pending, of course, to define how this will play out in practice with the duty to denounce in art. 18, a circumstance that we will address in the next chapter.

Thus, in accordance with the provisions outlined above, the necessary procedures can be established to determine whether a particular conduct is reprehensible, thereby identifying and mitigating related risks.

2.2.2. The well-founded decision (in certain cases), the duty to report, and the Prosecutorial discretion under the Federal Criminal Procedure Code

Since the amendment by Law No. 27,799, not all paragraphs have the same procedural procedure.

Thus, the law itself excludes paragraphs c) and d) from the requirement of a well-founded decision with the opinion of the corresponding legal service, a requirement that is maintained only for paragraphs a) and b). Which seemed to imply that they are verifiable by objective criteria: does a formal presentation exist? Does it precede the tax declaration or the notice of audit? This structure naturally lends itself to the logic of compliance, where objective documentary evidence replaces subjective assessment. However, we consider that in the case of subparagraph (c), if the externalization refers to a question of regulatory interpretation or accounting technicalities—that is, if it converges with subparagraph (a), the issuance of an opinion would be relevant. Subparagraph (d), on the other hand, does not require this because it has an objective cutoff point. The legislator seems to have modulated the intensity of the control according to the complexity of the case, which is consistent with a model that rewards documented transparency.

However, given the new legislative provisions that have been incorporated, it is considered good practice to implement these provisions in accordance with current regulations.

In this way, Disposition No. 192/2018 (AFIP) provides for the existence of an opinion prepared by the legal area that we believe will clearly indicate the fraudulent adjustment, the obligated party or parties, those responsible in the terms of art. 13 of the RPT, the ordering of actions on a temporary basis, and the criminal offense or offenses (tipo penal) to be taken into consideration for the case.

At this point, the existence of the integrity program and its compliance in each specific case would be part of the analysis.

However, this circumstance cannot be analyzed without considering the duty of public officials or employees to report any crime that can be prosecuted ex officio, provided they became aware of the event in the exercise of their functions [art. 177 inc. 1 of the CPPN; art. 237 inc. (a) of the CPPF]. The event giving rise to the duty to report under art. 18 of the RPT arises only once there is possession of data that is more or less objective, specific, and substantiated, derived from the ex officio determination of the tax debt, from the administrative decision on the challenge to the social security debt assessment notices, or once the administrative authority has formed the conviction that the alleged offense was committed. The aforementioned provision works as a guarantee for the officials and employees of the collection agencies. However, in the case of administrative conviction when no administrative determination of the debt is required—see the second paragraph of art.18 of the RPT-, It does not make it possible to determine with certainty when the obligation to report these crimes arises, as the scope that the legislature has assigned to this provision is unknown. In this regard, the statement made by the then Director of the General Directorate of Taxation, Aldo José Codevilla in the Committee on Criminal legislation, budget and finance is significant, "[...] *This appears to reinforce the obligation already contained in the procedural rule, thereby creating an extremely dangerous situation, as administrative officials might feel compelled to act immediately in compliance with the rule to avoid facing criminal charges in the future for failing to fulfill their obligations as public officials."*

As indicated, in such cases, and under current regulations, the scope of the integrity programme could operate only as a defence, provided the relevant conditions are met—as a defense. However, such a program may be considered as evidence to be admitted into the judicial proceedings and, if appropriate, may be taken into account by the Public Prosecutor's Office as a factor in applying the rules on the disposition of the criminal action (Art. 30 CPPF), among which the prosecutorial discretion stands out (art. 31 of the CPPF); and, where appropriate, by the judge, in terms of the mitigation of the penalty.

3. TAX COMPLIANCE AND THE RITE MODEL

In line with the thesis supported, this section develops the components of the RITFI as an operational instrument to distinguish technical errors from intentional maneuvers.

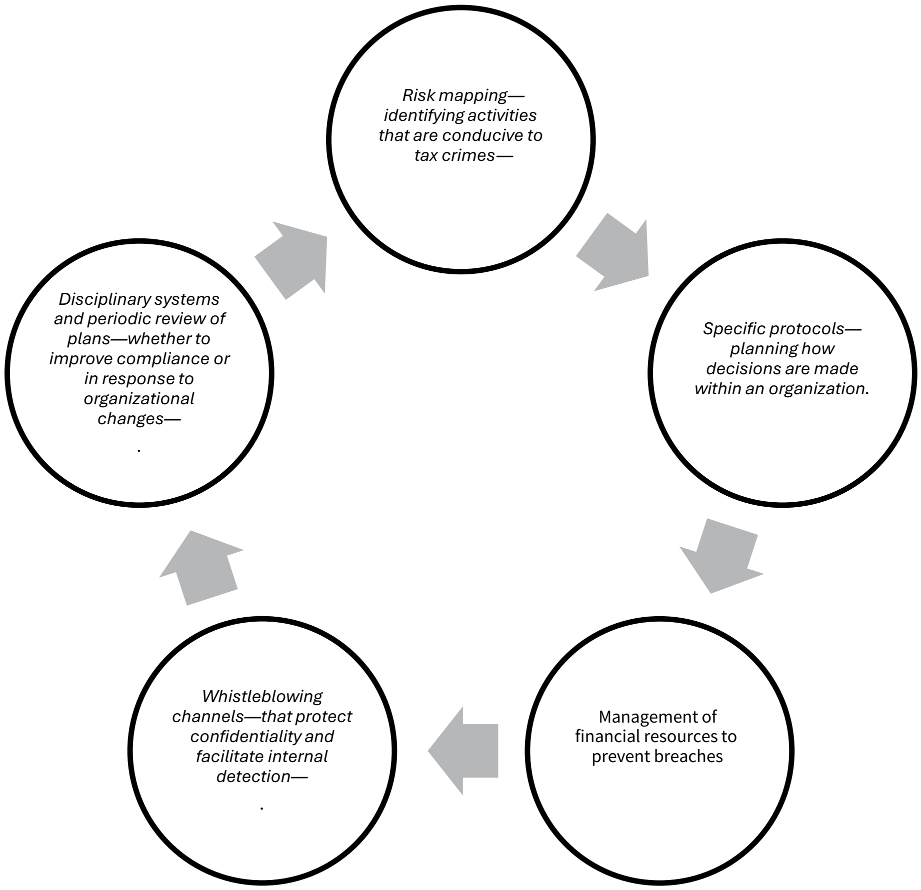
3.1. Design of integrity programs

Based on the analysis conducted in the countries examined, we see that, for the purpose of establishing a fiscal integrity program, these countries include the following components.

Accordingly, taking this into account and based on the available RITE module, the foundations of the RITFI are proposed.

3.1.1. Risk assessment

Risk assessment is fundamental to any regulatory compliance program. Its main objective is to understand



the exposure to risks to make decisions about business management using a risk map.

Thus, it is necessary to identify the activities of the company – so it will respond to the characteristics and nature of the legal entity – and duly declared to the tax authority. From there, and based on these factors, which of them pose a specific risk—along with the corresponding probability of occurrence and categorization—in order to assess their impact in terms of the commission of a criminal act under the criminal tax law (Matallín Evangelio, 2024).

3.1.1.1. Characterization of risk indicators

a) **High Risk:** Behaviors or indicators that reveal a significant probability of fraud, or structures that prevent confidence in fiscal reliability.

- Recurrent use of suppliers or clients included in restrictive lists in accordance with an internal analysis manual (with indexes – after checking in the e-APOC (ARCA's registry of taxpayers flagged for issuing sham invoices) database (registry of fictitious invoices)-, not located, companies without economic substance, with criminal records, or those located in jurisdictions with zero or low taxation).

- Total lack of supporting documentation, destruction of records or parallel records (omission to issue electronic invoicing, waybills, lack of validity of an accounting record).

- Maneuvers to conceal assets, diversion of funds, and unjustified triangulation (lack of traceability of income and expenses, transactions with related companies or entities without a valid financial or business justification, whether they are "shell companies").

- Systematic failure to comply with formal and material duties (failure to register in the tax information systems, compliance with the submission of tax returns, tax requirements, and/or any other incident within the tax authority–taxpayer relationship).

- Relevant divergences without technical-accounting justification (substantial changes in net worth without justification, inconsistent incidence between linked taxes, divergence of affidavits between Value Added Tax and Income Tax).

- Corporate structures of opacity (interposed, without real activity, without economic substance).

b) **Medium Risk:** Situations susceptible to correction, where there are no initial indications of intent, but control failures.

- Incomplete or outdated internal controls (absence of implementation of controls to suppliers, and their updating – does not necessarily imply that it has any of the conditions provided for in the previous section).

- Complex technical differences (transfer pricing, prior-year adjustments, application of the inflation adjustment, tax loss carryforwards, specific tax settlement issues).

- Lack of segregation of duties in the accounting-tax process.

- Isolated errors in documentation or registration.

c) **Low Risk:** Entities with robust controls and evidence of compliance

- Periodic validation of supplier and customer integrity (use of internal manual depending on the company's operations and business typology, updated and applied by a particular area within the supplier contracting process).

- Documented internal tax review protocols (articulated internal control processing mechanism prior to the submission of tax documentation, both substantial and formal).

- Regular internal or external audits.

- Complete and accessible documentary traceability (use of a computer system enriched with tax information with staff specially assigned for these purposes).

- Continuous training of key personnel.

It will also be necessary to indicate which controls or mitigation measures are established based on the quantified risks and the calculation of the residual risk; for which, it is necessary to develop specific indicators through policies and procedures.

3.1.2. Policies and procedures

For these purposes, it is suggested to corroborate the presence of the following indicators based on the previously developed risks.

a) **Internal organization**

- Existence of an internal responsible for fiscal integrity (with defined functions).

The compliance function, or the compliance management system, involves the creation of an internal structure within the company that operates as a second line of defense; its function is to identify and manage compliance with the manuals made. Thus, appointing the person in charge of prevention exercises the functions of surveillance and control autonomously.

- Written protocols for registration, invoicing, supplier, and customer management.

Due diligence procedures before acquiring or partnering with third parties, for the purpose of assessing whether the supplier has economic, operational, and financial capacity.

- Updated tax policy manual.
- Documentation of internal controls and verifications

Protocol for establishing the process of corporate decision-making, decision adoption, and implementation. This circumstance, regarding the imputation of the responsibility of the directors, becomes relevant in the jurisprudence of our country for the purposes of delimiting responsibilities by reversing the burden of proof that the adoption of these controller mechanisms would generate.

Management models of financial resources to prevent them from being used for the commission of crimes. The importance of this mechanism is evident, for example, in case law related to tax evasion offenses—specifically withholding tax violations—where the taxpayer raises claims of necessity, and the courts have held that such claims are not applicable because the tax is owed to a third party and does not form part of the company's assets.

Accounting and documentation controls ensure that all transactions are correctly identified and recorded. Regarding this issue, it becomes relevant to take into consideration the establishment of a specific control for suppliers to mitigate adjustments for apocryphal billing.

b) Fiscal behavior

- Timely submission of returns and payments.
- Index of justified voluntary corrections.
- Number of observations or adjustments without penalty

c) Documentary traceability

- Consistency between accounting and tax records.
- Digital file systems with backup and audit.
- Immediate availability of supporting documentation through a traceable system of interaction between the operations conducted and their consequent tax declaration.

d) Due diligence

- Systematic verification of suppliers (including consultation of the tax agency's bases and the guidelines indicated by General Instruction 1/2017 (AFIP) (MR Consultores, 2017)[4].
- Matrix of risk criteria applied to suppliers and customers (based on the analysis conducted in the verification of suppliers).
- Survey of unusual or significant volume operations.

e) Integrity and control

- Internal or external audits on tax processes.
- Internal complaints channel and mitigation mechanisms.

Reliable and accessible whistleblowing channels that result in an internal investigation protocol and disciplinary regime.

- Certified annual training of the accounting-financial team.

4 Although it is intended for internal use only and is not enforceable against third parties, given the publicity it has received in open sources, it is considered a significant factor in the design of an integrity program.

Training programs on codes of conduct.

There must be a focused, periodic, and documented program, mandatory for all members of the company, including contractors and suppliers. To this end, the models suggest face-to-face sessions, online courses with a final exam and the use of short tests and hypothetical questions as a practical methodology.

As for communication, we suggest the dissemination of standards both internally and externally, advice and guidance.

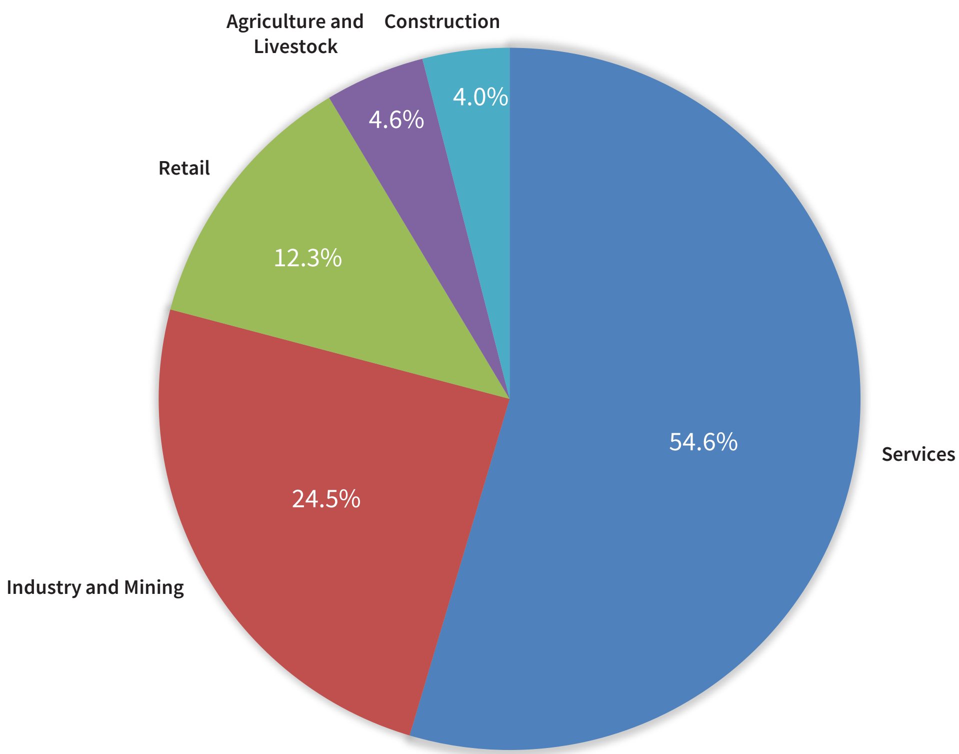
3.2. Operation and validation

Depending on the specifics of the proposed program, we still need to analyze why we believe it is feasible to implement and what its effects will be.

As for its implementation, taking into consideration the signed international agreements and Law No. 27,401, the Integrity and Transparency Register for Companies and Entities (RITE) was created, developed by the Anti-Corruption Office of Argentina, which constitutes a voluntary self-diagnostic tool aimed at promoting good practices in ethics, transparency, and regulatory compliance in the private sector. Thus, its modular structure, in force and validated in practice, allows organizations to evaluate aspects such as the existence of codes of conduct, reporting channels, crime prevention protocols, risk assessments and internal training policies. As can be seen on the website, which includes a simulator, three modules are available: (i) Integrity Program; (ii) due diligence; and (iii) personal data.

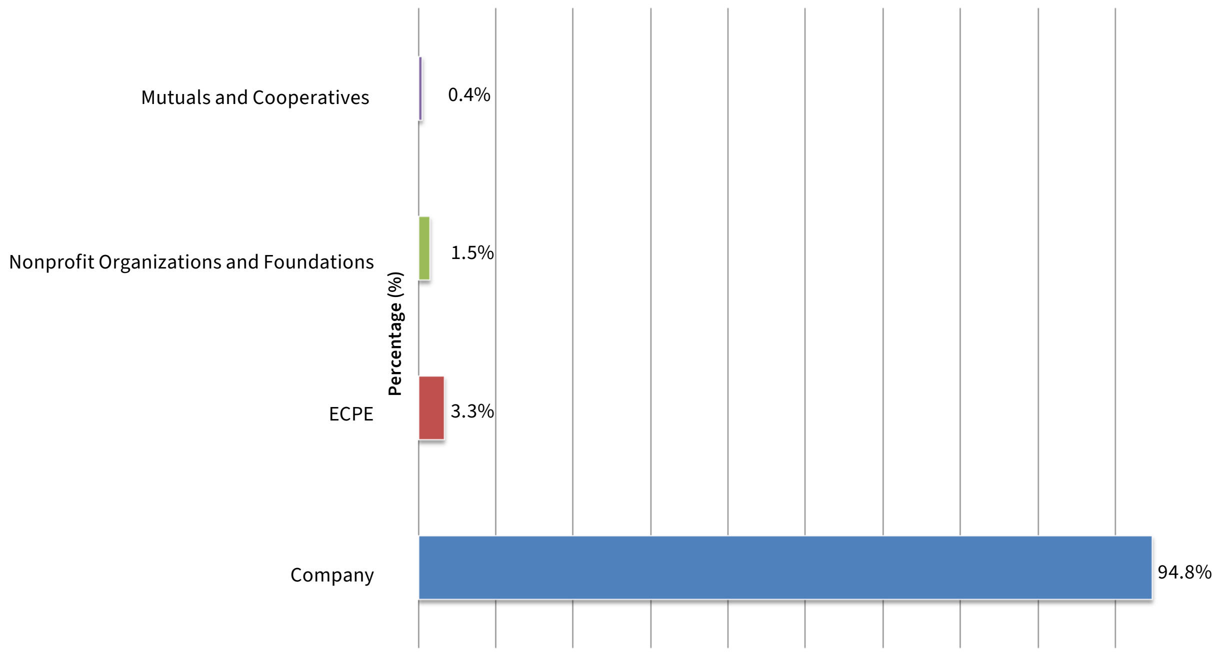
This is the first indication that the implementation of the system in question is feasible; it currently exists and is used by at least 530 companies, as indicated on the Registry's website (RITE, 2025).

Distribution of registered companies by economic activity



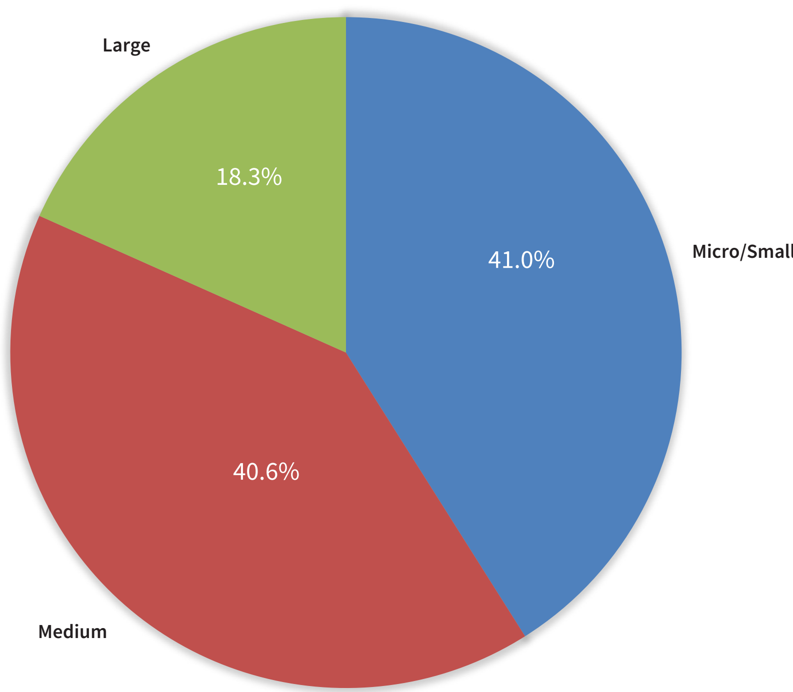
Source: Compiled by the author based on data from RITE — Anti-Corruption Office (accessed on September 30, 2025).

Breakdown of registrants by type of organization



Source: Compiled by the author based on data from RITE — Anti-Corruption Office (accessed on September 30, 2025).

Distribution of Registered Companies by Category



Source: Compiled by the author based on data from RITE — Anti-Corruption Office (accessed on September 30, 2025).

Consequently, the proposal is to include a criminal tax module, which could be established by regulation, pursuant to the delegated authority provided for in Articles 13 and 19 of the Criminal Tax Regime. This is despite the view that the ideal approach would be to implement it as provided for in Law No. 27,401.

Thus, the logic of the RITE is perfectly applicable to the tax context: it identifies standards, promotes self-regulation, provides objective evidence of institutional behavior, and facilitates government oversight from a cooperative perspective; and, in the case of this module, it should cover aspects such as compliance with tax obligations, internal controls over invoicing, accounting records, tax risk management, internal audits, and the existence of policies for cooperation with the tax administration, as outlined in the program design described above.

However, unlike RITE, these programs should be recognized by the tax authority based on the specific nature of the matter, through an institutional validation system.

The RITE experience also demonstrates that it is possible to foster an ecosystem of integrity within the public sector without imposing formal obligations, by using voluntary adherence tools that promote transparency, cooperation, and continuous improvement in corporate compliance.

3.3. Impact

The implementation of this regime could serve as supplementary evidence to establish the taxpayer's good faith or the absence of intent to defraud, particularly in borderline or interpretive cases; consistent with the provision currently in force under Article 19 of the criminal tax regime, it would provide transparency to the proceedings for both businesses and the tax authorities in order to prevent the initiation of criminal proceedings.

Furthermore, this preventive approach is in line with the international trend of linking corporate compliance with mechanisms for mitigating or exempting criminal liability.

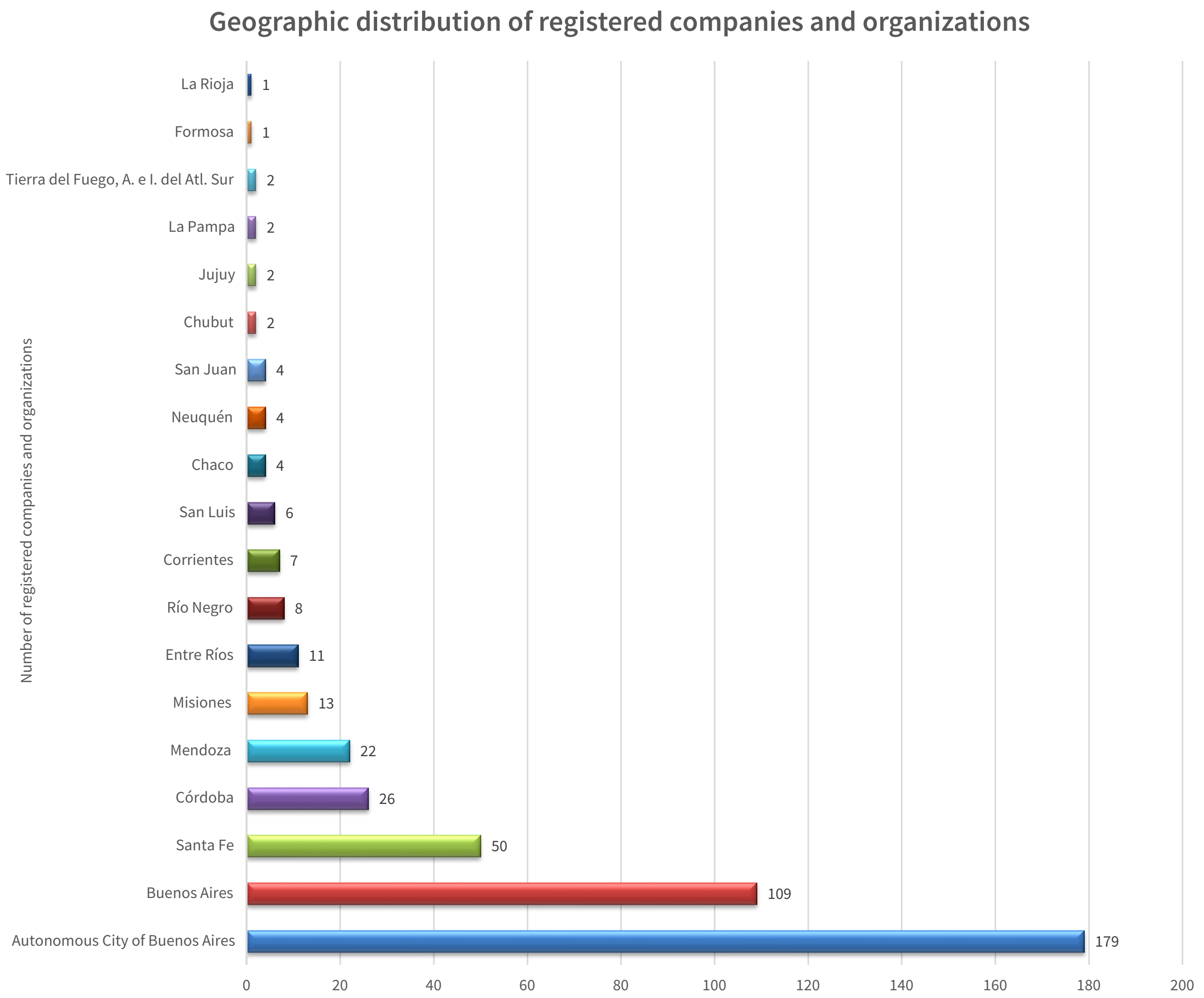
On the other hand, if the analysis of the conduct and the corresponding integrity program does not clearly reveal a lack of criminal culpability, the latter could be used as evidence during criminal proceedings and could influence either the Public Prosecutor's Office's decision to pursue charges (Articles 30 and 31 of the Federal Criminal Procedure Code) or the mitigation of the penalty.

3.4. Coordination between ARCA and OECD advocacy

As we can see from the details of the RITE 400 report (Rite, 2025), its impact at the federal level is much smaller than in the Autonomous City of Buenos Aires and the Province of Buenos Aires. Given ARCA's interaction with the tax module and the fact that this agency has a nationwide presence, this circumstance would imply not only the possibility of giving greater significance to the latter, but also extending the scope of the RITE itself, thereby contributing to the legal predictability and integrity of Argentine companies.

As previously indicated, through the issuance of ARCA regulations (Art. 7 of Decree No. 618 of July 10, 1997; Decree No. 953 of October 24, 2024, and Decree No. 13 of January 6, 2025), the tax module would be created, which will be applicable to those who wish to join that system.

To access the RITFI, taxpayers would submit standardized documentation in accordance with current RITE regulations; it is important to note the need for periodic updates.



Source: Compiled by the author based on data from RITE — Anti-Corruption Office (accessed on September 30, 2025).

The objective is not to certify "good faith" or to exempt taxpayers from audits, but rather to provide both taxpayers and the tax authority with an objective tool for assessing criminal risks and a rational basis for applying Article 19 of Law No. 27,430. In cases of technical disputes, reasonable interpretations, or unintentional errors, the existence of a validated program could serve as evidence of good faith, supporting a well-founded decision not to file a complaint.

In addition, the RITFI would facilitate coordination with other institutional areas and provide input for developing a tax strategy to combat tax crimes and the corresponding manual, as suggested by the OECD, as well as a more precise criminal-tax risk matrix that classifies taxpayers based on their organizational behavior.

From a reputational standpoint, this mechanism would also provide positive incentives: it could be incorporated as a condition or preferential factor in tax incentive programs, public tenders, compliance benefits, or advance rulings.

In short, the RITFI would be a technically, legally, and operationally sound tool for the prevention of tax crimes, improving institutional management without altering the current regulatory framework.

CONCLUSIONS AND RECOMMENDATIONS

The regulatory, comparative, and operational analysis presented here demonstrates that the RITFI is not only consistent with current legislation but also could be an effective tool for delimiting tax intent and guiding the application of Article 19.

Thus, given that predictability and legal certainty are fundamental pillars for a country, the possibility that the tax system—in its punitive capacity—could provide clarity for both taxpayers and the Argentine tax administration through an integrity program appears to be a key tool for exercising more rational, effective, and targeted criminal oversight. In this regard, the creation of the Registry of Fiscal Integrity and Transparency (RITFI) appears to be a viable, innovative proposal aligned with international standards of integrity and risk management.

The (RITFI), designed as a voluntary mechanism for validating tax compliance programs, would allow taxpayers to demonstrate best practices and provide the tax administration with structured information to assess their conduct. This tool reinforces a culture of compliance, improves institutional efficiency, and helps direct the resources of the criminal justice system toward truly fraudulent conduct.

Furthermore, the proposal aligns with OECD recommendations and the investment regime (RIGI), promoting coherence among criminal prevention, tax compliance, and economic development. Its implementation would not necessarily require legislative reforms, but rather institutional will, the development of internal regulations, and a phased implementation strategy.

In short, building a modern tax administration requires preventive, collaborative, and evidence-based tools. The RITFI represents an opportunity to move in that direction, aligning criminal tax law with smart, efficient, and development-oriented public management.

The enactment of Law No. 27,799 (“Tax Innocence Law”) does not weaken but rather reinforces the proposal outlined here. By expanding the circumstances covered by Article 19 of the RPT, the new law increases the number of situations in which the operator must assess whether the taxpayer’s conduct warrants a criminal complaint—and, in doing so, also increases the need for objective, standardized, and verifiable criteria such as those provided by the RITFI.

In this way, the RITFI is not an exception to punitive power: it can serve as its best compass.

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Alternatives to VAT in the Digital Age: The Potential of *Split Payment* for Consumption Taxation in Latin America

Aloisio Flavio Ferreira de Almeida

SYNOPSIS

This article analyzes the feasibility of a sales tax on final consumption with *split payment* mechanisms in Latin America, as an alternative to the operational limitations of traditional VAT. Based on an analytical and comparative approach, the implications of the model in terms of compliance costs, collection efficiency and tax administration capabilities are examined. The study highlights the role of the digitalization of payment systems and the traceability of transactions in the viability of the model, as well as its potential effects on tax evasion. It is concluded that the *split payment* constitutes a promising alternative, the implementation of which requires institutional and technological advances, as well as greater applied research.

KEYWORDS: Value Added Tax (VAT), *split payment*, tax administration, sales tax, digitalization of payments.

CONTENTS

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Consultant and lecturer in taxation, governance, and digital transformation, and former official of the *Receita Federal* (Secretariat of Federal Revenue of Brazil), where he served as a tax auditor and held roles in coordination and strategic advisory. He holds a PhD and a master's degree in public administration and has extensive experience collaborating with international organizations such as CIAT, the IMF, and the World Bank. Currently, he develops research and consulting projects focused on tax reform, compliance costs, fiscal federalism, organizational change, and the digitalization of tax administration. He is also the author of various studies on tax policy and administration.

INTRODUCTION

In recent decades, the Value-Added Tax (VAT) has become the primary model for consumption taxation worldwide. Its adoption by more than 160 countries was due to the promise of neutrality, efficiency in tax collection and fiscal stability. However, the economic and technological environment that supported its hegemony, characterized by analog economies, cash payments and a limited capacity for control, has changed profoundly.

Advances in digital payments, electronic invoicing, artificial intelligence, and programmable currencies are paving the way for simpler, more streamlined, and automated models. In the context of digital transformation and financial integration, the State's ability to collect revenues transparently and efficiently depends on its technological aptitude and on the cooperation between tax administrations and payment systems.

In Latin America, where VAT systems coexist with high compliance costs, multiple exceptions, persistent informality and federal fragmentation, the search for alternative models has ceased to be a merely technical issue and has become an institutional necessity.

In this context, the debate on digitally integrated forms of taxation capable of simplifying the relationship between the State and the taxpayer is gaining momentum. One of the most promising proposals is the retail sales tax with split payment mechanism (RST-SP), a model that applies only to the final transaction and whose collection is automated at the time of payment. Unlike the traditional VAT, this tax eliminates the need for chain accounting and shifts the responsibility for tax collection to electronic payment systems.

Brazil offers an interesting case study. The Constitutional Amendment No. 132/2023 introduced the split payment mechanism as a way to extinguish debts in the new dual VAT, composed of the Contribution on Goods and Services (CBS) and the Tax on Goods and Services (IBS). Although the mechanism was conceived as an anti-fraud instrument, its application has revealed a broader potential: facilitating a medium-term consumption taxation system based on instant financial settlement and interoperability among tax authorities, banks and digital platforms.

This article examines this possibility, proposing a reflection on the technical, economic and institutional feasibility of the RST-SP in Latin America. The analysis starts from the Brazilian case but seeks to identify the regional conditions that allow testing and adapting the proposal, especially in the context of the digitalization of payment methods. It introduces an alternative approach to evolving consumption taxation in Latin America toward a simpler, less expensive, and more transparent model suitable for the digital era.

The text is structured as follows: section 2 presents a historical overview of the global diffusion of VAT; section 3 compares the theoretical foundations of VAT and retail sales taxes (RST); subsequent sections explore the limitations of the current model, technological innovations, transition challenges, compliance costs, and institutional and political aspects. The conclusion summarizes the lessons learned for the region and proposes a research agenda for further study of the topic.

1. HISTORICAL ORIGINS AND GLOBAL DIFFUSION OF VAT

The Value Added Tax (VAT) originated in France in 1954, conceived by Maurice Lauré to replace inefficient turnover taxes that caused cascading effects and price distortions. Its innovation allowed companies to pay taxes only on the value added at each stage, deducting previous tax payments to improve transparency and reduce economic distortions. In this way, the model offered greater transparency, continuous collection and fewer economic distortions (Ebrill et al., 2001).

Its administrative logic was equally attractive. Instead of supervising millions of transactions with final consumers, the State concentrated control on a relatively small number of corporate taxpayers, which facilitated the fight against evasion and ensured a regular flow of income (Bird, 2005). This architecture was particularly efficient in economies with low levels of banking penetration and high informality.

The European Economic Community (EEC) played a decisive role in the consolidation and dissemination of the model. The coordinated adoption of VAT during the 1960s and 1970s aimed to harmonize tax systems and eliminate distortions in intra-Community trade (Cnossen, 2020). From then on, VAT expanded rapidly to Africa, Asia and Latin America, driven by tax reform programs supported by the International Monetary Fund and the World Bank, which promoted it as a modern and efficient collection instrument (Ebrill et al., 2001).

In Latin America, VAT was introduced gradually from the late 1960s, in the context of economic stabilization and liberalization reforms. Brazil established the *Tax on the Circulation of Goods* (ICM) in 1967, inspired by the VAT model, albeit with a limited base. Argentina implemented it in 1975, followed by Chile, Mexico, and Peru, and subsequently by Colombia and Ecuador. Although inspired by the European model, Latin American VAT acquired its own characteristics: higher rates, numerous special regimes and a high degree of litigation. In several countries, the tax was used as a sector-specific policy instrument, therefore losing a portion of its theoretical neutrality. According to Gómez Sabaini, Jiménez, and Rossignolo (2015), the expansion of VAT in the region reflected both the desire for fiscal modernization and a reliance on a model designed for fundamentally different productive realities, which helps explain some of its current vulnerabilities. Table 1 summarizes the position of VAT in selected countries of the region.

Table 1
VAT in Latin America

Country	Year of adoption	Name of the tax	Model and main characteristics	Standard rate (%)	Relevant notes
Argentina	1975	Value Added Tax (*Impuesto al Valor Agregado*)	Consumption-type VAT, with input tax credits; high litigation	21%	Pioneer in LA; significant evasion
Brazil	1967 (ICMS)	ICMS + IPI	VAT fragmented across levels of government, with restricted credit	17–20% (ICMS)	High complexity and litigation
Chile	1975 (reform)	Value Added Tax (*Impuesto al Valor Agregado*)	Modern VAT, broad base, few exemptions	19%	Regional reference model
Colombia	1983 (reform)	Tax on Sales	VAT with extensive use of simplified regimes	19%	Recent reform seeks to unify the base

Country	Year of adoption	Name of the tax	Model and main characteristics	Standard rate (%)	Relevant notes
Ecuador	1970 (formal)	Value Added Tax	Mixed VAT with wide exemptions and sectoral application	12%	Lowest rate in the region
Mexico	1980	Value Added Tax	VAT with exempt zones, zero rate and regional exceptions	16%	Northern borders with reduced rate
Peru	1989	General Sales Tax (*Impuesto General a las Ventas – IGV*)	VAT with municipal component	18%	Includes additional municipal tax

Source: CIATData (www.ciat.org) and national tax legislation.

An interesting contrast is the case of the United States, which has maintained a retail sales tax administered at the state level. Despite its conceptual simplicity, this model faced taxation difficulties in cash-intensive sectors, which reinforced the global preference for VAT for decades (Slemrod & Bakija, 2017).

Currently, with the digitalization of economies and the advancement of electronic means of payment, the justifications that supported the administrative superiority of VAT are beginning to weaken. Technologies such as electronic invoicing (CIAT & BID, 2018), real-time reporting and instant payments make it possible to directly control sales to the final consumer, questioning the need for a fragmented tax across multiple stages (Keen, 2025).

2. THEORETICAL FOUNDATIONS: VAT VERSUS RETAIL SALES TAX

Consumption taxation plays a fundamental role in modern fiscal policy, especially in emerging economies, where income and wealth are more volatile or difficult to control. In this context, two models have been historically consolidated: the value added tax (VAT) and the retail sales tax (RST). Both seek to tax final consumption, but they differ in their structure, the distribution of administrative burdens and the way in which tax compliance is monitored.

The VAT was designed to overcome the practical difficulty of directly taxing final consumption in environments with high informality and low technological capacity. The tax is applied at each stage of the production chain, which allows the taxpayer to deduct the tax paid at previous stages, through a system of debits and credits. This structure guarantees fractional collection, encourages the issuance of invoices and creates a self-enforcing mechanism that reduces tax evasion. Therefore, VAT has become consolidated as a decentralized verification model, in which companies simultaneously function as taxpayers and tax collection agents.

The retail sales tax, on the other hand, applies only to the final sale to the consumer. Its calculation is simple and direct, based on the total value of the transaction. In theory, it is a more transparent and less burdensome tax in terms of compliance. However, in practice, the concentration of collection at the final stage has proven to be vulnerable to evasion, especially in economies with many small informal traders. The International Monetary Fund, in its classic study *The Modern VAT* (Ebrill et al., 2001), considered that this administrative weakness justified the widespread adoption of VAT, especially in developing countries.

With the digital transformation, the conditions that supported this hegemony are beginning to change. The expansion of electronic payments, digital invoices and artificial intelligence have reduced the barriers to tracking sales to the final consumer in real time. The need for fractional collection, previously justified by the impossibility of controlling retail trade, is losing relevance as technological control becomes more feasible and economical. This evolution converges with the OECD's vision of the future in Tax Administration 3.0 (OECD, 2020), which proposes a "frictionless" tax model, integrated with payment systems and digital economic flows, in which collection is conducted in an automated way and practically seamless for the taxpayer.

In this new context, the RST-SP arises as an alternative. The model maintains the impact only on the final transaction, but replaces the self-declaration with the automatic collection, made at the time of payment. Electronic payment platforms separate the amount of the tax and transfer it directly to the tax authorities, reducing the risk of non-payment and simplifying the compliance process. As a result, many of the ancillary obligations, refunds and offsets typical of VAT become unnecessary, which reduces litigation and compliance costs. From a conceptual standpoint, the RST-SP addresses two historical limitations of the traditional retail sales tax: final-point evasion, mitigated by the automation of tax collection; and the fragmentation of tax administration, replaced by the centralized control of payment platforms. This shift transfers the complexity from the company to the financial system, making collection more predictable and less expensive, without altering the principle of impact on final consumption.

A recent study by the International Monetary Fund (Keen et al., 2025) notes that VAT remains the most efficient instrument for ensuring large-scale collection, but notes that its administrative and compliance costs remain high. Indeed, as technology advances, at some point, VAT may become obsolete, as new, more direct forms of collection emerge. The RST-SP fits precisely this scenario, as a plausible hypothesis for tax systems in the process of digitalization, although it requires empirical experimentation and deeper studies before being considered a real tax policy alternative. The following table illustrates the conceptual differences between VAT and a RST-SP.

Table 2
VAT x RST-SP

Dimension	Traditional VAT	RST-SP
Stages of incidence	Multi-stage: it is applied in every link of the production and commercial chain.	Single-phase: applies only in the final transaction with the consumer.
Collection mechanism	Self-declared and based on tax credits and debits.	Automatic: the tax is segregated at the time of payment.
Collecting agent	Corporate taxpayers at all stages of the chain.	Payment platforms or financial institutions.
Risk of evasion	Moderate: depends on cross-checking between credits and debits.	Low: It depends on the automation and traceability of transactions.
Administrative complexity	High: multiple declarations, returns and compensations.	Reduced: eliminates the registration of credits and refunds.
Cash pressure	High: the taxpayer anticipates the tax on the purchase of inputs.	Nil: the tax is collected at the time of the final sale.
Transparency and predictability	Limited: there is a gap between generating events and credits.	High: real-time and traceable collection.

Dimension	Traditional VAT	RST-SP
Technological adequacy	A model designed for analog economies.	A model designed for digitalized economies.
Main challenges	Regulatory complexity, credit fraud and refunds.	Digital infrastructure, financial inclusion and inter-institutional governance.
Expected effects	Maintenance of collection with high administrative cost.	Reduced compliance costs and increased collection efficiency.

Source: Prepared by the author.

3. LIMITATIONS OF VAT IN PRACTICE

Despite its global reach and its recognized merits, the VAT model has limitations that have become more evident over time, especially in Latin American economies. These limitations stem both from operational factors, such as complexity, high compliance costs and liquidity problems, and from institutional aspects, such as the loss of neutrality and the increasing dependence on special regimes.

A common limitation is the accumulation of VAT credits, especially in export-oriented sectors or subject to differentiated regimes. The difficulty of recovering these credits in a timely manner affects the liquidity of companies, introduces distortions into production chains and, in practice, can transform a consumption tax into a levy on production. This phenomenon has been particularly visible in several Latin American countries, where the refund mechanisms are slow, bureaucratic or uncertain.

Another limitation concerns the cost of compliance. The debit and credit system requires detailed accounting controls, complex tax returns and constant monitoring of regulatory changes. This administrative apparatus, which works properly in large companies, becomes excessively onerous for micro and small companies, which face disproportionate fixed costs to maintain compliance (Almeida, 2025). In many Latin American countries, this burden contributes to informality and reduces the competitiveness of formal companies.

A third limitation concerns the erosion of neutrality. VAT, originally conceived as a uniform and non-discriminatory tax, has been progressively modified to adapt to sectoral objectives and political constraints, incorporating multiple tax rates, exemptions and special regimes that move it away from its original theoretical design (Keen, 2013). In addition to this regulatory complexity, VAT in Latin America presents structural deficiencies linked to informality and productive heterogeneity (Gómez Sabaini et al., 2015), which limits its redistributive effectiveness and hinders coordination between levels of government.

The case of Brazil is illustrative. The Tax on Operations Related to the Circulation of Goods and on the Provision of Interstate and Intermunicipal Transport and Communication Services (ICMS), which is levied at state level and is Brazil's primary source of tax revenue, has become an extremely fragmented tax, with distinct rules and rates across each federal unit. The compulsory social contributions PIS and Cofins, under the jurisdiction of the Union, coexist in cumulative and non-cumulative regimes, without a clear definition of the concept of input, which fuels a massive volume of litigation. A similar situation occurs in other countries in the region: Argentina combines high rates and numerous exemptions; Mexico maintains differentiated tax zones; Peru faces recurring VAT credit fraud; and Ecuador, despite a lower rate, suffers from regulatory instability.

These distortions indicate that VAT, in many Latin American contexts, has been instrumentalized as a fiscal adjustment mechanism, losing its original function as a neutral consumption tax. In addition to the practical difficulties, there is a broader conceptual issue. The VAT arose as a response to the limited control of sales to the final consumer in an analog world. With the digitalization of transactions and the expansion of electronic payments, this justification ceases to be completely valid. Nowadays it is technically possible to track final consumption with more accuracy and lower costs.

From the perspective of the tax administration, VAT monitoring requires sophisticated verification capabilities, including the auditing of complex transaction chains, the validation of input tax credits and the detection of fraud schemes, such as the so-called "shell companies" or "apocryphal invoicing". Although tools such as electronic invoicing have contributed to enhancing enforcement, the sophistication of evasion schemes has also evolved.

Michael Keen (2025) observes that as technological capabilities advance, the traditional rationale for collecting consumption taxes throughout the production chain, rather than at the final stage of consumption, becomes progressively weaker. Indeed, as technological constraints dissipate, new forms of consumption taxation are emerging.

Taken together, these limitations suggest that, although VAT has been an effective collection tool, its performance in practice is far from the theoretical ideal that motivated its adoption. In the context of digital transformation, it is pertinent to question whether the inherent complexity of the model is still necessary or whether there are simpler and more efficient alternatives that can leverage new technological capabilities.

4. TECHNOLOGICAL INNOVATIONS AND AUTOMATED PAYMENTS

In the last two decades, the advancement of digital technologies has significantly expanded the possibilities of transforming tax systems. In particular, consumption taxation, traditionally bound to the logic of VAT, moves toward considering simpler, more direct and effective operational alternatives, based on digital monitoring, artificial intelligence and new methods of payment. In the Latin American context, these technologies offer a concrete opportunity to overcome the structural limitations of the current model, reducing compliance costs and tax evasion, while preserving collection and equity.

One of the pillars of this transformation is the growth of instant payment systems with digital identification. In Brazil, the Pix[1], launched in 2020 by the Central Bank of Brazil, quickly became the main electronic transfer method in retail trade, surpassing credit/debit cards and bank slips in transaction volume. By enabling the immediate and traceable settlement of transactions, Pix facilitates the execution of *split payments* without relying on financial intermediaries. In addition, its open architecture design allows for the integration of fiscal commands, such as the automatic division of a transaction value of a purchase between the merchant and the treasury. This makes it a strategic tool for the implementation of the RST-SP.

Although the Brazilian case, with the dissemination of PIX, represents one of the most advanced examples of instant payments in the region, the model of this tax does not depend on a specific platform. The essential thing is the existence of interoperable digital

1 PIX is a Brazilian instant payment system, launched in 2020 and managed by the Central Bank of Brazil. It allows the transfer of resources between accounts in seconds, at any time and day, being free for individuals. It is an open system that uses identification keys (e.g. email, phone or random key) or QR codes to make transactions, having promoted greater financial inclusion and efficiency in the Brazilian financial market.

infrastructures, capable of segregating the value of the tax at the time of financial settlement. In Latin America, the rapid expansion of digital payments has significantly expanded the technological base available for such solutions. According to recent data, the proportion of people sending or receiving digital payments in the region increased from 47% in 2014 to 70% in 2021, surpassing the average of other emerging economies (Herrera et al., 2024). Likewise, countries such as Brazil, Mexico and Argentina have developed emblematic digital payment systems, such as PIX, CoDi and Transfers 3.0, among others. In this context, the split payment can be implemented gradually from existing infrastructures, without the need to fully replicate a specific model.

Artificial intelligence (AI) represents another vector of innovation with high impact potential. AI systems are already used in tax administrations in various countries to classify taxpayers, predict evasion risks, conduct audits and detect fraud based on large volumes of tax, banking and cadastral data. In the context of the RST-SP, AI can act as an automated control layer, identifying inconsistencies in real time based on payment data, largely dispensing with the ancillary obligations imposed on taxpayers in the VAT regime. For Latin American economies, where fiscal capacity is usually limited, the use of AI represents a scalable and possibly lower-cost alternative to traditional taxation.

Despite these advances, the use of cash continues to be a relevant limitation for any automated collection model. The RST-SP relies on electronic transactions to operate, which raises concerns in economies with high informality or low digital access. However, this limitation can be progressively mitigated through incentives and regulatory mechanisms. European Union countries already adopt legal limits for cash payments (for example, €1,000 in France and €3,000 in Spain) as a way to stimulate formalization. Brazil, which has the PIX system, could follow a similar path by setting a limit on cash payments without eliminating their role in smaller transactions.

In addition, technology already opens the possibility of tracking physical currency in circulation based on their unique serial numbering. Although still embryonic, the possibility of integrating OCR (optical character recognition) into ATMs and banking networks could open the way to a form of passive cash flow monitoring. More promising, however, is the progress of organic digitalization: even without coercive measures, the expansion of PIX, prepaid cards and digital wallets has reduced the share of cash payments, even among informal workers and small businesses.

Beyond traditional regulation, governments can use positive incentives to induce a structural migration towards digital payments. Programs such as tax *cashback*, lotteries linked to tax invoices and discounts on future tax liabilities have already been successfully deployed in several countries. Under the RST-SP, these incentives can be reinforced through data automatically captured via PIX or equivalent platforms, incentivizing consumers to demand electronic proof of the operation. This strategy combines transparency, inclusion and an expansion of the tax base, especially in the sectors most affected by informality.

Another key frontier involves central bank digital currencies (CBDCs). Although conceptually attractive, global pilot projects face structural delays, criticism and policy re-evaluations. In Brazil, the Drex project, (the Brazilian CBDC), underwent an expensive technical review following the failure of privacy solutions built on blockchain technology. The second phase of the initiative was postponed indefinitely due to a failure to comply with legal requirements for the protection of personal data. This experience, combined with international evidence, suggests that CBDCs should, at least in the short term, be restricted to wholesale applications between financial institutions, while their retail deployment remains constrained by technical and political hurdles.

The most consistent criticism of CBDCs stems from the combination of risks of state centralization, banking disintermediation and threat to user privacy. In countries with fragile democracies or low institutional trust, the adoption of digital currencies by the central bank can be perceived as an instrument of surveillance or economic control. For fiscal purposes, the use of the CBDC as an exclusive collection vehicle can be counterproductive: rather than strengthening trust, it could generate significant resistance from both merchants and consumers.

Ultimately, the complementarity among these technologies can be decisive for the success of a RST-SP. Digital payments networks, such as the Pix system, facilitate the instant and programmable settlement of tax liabilities. Concurrently, AI offers intelligent and segmented auditing, reducing compliance costs. The gradual progress of digital payment adoption tends to marginalize the use of cash, without the need for drastic statutory prohibitions. The future of consumption taxation is linked to the ability of countries to integrate the technological tools already available in a coherent and efficient manner. For Latin America, this transition represents a historic opportunity to reform consumption taxation based on core pillars of simplicity, transparency and inclusion.

5. THE SPLIT PAYMENT AS AN INSTRUMENT OF STRUCTURAL CHANGE

Split payment mechanisms were initially conceived as tools to combat fraud within VAT-based systems. By allowing the tax value to be automatically separated at the point of sale and transferred directly to the treasury, the split payment model breaks with the traditional logic of tax settlement and introduces the possibility of a digital and real-time collection framework. This capability transforms it from an anti-fraud tool into a potential avenue for the structural transformation of consumption taxation.

The European experience illustrates this development. In Italy, since 2015, the split payment mechanism is applied in transactions with the public sector and certain entities, so that the buyer retains the VAT value and transfers it directly to the tax administration. This mechanism has successfully reduced delinquencies and improved revenue predictability. The United Kingdom, for its part, discussed the use of the digital split payment in e-commerce transactions, seeking greater oversight over cross-border operations. Although a harmonized model does not yet exist in the European Union, the European Commission has been studying its possible applications as an alternative to modernize the VAT collection (European Commission, 2017).

In Latin America, the conditions for the adoption of similar schemes differ, but are potentially favorable. The region faces recurring problems of tax evasion, informality and high regulatory complexity, however it also possesses relevant technological advancements, such as electronic invoicing, integrated registries and, in some countries, instant payment platforms. This opens up space to consider the split payment mechanism not only as a complement to VAT, but as the foundation for a new model of consumption taxation.

The basic operation of a retail sales tax with *split payment* mechanism is straightforward. At the point of sale, the payment system, whether a bank, a fintech entity, or a digital platform, identifies the nature of the operation and automatically separates the part corresponding to the tax, transferring it directly to the treasury. The remaining balance is credited to the merchant. This procedure eliminates the need for the taxpayer to maintain tax books and substantially reduces the risks of non-payment and tax fraud.

In addition to operational simplicity, the model is highly adaptable to the complexities of modern commerce, including installment payments, product returns, use of loyalty miles or points, and transactions through marketplaces. Each scenario can be automatically parameterized based on the transactional data provided by the payment network, which ensures flexibility without compromising fiscal oversight.

The statutory introduction of the split payment mechanism as a way of settling debts in Brazil's new dual VAT system demonstrates that this technology is already a core component of the tax agenda. Backed by the massive adoption of Pix, the Brazilian experience meets the conditions to become a natural laboratory for the application of a retail sales tax model utilizing split payments. Although the current model maintains the underlying staging logic of VAT, the technological capabilities already deployed could support, at the appropriate time, experimental models of automated taxation on final consumption.

In summary, the *split payment* represents an innovation of a twofold nature. In its initial application, it operates as a monitoring mechanism within the VAT framework; from a broader perspective, it serves as a tool that can redefine the logic of the collection itself. This second dimension remains largely unexplored, but it offers fertile ground for applied research and regional cooperation among tax administrations.

6. REDUCED COMPLIANCE COSTS

One of the primary arguments in favor of alternative models to the traditional VAT, such as a retail sales tax with split payment, rests on its potential to reduce tax compliance costs. These costs encompass not only the financial expenses associated with fulfilling tax obligations, but also the administrative time and organizational resources dedicated to bookkeeping, accounting and legal activities.

The academic literature recognizes the existence of VAT compliance costs, although their empirical measurement remains poorly standardized. In environments characterized by high regulatory complexity and multiple formal obligations, these costs can be substantial. As several authors point out when analyzing the design of VAT, a relevant portion of this complexity originates in the need to manage the tax debit and credit system (Keen, 2013). Enterprises must keep detailed operational records, verify the validity of input tax credits, reconcile data across disparate systems and respond to potential tax audits. This process becomes particularly onerous in sectors with long production chains or operations spanning multiple jurisdictions.

In addition, compliance costs are not evenly distributed across the economy. Small and medium-sized enterprises (SMEs) usually face a proportionally heavier burden, since they have fewer resources to invest in automated tax management systems and specialized advice. This structural asymmetry can generate barriers to entry and discourage formalization, distorting the competitive dynamics of the economy.

In the Latin American context, these systemic issues are aggravated by additional institutional factors, such as regulatory instability, the complexity of administrative procedures, and a high density of litigation. The proliferation of special regimes and exemptions within regional VAT frameworks has further contributed to escalating compliance costs and weakening the core neutrality of the tax.

The retail sales tax model utilizing split payment presents, in this sense, significant potential for structural simplification. By eliminating the necessity for tax credit mechanisms and concentrating taxation strictly at the final consumption stage, it substantially reduces the operational complexity of the fiscal system. Companies would cease to act as collection intermediaries throughout the production chain, which implies a sharp reduction in the need for internal accounting controls, data reconciliations and tax risk management workflows.

From a macroeconomic perspective, reduced compliance costs can translate into measurable productivity gains. Resources currently allocated to compliance activities could be reallocated to productive investments, contributing to long-term economic growth. This structural relationship has been explored in the literature on regulatory efficiency, which suggests that administrative simplification can have positive effects on GDP.

However, it is critical to note that the estimation of these impacts presents significant methodological challenges. The absence of consolidated, large-scale experiences of retail sales tax implementation with split payment limits the availability of direct empirical evidence. Therefore, it is necessary to resort to econometric simulations, counterfactual analyses and comparative studies to approximate its potential structural effects.

In summary, despite inherent empirical uncertainties, the available literature suggests that tax system simplification, leveraged by digital technologies, can generate substantial economic benefits. The split payment retail sales tax presents an alternative with the potential to reduce compliance costs, enhance fiscal efficiency and foster a more dynamic economic environment.

Table 3

Potential for savings with RST-SP in Latin America (% of GDP)

Country	Average annual compliance cost (hours)	Consumption tax base (% of GDP)	Compliance cost (% of GDP)	Estimated Potential Savings (% of GDP)	Analytical Remarks
Brazil	1,500	40%	1,00%	0,70%	High complexity with ICMS, PIS/Cofins.
Argentina	1,000	38%	0,80%	0,60%	Fragmented Federal VAT and high informality.
Colombia	960	37%	0,90%	0,60%	Special regimes and high sectoral tax burden.
Peru	780	36%	0,70%	0,50%	Electronic invoicing deployed, but systemic bureaucracy persists.

Source: author's elaboration based on World Bank & PwC (2020) and author's estimates.

7. IMPLICATIONS FOR TAX ADMINISTRATION AND IMPLEMENTATION CHALLENGES

The eventual transition from a VAT model to RST-SP on final consumption is not merely a reform of the tax structure, but a profound paradigm shift in the operational logic of tax administrations.

In the traditional VAT model, the tax authority is organized around *ex-post* audit functions, based on the verification of debits and credits along complex production chains. This approach requires a high capacity for auditing, enforcement and dispute resolution, as well as for processing large volumes of reporting data that are often subject to inconsistencies, errors or tax fraud.

In contrast, under a RST-SP, the axis of tax administration changes from subsequent audit oversight to real-time revenue collection. The collection function relies on the integration of payment platforms and financial systems, which facilitates the automatic segregation of the tax at the point of final sale. The split payment mechanism significantly reduces the margin for under-declaration, the misappropriation of collected taxes, and other traditional forms of tax non-compliance or evasion. While this approach does not eliminate evasion risks, it effectively relocates them towards more specific and potentially more controllable stages, thereby reinforcing the effectiveness of tax authorities in highly digitalized environments.

From this perspective, the tax administration assumes a role closer to that of a system architect and data manager. Among the main operational implications, we can highlight:

- **Design and governance of the digital collection infrastructure**, including the definition of technical standards, interoperability protocols and certification mechanisms of participating actors (financial institutions, payment platforms, technological intermediaries);
- **Integration of inter-institutional databases**, ensuring absolute consistency across tax, financial and commercial data;
- **Real-time monitoring of revenue collection flows**, with analytical ability to identify anomalies, systemic risks or operational failures;
- **Data-driven risk management**, largely replacing traditional audit models with preventive and automated compliance approaches;
- **Data protection, tax secrecy and robust cybersecurity protocols**, given the highly sensitive and granular nature of transactional data;
- **Institutional coordination,** especially in federal contexts, where the distribution of tax competences requires transparent revenue allocation mechanisms.

In this new environment, the technological capacity of tax administrations becomes a critical factor. It is not only about digitalizing existing processes, but also about comprehensively redesigning the compliance and collection architecture. This process requires significant investments in infrastructure, system development, personnel training and adaptation of regulatory frameworks.

Furthermore, implementing a retail sales tax with split payment poses challenges in terms of financial inclusion. Since the model depends on the traceability of transactions, its effectiveness is conditioned on the extension and use of electronic payment methods. In economies with high informality or low access to financial services, it will be necessary to design gradual implementation strategies, combined with inclusion and formalization policies.

Another central aspect concerns the systemic governance of the infrastructure. The participation of multiple actors (for example: tax authorities, central banks, financial institutions, technology providers) requires robust institutional arrangements that clearly define responsibilities, oversight mechanisms and operational protocols in the event of system failures or contingencies. The absence of a clear governance framework could lead to operational risks and undermine public trust in the fiscal system.

To illustrate how this new operational approach translates into practice, Table 4 examines the treatment of transactional scenarios that, under the traditional VAT model, usually require specific rules or administrative interpretations. Within an environment based on split payment architecture, many of these situations can be solved automatically through the internal logic of payment networks and the traceability of transactions.

Table 4
Accounting and Operational Treatment of Complex Transactions under RST-SP

Situation	Treatment
Payment in installments	The tax is segregated proportionally in each payment, according to the value actually settled.
Loyalty points or mileage redemptions	The platform converts the value to legal tender and applies the split proportionally.
Product returns	The system performs the automatic and traceable reversal of the previously collected tax revenue.
Split-tender transactions (card + instant transfer)	The split is applied on the total value of the transaction, regardless of the combined means of payment used.
Marketplaces-intermediated sales	The digital platform centralizes the incoming payment and executes the split at the settlement point.

Source: author's elaboration.

Finally, it is critical to note that the transition to a retail sales tax model on final consumption utilizing split payment does not imply the total elimination of the traditional functions of the tax administration. Enforcement requirements will persist, especially with regard to the delimitation of the taxable base, the identification of transactions outside the system and the control of sectors that are not fully digitalized. However, the institutional emphasis is shifting significantly towards infrastructure management and the supervision of digital revenue ecosystems.

In summary, from the perspective of tax administrations, the RST-SP represents not only an innovation in tax design, but a redefinition of its operational functions, capabilities and strategic priorities. Its ultimate success will depend less on regulatory complexity and more on the quality of the technological infrastructure, institutional governance and the ability of tax agencies to adapt to a constantly evolving digital environment.

CONCLUSION

The debate on the future of consumption taxation must incorporate not only regulatory considerations, but also the technological transformations that are redefining the collection and control capabilities of the State. In this context, a retail sales tax on final consumption utilizing a split payment mechanism emerges as a conceptually consistent alternative to the structural limitations of traditional VAT.

In Latin America, where VAT frameworks have evolved within environments characterized by high informality, institutional fragmentation and high compliance costs, these limitations are particularly critical. Regulatory complexity, the accumulation of unrefunded input tax credits, high litigation and compliance gaps have been persistent vulnerabilities across several countries in the region. In this scenario, the digitalization of payment networks and the increasing traceability of transactions open the possibility of rethinking consumption taxation through a simpler, more direct logic and aligned with current technological capabilities.

From the perspective of tax administrations, this transition implies a structural shift in operational functions, capacities and priorities. The emphasis is shifting from *ex-post* audit to real-time collection, supported by digital infrastructures and seamless integration with the financial system. This approach is particularly relevant for Latin American countries, where administrative capacity limitations have historically conditioned the efficacy of the VAT. Adopting models such as the RST-SP could contribute to reducing compliance costs, enhancing collection efficiency and strengthening the overall transparency of the tax system.

However, this article does not advocate for the immediate abandonment of VAT. On the contrary, it underscores the necessity of exploring gradual evolution scenarios, including possible coexistence schemes or partial application of the split payment model in certain economic sectors or types of transactions.

In this sense, a research agenda for the region is opened, encompassing the empirical estimation of compliance costs, the analysis of institutional and technological feasibility, the design of transition mechanisms and the evaluation of impacts on informality, financial inclusion and tax equity. Macroeconomic simulations and pilot studies based on real-world transactional data will be fundamental to validating these hypotheses.

In short, a retail sales tax with split payment should not be understood as an immediate substitute for VAT, but as a viable evolution of consumption taxation in the digital era. Its feasibility will depend heavily on the capacity of Latin American tax authorities to pioneer processes of institutional and technological transformation, adapting their fiscal architecture to an increasingly digital, integrated and real-time global economy.

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Fiscal Citizenship Program of Receita Federal do Brasil: Restructuring and Perspectives

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SYNOPSIS

This article presents the restructuring of the Receita Federal do Brasil's (RFB) Tax Citizenship Program. The analysis examines how the initiative has evolved into a cross-cutting policy, grounded in a structured plan, RFB Ordinance No. 214/2022, and the Tax Citizenship Framework Document (2025). The methodology adopted is based on an institutional assessment, standardization, the definition of indicators, and integration into the education system. The results demonstrate progress in governance, partnerships, the expansion of tax education, and the consolidation of tax citizenship as a strategic axis of the Receita Federal do Brasil. The study highlights the institutional, educational, and social impact of the model and identifies challenges for its continuity and expansion.

KEYWORDS: Tax Citizenship, Tax Morale, Tax Education, Receita Federal do Brasil

CONTENTS

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INTRODUCTION

Fiscal Citizenship (FC), within the context of the Receita Federal do Brasil (RFB), is an approach that serves as the overarching foundation guiding all of the agency's work processes. It is defined as a set of practices and values that seek to foster full awareness of the virtuous tax cycle—from revenue collection to the use of public resources—promoting social participation, democratic oversight, and, consequently, tax compliance. In Brazil, this concept took on a new and decisive institutional shape starting in 2022, when the Receita Federal do Brasil, under the Ministry of Finance (MF), undertook a comprehensive restructuring of Fiscal Citizenship, establishing it as a core function of the agency.

Although Fiscal Citizenship (FC) has a long history within the Receita Federal do Brasil (RFB), at certain stages it took on a tactical or sector-specific character, depending on regional initiatives or the individual commitment of civil servants. The cycle initiated in 2022 sought to overcome this fragmentation by elevating FC to the level of a strategic pillar of the institution. This transition, which culminated in the publication of the Tax Citizenship Program Framework in 2025—the central focus of this study—represents a milestone in strategic management and in the relationship between the tax authority and taxpayers, both internally and externally to the Receita Federal do Brasil.

This article aims to contribute to the advancement of the tax morale approach in Latin America, particularly among member countries of the Inter-American Center of Tax Administrations (CIAT), by analyzing the process of structuring Tax Citizenship within the Receita Federal do Brasil (RFB) during the 2022–2025 period. It details the needs that drove the change, the regulatory and organizational foundations established, the implementation stages, and the institutional progress achieved, as well as the results obtained. From a forward-looking perspective, this article discusses the role of the Tax Citizenship initiative at the Receita Federal do Brasil in addressing future challenges: its institutional sustainability, its cross-cutting nature, and its contributions to education and socio-environmental projects in Brazil.

From this perspective, the study is organized around two main themes: the process of institutionally structuring Tax Citizenship within the Receita Federal do Brasil (RFB), spanning from the identification of initial structural needs to the practical results achieved; and a second theme outlining future directions for action. Finally, the article presents the conclusions and the bibliographic references consulted. The methodology employed is documentary research, based primarily on the Receita Federal do Brasil's reference texts on the subject and on an analysis of current institutional content.

1. STRUCTURE OF FISCAL CITIZENSHIP AT THE RECEITA FEDERAL DO BRASIL

The process of establishing Fiscal Citizenship at Brazil's Receita Federal do Brasil can be viewed as a case study of how a government agency redefines an essential, long-term function, transforming it from a sector-specific "best practice" implemented on an ad hoc basis into a central, measurable strategic objective with clearly defined governance.

1.1. Needs Assessment, Studies, and Initial Steps

The origins of the restructuring of Fiscal Citizenship lie in the evolution and the early stages of a maturing process in the social perception of citizenship in Brazil following the 1988 Constitution. Known as the "Citizen Constitution," the 1988 Constitution expands social rights and encourages the creation of instruments that promote social participation.

Since 1988, the Receita Federal do Brasil has undergone an institutional process of expanding mechanisms that respond to these new times and the demands of citizenship, placing the citizen-taxpayer more firmly at the center of the agency's decisions. One avenue for directly addressing this demand was the recognition of both the opportunity and the need for the Receita Federal do Brasil to expand its investments in Fiscal Citizenship, which until 2021 had been conducted through sector-specific and temporary projects, although some initiatives were already showing signs of consolidation and achieving positive results nationwide.

Starting in 2022, the leadership of the Receita Federal do Brasil (RFB) determined that the time had come to restructure the agency's existing Fiscal Citizenship initiatives through a nationally coordinated plan implemented at the regional level. This plan was intended to prioritize the full utilization of successful experiences within the RFB, the harmonization and institutionalization of initiatives derived from those experiences, coordinated long-term executive guidelines, and the alignment of Fiscal Citizenship at the Receita Federal do Brasil with international best practices from other tax administrations. All of this was based on adapting Fiscal Citizenship to its role as a connecting element across all RFB work processes and on the understanding that the Receita Federal do Brasil is, in the national context, the primary agency responsible for providing the financial resources that sustain the State.

1.1.1. Historical Context and Institutional Rationale

Since the early years of the Receita Federal do Brasil in 1968[1], there has always been a perception that the agency participated in educational initiatives focused on citizenship. Until the 1980s, the Receita Federal do Brasil did not have a Fiscal Citizenship program such as the one currently in place; however, it conducted specific initiatives—generally during defined periods—in the form of tax education campaigns and events. This approach gained momentum with the 1988 Constitution, which placed citizenship at the center of social life, enabling Brazilian society to move, year after year, toward a more inclusive, pluralistic, and participatory structure. This fostered the cultural conditions, social demands, and civic awareness necessary for the Receita Federal do Brasil to achieve greater internal and external acceptance of Fiscal Citizenship.

In the 1990s, the RFB advanced initiatives focused on tax education, particularly through the National Tax Education Program (PNEF), developed in partnership with the now-defunct School of Fiscal Administration (ESAF) and the Finance Secretariats of the Brazilian states and the Federal District. These actions sought to place the debate on the social role of taxes on the public agenda—and they remain part of the PNEF's agenda and that of its members today—by promoting courses and awareness campaigns, as well as developing educational materials.

In the 2020s, a transition began toward an institutional Fiscal Citizenship program, of a cross-cutting and permanent nature within the Receita Federal do Brasil (RFB). This initiative was driven internally at the RFB through a review of its strategic processes, one of which was Fiscal Citizenship.

In this context, and taking into account the pandemic-related restrictions (2020–2023) extending through 2024, the RFB's Fiscal Citizenship initiative progressed from an internal assessment of projects based on the agency's proven and established practices, as well as research and studies on the subject, culminating in the design of a restructuring plan in alignment with international approaches—notably from the Inter-American Center of Tax Administrations (CIAT) and the Organization for Economic Cooperation and Development (OECD)—while also recognizing the need for structural regulatory frameworks, a formalized team, and the expansion of the institutional framework for Fiscal Citizenship within the RFB.

1 Decree 63.659/1998. https://www2.camara.leg.br/

1.1.2. Proposed Structure

The first step in the restructuring program was the development of a project plan for the restructuring of the Fiscal Citizenship Program of the Receita Federal do Brasil (RFB), conceived as a process of institutionalizing educational, social, and communication practices within the framework of results-based public management. The central objective was to transform a set of isolated actions into a permanent public policy program, with a clear methodological structure, defined governance, and evaluation and control tools.

In 2022, the methodological work was led by the RFB's central management (Cabinet), and in 2023, it was transferred to the General Coordination of Services (Cogea), which assumed responsibility for coordinating the RFB's technical areas linked to the Regional[2] Superintendencies and other decentralized administrative units. The program was structured in four successive phases:

1. Institutional assessment and analysis.

2. Conceptual redefinition and development of regulatory frameworks.

3. Methodological standardization and creation of management tools; and

4. Implementation and monitoring based on performance indicators.

Based on the review of international approaches, the following served as the fundamental references for this study:

1. **OECD**. The initiatives that make up the RFB's Fiscal Citizenship Program implementation plan were detailed from the perspective of the thematic interconnections highlighted in the OECD publication "*Building Tax Culture, Compliance and Citizenship. A Global Source Book on Taxpayer Education, Second Edition*" covering three lines of action regarding tax morale: 1) promoting tax assistance; 2) building a positive relationship with society; 3) fostering greater social awareness of taxation.

2. **CIAT**. The following were and remain key documents: a) Resolution 39/2005 of Argentina, which addresses "*Social Responsibility of Tax Administrations*"; b) Resolution 45/2011 of Ecuador, regarding "*Efficiency in Tax Administration*"; c) Resolution 49/2015 of Peru, on "*Tax Compliance*"; and d) Resolution 54/2020 of the Dominican Republic, on "*Inequality vs. Voluntary Compliance with Tax Obligations.*"

1.1.3. Institutional Assessment

The restructuring of the Fiscal Citizenship program began with work conducted between 2021 and 2022, focused on mapping the agency's existing projects and initiatives related to education and fiscal citizenship. Those that could be eligible for large-scale, long-term implementation were evaluated by listening to the accounts of their creators and implementers, reviewing the materials produced for these projects, assessing the actions most frequently replicated across the Receita Federal do Brasil's initiatives, and conducting the most comprehensive literature review possible, both within and outside the RFB.

2 An administrative structure that divides the Federal Revenue Service into 10 tax regions, covering all state entities and the Federal District.

The assessment revealed the existence of strong initiatives across various RFB divisions, albeit with limited coordination among them. This work highlighted the need for greater programmatic cohesion of these initiatives across the institution, identifying six key challenges: institutionalization, coordination, continuity, standardization, measurement, and articulation.

1. Need to consolidate and institutionalize successful initiatives.

2. National coordination integrating actions under a single governance structure.

3. Discontinuity of actions due to changes in implementers and managers.

4. Lack of methodological standards and reference models for the initiatives.

5. Difficulty in measuring results using impact and productivity indicators.

6. Need for inter-institutional coordination with stakeholders outside the RFB.

These findings formed the basis for the decision to develop an institutional model capable of ensuring the continuity, consistency, and measurability of the Fiscal Citizenship policy.

1.2. Fundamentals: Standards and Equipment Definitions

The assessment revealed the need for a structural framework capable of addressing key questions regarding the plan to restructure Fiscal Citizenship within the RFB, specifically: How does the Receita Federal do Brasil define Fiscal Citizenship? What principles and objectives should guide this work? What actions should be prioritized? Who is responsible for implementing Fiscal Citizenship, and what are their respective roles and responsibilities?

To answer these and other related questions, the second phase of the restructuring plan was implemented: the establishment of regulatory and conceptual frameworks for Fiscal Citizenship within the RFB.

1.2.1. Conceptual foundation and overarching regulatory frameworks

The conceptual definition of the Fiscal Citizenship Program was established by RFB Ordinance No. 214/2022[3]. This document also establishes the principles and guidelines of the Program, specifies how activities are to be conducted, and identifies the institutional actors responsible for its implementation. In this Ordinance, Fiscal Citizenship is understood as a cross-cutting foundation of the RFB, directly and indirectly guiding all work processes and institutional actions.

Based on this ordinance, Fiscal Citizenship came to be recognized as a strategic dimension of the RFB, linked to its institutional objectives and to the building of social legitimacy through education and citizen participation. Within this framework, the General Coordination of Services (Cogea) began developing a complementary regulatory structure aimed at establishing an executive framework capable of translating the program into technical and measurable terms.

Consequently, in 2022, the first Ordinance containing the Fiscal Citizenship Work Plan was published, which outlined the annual actions to be conducted nationwide, in each tax region[4] (a subdivision of the RFB within

3 RFB Ordinance 214/2022

4 RFB Tax Regions https://www.gov.br/receitafederal

Brazil). This Work Plan was, and continues to be, guided by thematic areas structured around clusters of activities toward which the programs and projects defined in the established restructuring plan converge a) partnerships; b) events; c) visibility.

This Work Plan is updated annually to reflect the evolving needs of Fiscal Citizenship activities within the RFB. In this regard, starting in 2023, the Receita Federal do Brasil introduced the Quarterly Fiscal Citizenship Indicator (ICF) as an institutional executive measurement and monitoring tool, which allowed the performance of citizenship initiatives to be evaluated as an integral part of the RFB's Institutional Efficiency Index (IEI).

In subsequent years, the regulatory framework was refined and updated, incorporating new methodological parameters, culminating in the publication of Cogea Ordinance No. 263/2025, which definitively consolidated the Fiscal Citizenship Work Plan as a formal and permanent instrument for planning and executing Fiscal Citizenship activities across all administrative divisions of the Receita Federal do Brasil.

This version of the plan improved the ICF measurement framework, including qualitative targets in addition to the quantitative ones already provided for in previous annual plans, with the aim of evaluating not only the volume of actions conducted but also their relevance, scope, and social impact, in accordance with the Receita Federal do Brasil's objectives for each year.

Through this regulatory reform process, the Receita Federal do Brasil (RFB) launched an integrated and consolidated governance model based on strategic planning, coordinated implementation, and continuous evidence-based evaluation. Tax compliance came to be treated as a matter of public policy, incorporated across the board into the RFB's institutional and operational structure.

1.3. Implementation: Action Planning, Management, and Monitoring

As mentioned earlier, following the diagnostic phases and the establishment of regulatory frameworks, the stage of methodological standardization began, with the definition of strategic priorities, the development of management instruments and performance measurement tools, as well as the overall governance, planning, and decision-making structure necessary to translate regulations into sustainable actions within the RFB's Fiscal Citizenship Program.

With the regulatory framework established and the format of the annual Work Plan consolidated, the RFB began the implementation phase of the new model in 2023.

At that point, each Fiscal Region began developing its Quarterly Action Plan, detailing the targets and expected results across six initiatives:

- **University Extension –** initiatives conducted in collaboration with institutions of higher education, based on Resolution CNE/CES No. 7/2018[5], which integrates fiscal citizenship into extension curriculum activities, bridging the gap between academic knowledge and social demands.

- **School Curriculum –** initiatives aimed at incorporating civic education into basic education curriculum, in coordination with state and municipal education departments, aligned with the National Common Core Curriculum (BNCC) and the guidelines of the National Education Council (CNE).

5 Resolution CNE/CES No. 07/2018 in https://portal.mec.gov.br/

- **NAF –** support for activities promoted by the Accounting and Tax Support Center (NAF), spaces for learning and providing tax and civic assistance, which strengthen students' practical training and expand society's free access to qualified tax guidance.

- **Citizen for Social Solidarity Program-** implementation of initiatives to encourage the allocation of income tax to social projects and funds (childhood, adolescence, the elderly, culture, sports, among others), promoting citizen participation and shared responsibility in the use of public resources.

- **Citizen Revenue –** seeking partnerships to transform seized and prohibited goods into assets useful to society through university outreach projects, offering learning opportunities to students and mechanisms for social return, reducing costs, and promoting sustainability.

- **Tax Awareness –** initiatives that foster a broader understanding of the socioeconomic role of taxes and the Receita Federal do Brasil in social life, such as guided tours of Receita Federal do Brasil facilities (for example, visits to customs areas as part of the "Get to Know Our Customs" program) and the organization of talks and events for this purpose.

These regional plans are consolidated at the national level through the Quarterly Fiscal Citizenship Indicator (ICF), which measures both the physical implementation of actions and their social and institutional impact, based on the extent to which the actions conducted in each region expressed as a percentage, aligning with the annual Work Plan defined at the national level.

Monitoring of the implementation of regional plans in accordance with the national plan is conducted by the General Coordination of Services (Cogea), which systematizes the results and publishes periodic reports, ensuring transparency, comparability, and continuous feedback on the process.

Methodological standardization and ongoing monitoring created the conditions for Fiscal Citizenship to be recognized internally as a foundational program of the Receita Federal do Brasil, with a measurable impact on efficiency, governance, and institutional image.

1.3.1. Methodological standardization: framework for Fiscal Citizenship

The next step was the development and publication of the RFB's Fiscal Citizenship Program Framework (2025), a guiding document that systematizes the program's concepts, principles, guidelines, and methodology. In addition, it presents the history of Fiscal Citizenship and education since the creation of the Receita Federal do Brasil in 1968 and outlines the core competencies and activities for each working group at the national, regional, and local levels throughout the RFB.

The Framework defines Fiscal Citizenship as "a field of action that integrates education, transparency, ethics, and solidarity as foundations for strengthening the State and the relationship between society and the tax administration."

Its methodological structure is based on three interdependent pillars:

1. **Theoretical and regulatory foundations—** supported by the preliminary studies mentioned above, along with documents from the OECD and CIAT, the RFB's Internal Regulations, RFB Ordinance No. 214/2022 (which conceptualizes and structures Fiscal Citizenship), Cogea Ordinance No. 263/2025 (Fiscal Citizenship Work Plan), by the ordinances of the NAF and Fiscal Citizenship frameworks, as well as the Resolutions of the National Education Council (CNE/CES No. 7/2018, CNE/CEB No. 7/2010, and CNE/CEB No. 2/2024).

2. **Thematic areas and competencies –** define the program's areas of action, bring together the programs and projects led by the RFB's Fiscal Citizenship initiative, and outline the skills to be

developed among the target audiences (educators, students, taxpayers, and public servants).

3. **Operational tools and indicators –** guide the planning, implementation, and evaluation of actions at the national and regional levels, supplemented by references to materials developed by the Receita Federal do Brasil for the implementation of Fiscal Citizenship initiatives.

1.3.2. Program Strategic Priorities

The Fiscal Citizenship Program was restructured to organize its activities into three interdependent strategic areas, which embody the essence of the Brazilian model of tax education and engagement.

1.3.2.1. Tax Assistance and Inclusion

This initiative brings together efforts focused on practical education and the fiscal inclusion of the population, with a special emphasis on the Accounting and Tax Support Center (NAF).

The Accounting and Tax Support Center (NAF) constitute one of the main pillars of the Fiscal Citizenship Program of the Receita Federal do Brasil (RFB).

Created in collaboration with educational institutions, the centers combine practical training in tax guidance with social engagement, embodying the university's principle of civic responsibility.

Inspired by the Legal Practice Centers (NPJ) in law programs, the NAFs have adopted the extension model set forth in Resolution CNE/CES No. 7/2018, which mandates that at least 10% of the course load in undergraduate programs be allocated to so-called extension activities[6]. This structure fosters the integration of teaching, research, and social practice, consolidating the NAF as a space for applied learning and a bridge between the State and society.

More than a tax-oriented project, the NAF is an instrument for civic education. It seeks to develop, among students, an understanding of the socioeconomic role of taxes, the rights and duties associated with tax collection, and the importance of ethics and transparency in public life.

At the same time, it offers free, qualified assistance to low-income individuals, including individuals, individual microentrepreneurs (MEI[7]), small rural property owners, and civil society organizations (CSOs). In addition, special attention is given to women in vulnerable situations through the Women Citizens – Fiscal Citizenship for Women Program, coordinated by the Ministry of Finance (MF Ordinance No. 26/2023[8]).

The centers operate based on a formal partnership between the Receita Federal do Brasil (RFB) and educational institutions, which develop their own work plans and educational projects independently, in accordance with the formal partnership agreement

6 In higher education programs in Brazil, offered at universities and similar institutions, each degree program, in brief, consists of two main course loads:
 a) the first combines instruction (the classes themselves) and research (advanced studies); and b) the second component is dedicated to outreach, which consists of activities through which each higher education program provides services to the public, while also allowing students to apply what they have learned and connect with the real world.
 In Brazil, outreach was previously an optional component, but as of 2018, it became a mandatory minimum requirement corresponding to 10% of each higher education program.

7 The MEI is a Brazilian business model, established in 2008, that helps reduce informality and promotes tax, social security, and social assistance inclusion, while also offering a range of benefits related to business guidance (management) and access to credit.

8 MF Ordinance No. 26/2023

and the program's guiding document (NAF Guidelines[9]). Activities are led by students under the supervision of a faculty member, with regular training sessions provided by the RFB.

Services can be provided in classrooms within educational institutions, at mobile service points, or through outreach and community initiatives, taking the form of talks, workshops, training sessions, and tax guidance services.

Among the most common services are assistance with filing income tax returns, regularizing individual tax registrations (the Individual Taxpayer Registry—CPF, which is a number also used on Brazilians' identity documents: the National Identity Card—CIN), formalizing small businesses, and clarifying tax obligations.

In higher education, the NAF can be recognized as an outreach activity with an educational and community-based focus, and in basic education, it operates in collaboration with the project led by the Receita Federal do Brasil (Receita Federal), titled "*Fiscal Citizenship in University Outreach and the School Curriculum,*" aligned with the Law on Guidelines and Bases for National Education (LDB), Law No. 9,394, of December 20, 1996[10]. In this way, the program contributes to the development of a cross-cutting civic pedagogy that connects the university, the school, and the community.

Constantly expanding, by November 2025 the NAF had surpassed 465 partnerships in Brazil and another 400 units in 13 Latin American countries, implemented with technical support from the Receita Federal do Brasil (RFB) and the EUROsociAL program. Recognition of the model transcends borders: the OECD has already cited it as a benchmark for good practice in tax inclusion, highlighting it in the 11th edition of the journal Tax Administration[11], and EUROsociAL has included the NAF in publications and studies, such as in books published in 2018 and 2022[12].

Between 2016 and 2024, the NAF recorded more than 1.3 million instances of free assistance provided to the public, consolidating the program's social and educational relevance.

The "Mulher Cidadã" Program, born from best practices implemented by NAFs across Brazil—particularly from the experience of the UNIME center in Lauro de Freitas (BA)—was institutionalized by MF Ordinance No. 26/2023. Its objective is to promote the economic empowerment of women in situations of risk and social vulnerability, with a focus on financial education, entrepreneurship, social security, and civil documentation. In this program, the NAFs serve as the operational base, given their extensive reach and ability to directly and free of charge serve the population. "Mulher Cidadã" is managed by an inter-institutional committee composed of the Executive Secretariat of the Ministry of Finance, the Receita Federal do Brasil, the National Treasury Secretariat, the Attorney General's Office for the National Treasury, and the Secretariat of Economic Policies. Within the Receita Federal do Brasil, NAFs that collaborate with the "Mulher Cidadã" program through best practices in Fiscal Citizenship with a gender focus are recognized annually with the "*Ruby Certificate*."

9 NAF 4.0 Reference in https://www.gov.br/

10 LDB in https://www.planalto.gov.br/ccivil_03/leis/l9394.htm

11 OCDE – 11th edition of the "Tax Administration Series," 2023: https://www.oecd.org

12 Best Practices for the Development of Tax Assistance Centers, JAUME BLASCO, EUROsociAL, 2018, in eurosocial.eu y, The Potential of Accounting and Tax Support Center (NAF) as a Lever for Social Inclusion: Innovative Practices and Strategic Reflections in Latin America, ANTONIO RODRÍGUEZ-CARMONA, EUROsociAL, 2021, in https://eurosocial.eu/

To support the dissemination of NAFs, the Receita Federal do Brasil maintains a set of publicly accessible resources: a) the NAF Reference Guide (version 4.0), which provides guidance on how to create, implement, and manage NAFs; b) the booklet "*RFB Fiscal Citizenship in University Extension,"* with suggested projects for application in higher education; c) the NAF channel on YouTube and the training pathway on the virtual platform called "*RFB-SEBRAE*[13]," with asynchronous courses and corresponding certification for those who complete them.

Thus, the NAF serves as an institutionalized social innovation capable of bringing together education, ethics, and tax justice, fostering the development of citizens who are aware of the public function of taxes, and thereby strengthening democracy and trust in the government.

1.3.2.2. Positive relationship with society

This initiative brings together programs focused on social engagement and tax solidarity, reinforcing the public perception of the Receita Federal do Brasil as an institution dedicated to the common good. Among the main initiatives are the "*Citizen for Social Solidarity*" program and the "*Citizen Revenue*" program.

"Citizen for Social Solidarity**"** This program allows taxpayers to directly influence how their taxes are allocated for social purposes. The initiative educates participants about tax incentive laws and aims to transform the act of paying taxes into a gesture of solidarity and civic responsibility by encouraging individuals and businesses to allocate a portion of their income tax liability to funds and projects of public interest, at no additional cost.

The allocations, provided for in various federal laws, support funds for the rights of children and adolescents and the elderly, as well as projects in the areas of culture, sports, audiovisual production, recycling, cancer care, and care for people with disabilities. In addition to strengthening public policies and social institutions, the initiative educates the public about the transformative role of taxes, their function in income redistribution, and their role in promoting collective well-being.

The program operates through educational campaigns, workshops, conferences, and guidance materials, disseminating information on the legal channels for allocation and the concrete impacts of these contributions. These actions are managed by the General Coordination of Services (Cogea) and by an Interregional Team (comprising some of the 10 tax regions of the Receita Federal do Brasil) of Fiscal Citizenship, which coordinates the Tax Regions and local partners in the implementation of tax awareness activities.

The educational focus of the "I Am a Solidarity-Oriented Citizen" program is to demonstrate, in a practical way, how tax revenue is returned to society in the form of public policies and social projects. The allocated funds finance programs audited and monitored by oversight bodies, ensuring transparency and accountability in the use of these funds. Thus, taxpayers become partners in public administration, strengthening the link between citizenship and tax collection.

In higher education, the program is implemented in coordination with Resolution CNE/CES No. 7/2018, which mandates the inclusion of university outreach in at least 10% of the course load of undergraduate curriculum. Consequently, higher education institutions

13 This is a training platform for NAF participants in Brazil, maintained in collaboration with the Brazilian Micro and Small Business Support Service (SEBRAE), an entity funded primarily by corporate contributions and transfers from taxes collected by the federal government in Brazil. Course platform at https://receitafederalead.sebrae.com.br y, SEBRAE's website at https://sebrae.com.br

have implemented outreach projects focused on raising awareness and providing guidance on the social use of the Income Tax. The booklet “RFB Fiscal Citizenship in University Outreach” (2025 edition) presents, in its Annex III, project proposals applicable to the allocation categories provided for by law, including: a) funds for the rights of children, adolescents, and the elderly; b) sports projects; c) cultural and audiovisual initiatives; d) recycling programs; e) projects aimed at people with disabilities and the fight against cancer.

Similar to the NAF, the “Citizen for Social Solidarity” program is also linked to the RFB’s project “Fiscal Citizenship in University Extension and the School Curriculum,” reinforcing the integration between higher education and basic education provided for in the Law on Guidelines and Foundations of National Education (LDB) (arts. 22, 35, 35-B, 36, 43, and related provisions). This integration enables students and faculty in undergraduate programs and related fields to function as multipliers of knowledge regarding incentive laws, promoting a culture of fiscal responsibility from the earliest stages of schooling.

By demonstrating that it is possible to exercise solidarity through taxation, the program reaffirms the principle that citizen participation is not limited to voting or oversight but is also expressed through the conscious allocation of public resources. The “*I Am a Solidarity-Oriented Citizen*” program demonstrates the educational and transformative potential of the Income Tax, helping to foster an active, ethical, and socially committed tax-paying public dedicated to reducing inequalities.

“Citizen’s Recipe – A Recipe for Social Transformation” is the RFB program that brings together innovative initiatives focused on the social and environmental responsibility aspect of Fiscal Citizenship. Created as an evolution of traditional actions for the disposal and destruction of goods seized by the Receita Federal do Brasil (RFB), the program introduced a new approach to the reuse and social revaluation of assets subject to definitive forfeiture, transforming what was once waste destined for landfills into a solution that serves the public interest, is educational, and is environmentally sustainable.

The name “*Receita Cidadã*” and its visual identity were defined in 2023, as the result of a collective process among the managers (superintendents) of the ten Tax Regions of the Receita Federal do Brasil (RFB). The consolidation of the program reflected the Receita’s institutional maturity in addressing the challenge of reconciling the legal requirements for the destruction of goods with the principles of sustainability, innovation, and fiscal citizenship.

During the COVID-19 pandemic, various units of the Receita Federal do Brasil began seeking alternatives to the simple destruction of seized goods. This initiative gave rise to pioneering efforts to repurpose and transform irregular products into inputs or new goods for public and social entities. Based on these experiences, the current *Receita Cidadã* program was structured, which began operating in a coordinated and strategic manner throughout the country.

To implement the program, partnerships are established with public educational institutions, research centers, government agencies, and civil society organizations, with the aim of developing technological and educational solutions for the use of seized goods. Notable partner entities include higher education institutions involved in university outreach programs and jail facilities engaged in social reintegration initiatives. Notable examples:

- **the distillation of alcoholic beverages** for the production of hand sanitizer, for use in hospitals and schools.
- **recycling cigarettes and tobacco** to produce fertilizers and insecticides, which are used in agronomy courses.

- **the repurposing of electronic devices** (such as illegal "TV Boxes") into mini-computers, videoconferencing equipment, or educational tools; and

- **the reuse of fabrics and toys,** transformed into uniforms, educational materials, or support kits for vulnerable communities.

These actions demonstrate the program's potential to transform punitive measures into restorative and educational actions, balancing the protection of the formal economy and public health with the promotion of social inclusion and sustainability.

In addition to the processing of materials, the program also provides for direct donations ("in kind") of goods that, due to their nature and legal compliance, do not require de-identification—such as food, utensils, medical equipment, and hygiene products. In all cases, health, environmental, and safety standards are observed, in accordance with the provisions of RFB Ordinance No. 200/2022[14].

With the publication of Technical Cooperation Agreement (ACT) No. 21/2024, signed between the Receita Federal do Brasil (RFB) and the Ministry of Education (MEC), the program gained new institutional momentum. The partnership expanded the commitment of higher education institutions to initiatives such as innovation marathons, prototyping labs, and interdisciplinary outreach projects aimed at transforming seized goods into products of social utility.

In the area of Fiscal Citizenship, Cogea coordinates awareness-raising and guidance activities to help staff and partners understand the program's potential. Interregional and regional fiscal citizenship teams promote technical presentations, guided tours, and local coordination, encouraging the integration of the Receita Cidadã program into the university extension projects described in Annex V of the booklet "RFB Fiscal Citizenship in University Extension" (2025 edition). These projects are developed in accordance with the principles of Resolution CNE/CES No. 7/2018 (which establishes a minimum of 10% of the course load for outreach) and are aligned with the provisions of the Law on Guidelines and Foundations of National Education (LDB), particularly Articles 22, 35, 35-B, 36, and 43.

The program combines education, innovation, sustainability, and social inclusion, transforming the process of goods loss into an opportunity for learning and the ethical reuse of public resources. In addition, Receita Cidadã is coordinated with other RFB programs, such as "Mulher Cidadã," allocating part of the reused goods to projects for women's empowerment, the social reintegration of incarcerated women, and initiatives to address social vulnerability, in accordance with Article 4 of MF Ordinance No. 26/2023.

The program's positive socio-environmental impact is widely recognized. By sustainably repurposing goods that were previously discarded, the Receita Federal do Brasil promotes the circular economy, waste reduction, and social innovation. More than an administrative measure, Receita Cidadã embodies the social function of taxation and public ethics in government management, putting into practice the principle that every state resource can and should be used for the collective good.

1.3.2.3. Tax awareness and education. Citizen training and public communication

The third axis of the RFB's Fiscal Citizenship Program consolidates actions aimed at fiscal education, citizen training, and institutional communication, with a focus on cultural change and the construction of a collective

14 RFB Ordinance No. 200/2022.

awareness about the role of taxes in society. This line of action seeks to transform tax knowledge into an instrument of citizenship, promoting the understanding that tax collection and control are concrete expressions of social solidarity and the Republican pact.

The actions developed in this axis include conferences, workshops, training courses (for teachers, RFB staff and other public), thematic seminars, communication campaigns and guided visits to Receita Federal do Brasil units, such as the program *"Get To Know Our Customs",* that allow the population to know closely the structure of the RFB and the public function of the tribute.

The axis has as a structural pillar the project *"Fiscal Citizenship in University Extension and in the School Curriculum",* designed to integrate fiscal education into the basic and higher education systems, with the aim of consolidating a permanent educational policy, articulated with the Common National Curriculum Base (BNCC), the Law on Guidelines and Bases of National Education (LDB) and the national university extension policies. His proposal is born from the conviction that tax education is an essential dimension for citizen and democratic education and should be addressed in a transversal and systematic way in schools and universities. This project operates simultaneously on two axes:

1. **University Extension**, in accordance with the CNE/CES Resolution no 7/2018, which establishes a minimum of 10% of the hourly load of the degree courses in extension activities. This aspect connects higher education with concrete social demands, transforming universities and institutes into centers of applied fiscal citizenship; and

2. **School Curriculum**, in alignment with the BNCC, CNE/CEB Resolution No. 7/2010 and CNE/CEB Resolution No. 2/2024, which recognize tax education as a cross-cutting issue in basic education, favoring the development of skills aimed at tax justice, transparency and solidarity.

The proposal is supported by the RFB-MEC Technical Cooperation Agreement No. 21/2024, which paved the way for the formal inclusion of tax education in public education policies, strengthening the dialogue between the State and society.

The project also includes the development of educational materials, teacher training, technical support for state education departments, the creation of lesson plans, the production of videos, games, and educational activities, as well as collaboration with university outreach initiatives that bring together students, teachers, and communities.

Among the materials produced, the following stand out:

- **Primer "Fiscal Citizenship in the School Curriculum,"** which connects the BNCC with models of tax education classes in the classroom and presents a proposal for a normative act to formalize tax education in the states and municipalities.

- **Document "Curriculum Matrix in Fiscal Education – Citizenship Literacy and Fiscal Education,"** which suggests, according to the BNCC, competencies and skills in tax education that can be incorporated into school curriculum

- **Primer "Fiscal Citizenship in Education – Basic Education,"** with class scripts and classroom application models; and

- **Primer "RFB Fiscal Citizenship in University Extension,"** which brings together extension projects adaptable by higher education institutions.

In the university extension, Fiscal Citizenship promotes formative experiences that integrate theory, ethics, and social practice. The students, accompanied by teachers, develop projects aimed at fiscal inclusion and citizenship, applying their knowledge in real contexts of social transformation. Four programs stand out as references in university extension of the RFB Fiscal Citizenship, all of them already mentioned above:

- Accounting and Tax Support Center (NAF).
- Eu Sou Cidadão Solidário-Oriented Citizen.
- Receita Cidadã – A Receita of Social Transformation.
- Tax Awareness.

In the field of basic education, Fiscal Citizenship, by proposing the inclusion of fiscal education as a transversal and interdisciplinary topic in the curriculum of primary and secondary education, aims to form conscious, ethical and participatory citizens, capable of understanding the relationship between tribute, the common good and the exercise of citizenship.

The pedagogical proposals seek to develop competencies and skills such as the valorization of the public good and collective spaces; the understanding of the rights and duties of each citizen; active participation in public decisions and policies; the recognition of the social function of taxes in the financing of public policies; and the internalization of values such as solidarity, equity and fiscal justice.

Educational activities include active methodologies, such as tax awareness dynamics *"The Island"* and *"The Neighborhood,"* interdisciplinary projects, citizenship fairs, public transparency workshops, and integrated projects with universities, in which students of basic and higher education learn together through collaborative approaches of extension between educational levels.

Complementing the training process, the Receita Federal do Brasil develops the program *"Get To Know Our Customs",* mentioned in previous paragraphs, started in 2012 and expanded since 2022, which consists of guided visits to the customs routine at ports, airports and borders, observing the performance of the RFB in the protection of trade, in the fight against illicit and in the defense of the national economy.

In addition to customs, visits are also made to administrative units throughout the country, with talks and dialogue circles on the public function of the Receita Federal do Brasil. These actions are coordinated by an Interregional Fiscal Citizenship Team, responsible for the contents, scripts, and educational materials.

This "Awareness-raising" axis also develops communication actions aimed at forming public opinion and strengthening the institutional image of the RFB. Among the ongoing projects, the following stand out:

- **Perception indicator**, which measures society's perception of fiscal citizenship initiatives.
- **Fiscal Citizenship in sight**, which expands the internal and external disclosure of Fiscal Citizenship actions; and
- the **participation in the Tax Reform Working Group** (Supplementary Law No. 214/2025, art. 61), which deals with the institutionalization of tax awareness in the new model of taxation on consumption.

Finally, and in accordance with Article 11 of RFB Ordinance No. 214/2022, all institutional communications of the RFB must contain elements that reinforce the socio-economic importance of the taxes and of the institution itself.

The axis of Tax Awareness and Education is the pedagogical and symbolic heart of the Fiscal Citizenship Program. It explains taxation, humanizes the tax administration, and educates for social co-responsibility, uniting teaching, extension, research, communication, and citizenship.

The integration between the *NAF, Eu Sou Cidadão Solidário, Receita Cidadã and the Fiscal Citizenship* *project in the University Extension and in the School Curriculum* it shows that educating fiscally is also socially transforming, consolidating a public culture based on ethics, transparency, solidarity, and tax justice.

1.3.3. Management and measurement instruments

The restructuring of the Fiscal Citizenship Program of the Receita Federal do Brasil of Brazil was not limited to a conceptual and pedagogical reformulation. The new model also acted in the creation of technical management and results measurement instruments, transforming the program into a public policy with strategic planning, verifiable goals, and performance indicators.

These instruments were conceived and regulated by the General Coordination of Attention (COGEA), which began to function as an instance of national planning, monitoring, and evaluation of Fiscal Citizenship actions. The management model adopted is based on the triad plan, execute and measure, establishing a cyclical and continuous logic of institutional improvement.

1.3.3.1. Fiscal Citizenship work plan

The Fiscal Citizenship Work Plan is the main planning and management instrument of the program. On an annual basis, the most recent plan was instituted by Cogea Ordinance No. 263, of October 24, 2025, formalizing the methodological structure that defines the actions, goals, and responsibilities in each annual exercise. This plan fulfills four essential functions:

1. **Planning** – consolidate national and regional goals based on a situational diagnosis of the actions and capacities installed.

2. **Executing** – guide the implementation schedule of the activities, aligned with the quarterly goals.

3. **Monitoring** – define the mechanisms for monitoring, collecting, and recording results in institutional systems; and

4. **Evaluating** – to coordinate the data with the Quarterly Indicator of Fiscal Citizenship (ICF) and with the Institutional Efficiency Index (IEI), allowing an analysis of quantitative and qualitative performance.

As detailed in the previous section “1.2.1 Conceptual Basis and structuring regulatory frameworks”, the preparation of the plan is mandatory for the ten Fiscal Regions of the Receita Federal do Brasil and is reviewed annually.

Each Fiscal Region has a quantitative target proportional to the number of units in its respective jurisdiction, which guarantees fairness in the distribution of objectives and targets. From 2026, a qualitative goal will be incorporated, aimed at measuring the scope, innovation, quality, and social impact of the actions conducted.

According to the approved methodology, 70% of the Fiscal Region’s quantitative target will be set by the Work Plan Ordinance, based on uniform national parameters, while the remaining 30% will be defined by the Fiscal Region itself, according to its specificities, priorities, and operational capacity.

This division seeks to balance standardization and autonomy, promoting regional prominence and innovation in the execution of initiatives.

The goals include six categories of action:

1. Accounting and Fiscal Support Center (NAF).
2. University Extension.
3. School Curriculum.
4. Citizen for Social Solidarity.
5. Receita Cidadã.
6. Other actions are defined by the regional management.

These goals, although proportional to the structure of each Fiscal Region, must converge with national objectives, ensuring coherence and integration between the regional and central levels.

The monitoring is conducted through a standardized spreadsheet, consolidated at the national level by the Cogea, which records the results, measures the performance and provides the basis for comparative and evolutionary reports and analyses of the actions, guaranteeing transparency, governance, and continuous improvement.

1.3.3.2. Quarterly Indicator of Fiscal Citizenship (ICF)

As mentioned above, the Quarterly Fiscal Citizenship Indicator (FCI) is the technical axis of the restructuring, created by RFB Ordinance No. 233/2022 and refined by subsequent regulations. This indicator measures the degree of execution and effectiveness of the Fiscal Citizenship actions conducted by the Fiscal Regions and is part of the metrics of the Institutional Efficiency Index (IEI) of the Receita Federal do Brasil. The FCI has a composite nature and covers performance variables distributed in five dimensions:

1. **University Extension** – number of associated higher education institutions, number of joint actions and incorporation of Fiscal Citizenship in extension programs and projects.

2. **School Curriculum** – existence of normative acts that include fiscal education in educational networks, teacher trainings and pedagogical materials produced.

3. **NAF** – quantitative expansion of centers and events realized from their structure.

4. ***Citizen for Social Solidarity***- the scope of the targeted campaigns and the volume of resources allocated; and

5. **Citizen Receita** – actions of transformation and socio-environmental destination of seized goods, with a focus on sustainability, social impact, and the valorization of the public function of tribute.

Each dimension has specific weights defined annually by the Cogea, and the final score of each Fiscal Region is obtained by the weighted average between the physical execution and the qualitative results.

The indicator is calculated quarterly, which allows for continuous monitoring and constant feedback of regional strategies.

In addition to measuring results, the ICF fulfils an internal pedagogical function: it stimulates cooperation between regions and the search for innovation and good practices, fostering a results-oriented management culture and institutional values.

1.3.3.3. Culture of evaluation

The introduction of measuring instruments had not only a technical purpose, but also a symbolic one. It points to a cultural change within the Federal Receita: education and Fiscal Citizenship became treated as strategic areas, subject to planning, goals, and evaluation, and not only as awareness-raising activities incorporated as a general competence without a fundamental structuring.

The culture of measurement strengthens the legitimacy of the program, by allowing to demonstrate the public value of the actions developed and the institutional return in terms of image, commitment, and administrative efficiency.

1.3.4. Governance structure

The consolidation of Fiscal Citizenship as a public policy of the Receita Federal do Brasil of Brazil has been accompanied by a solid system of governance and inter-institutional coordination, aimed at ensuring methodological coherence, continuity of actions and integration between the different levels of management.

The governance of the program is exercised in an articulated manner between the General Coordination of Attention (COGEA), the Regional Superintendencies of the Receita Federal do Brasil, and the Regional Teams of Fiscal Citizenship, forming a federative arrangement of shared responsibilities, in accordance with the provisions of Ordinance RFB nº 214/2022, which defines the principles and scope of Fiscal Citizenship in the institution.

1.3.4.1. Hierarchical levels of the governance structure

The governance model was structured based on three interdependent hierarchical levels:

- **Strategic level (Cogea/RFB):** linked to the central administration of the RFB, Cogea is responsible for the formulation of policy, the elaboration of regulations, the definition of national goals, the consolidation of data and the preparation of performance reports. In addition, it acts as an instance of institutional representation before national and international partners and is responsible for the validation of the data and the continuous monitoring of the results, in accordance with the measurement regulations. This body guarantees the fidelity of the information and the alignment of the actions with the goals of the Institutional Efficiency Index (IEI).

- **Tactical Level (Regional Superintendencies):** the Regional Superintendencies (10 throughout Brazil) coordinate and supervise the implementation of Fiscal Citizenship actions in their respective jurisdictions, ensuring methodological consistency and compliance with the goals defined in the Work Plan. Each superintendency has a Regional Manager of Fiscal Citizenship, responsible for integrating local initiatives with national guidelines.

- **Operational Level (Delegations, Customs and Regional Teams):** it includes the servers present in various cities, responsible for the direct implementation of the actions, the articulation with educational institutions and local partners, and the data collection for the Quarterly Indicator of Fiscal Citizenship (ICF). This level constitutes the basis of support of the program, guaranteeing its presence in all Fiscal Regions of the country.

This model guarantees that Fiscal Citizenship is executed in a decentralized way and within a structure of national standardization and vertical integration. At the same time, it promotes innovation and the autonomy of Fiscal Regions in formulating solutions adapted to local realities.

1.3.5. Planning and decision-making

The planning process follows a cyclical dynamic composed of four stages: 1) formulation of the national goals by the COGEA; 2) elaboration of the Regional Plans by the Superintendencies; 3) decentralized execution by the local teams; and 4) consolidation and national evaluation of the results.

The decision flows are supported by electronic management forms, which allow the recording, monitoring, and analysis of the results in real time. The quarterly reports prepared by the COGEA (at the national level) and by the Fiscal Regions feed into the monitoring sheet of Fiscal Citizenship actions, a transparency and control instrument that enables the comparison of performance and the exchange of good practices.

The methodology adopted favors a collaborative and participatory management culture, in which decisions are made based on evidence and actions are dynamically adjusted according to the observed results.

1.4. Institutional progress as a result

The presence of Fiscal Citizenship on the Strategic Map of the RFB for the years 2024 to 2027, its inclusion as one of the indicators of the Institutional Efficiency Index and its integration into the Brazilian educational system represented and continue to represent significant institutional advances for the consolidation of the program.

1.4.1. Institutional consolidation: Incorporation into the strategic map and indicators of the RFB

In the last semester of 2023, in addition to the fact that Fiscal Citizenship was incorporated into the regulations that established the Institutional Efficiency Index[15], through the Indicator of Fiscal Citizenship Actions, it happened to have a project within the Strategic Map of the RFB for the years 2024/2027[16]: the project *"Fiscal Citizenship in University Extension and in the School Curriculum",* addressed earlier.

The strengthening of Fiscal Citizenship on the Strategic Map of the RFB represented a very important step forward for the restructuring and the desired permanence of the program. According to the provisions of this map, in force between 2024 and 2027, Fiscal Citizenship is in the Process Objective "Promoting Fiscal Citizenship", being a condition for the realization of one of the necessary strategies to achieve the Strategic Objective of Results: "Satisfaction of Citizens with the RFB".

1.4.2. Integration with the education system

One of the most important pillars of the restructuring of the Fiscal Citizenship Program was the formal integration with national educational policies, both in basic education and in higher education. Not by chance, this topic is part of the Strategic Map of the RFB 2024/2027.

This integration was consolidated through normative instruments, institutional agreements, and pedagogical references, which gave legitimacy and continuity to the program.

1.4.2.1. Regulatory framework and cooperation with the EQF

This integration with the educational system had as a decisive milestone the signing of the Technical Cooperation Agreement Nº 21/2024, concluded between the Receita Federal do Brasil of Brazil and the Ministry of Education (MEC), whose objective is "to promote the inclusion of Education and Fiscal Citizenship in the curriculum of Basic and Higher Education and in University Extension programs".

From this agreement, Fiscal Citizenship became suggested to integrate the pedagogical guidelines of bachelor's degree courses, extension programs, and continuing teacher training.

In addition to the MEC, the project involves a direct articulation with the National Council of Education (CNE) and with educational entities, such as the National Unions of the Municipal and State Councils of Education, as well as with State and Municipal Education Secretariats, guaranteeing federative dialogue and adaptation to local realities.

1.4.2.2. Curricular inclusion in basic education

The integration of Fiscal Education into the Basic Education curriculum is made possible by adapting it to the General Competencies of the Common National

15 Resolution No. 2, of 30/8/2023.

16 Strategic Planning of the RFB. Strategic Map 2024/2027 in https://www.gov.br/receitafederal/

Curricular Base (BNCC), especially in the areas of Human Sciences and Financial Education. In addition, specific curricular matrices of Fiscal Citizenship were developed for the nine years of Primary Education and the three years of Secondary Education, structured in: Specific competencies; Formative principles; Thematic units; Knowledge objects; Skills coded according to the BNCC.

These matrices were published in the Reference of the Fiscal Citizenship Program of the RFB (2025) and made available for voluntary adoption by state and municipal educational systems. The proposal respects the pedagogical autonomy of schools and suggests normative security and methodological guidance for the cross-cutting insertion of the topic in Political-Pedagogical Projects (PPPs).

In addition to the curricular material, the RFB coordinates teacher training programs in collaboration with universities and education secretariats, using active methodologies, learning paths and multimedia materials that promote the role of teachers and interdisciplinary dialogue.

1.4.2.3. University extension as a space for Fiscal Citizenship

In Higher Education, as we saw, the restructuring of the program is based on the CNE/CES Resolution Nº 7/2018, which establishes the obligation that at least 10% of the total hourly load of the degree courses is dedicated to university extension activities.

Based on these regulations, the RFB structured the project *'Fiscal Citizenship in University Extension'* as a recognized thematic field, allowing higher education institutions to integrate their extension actions to the goals of the program.

Partnerships with public and private universities have given rise to a network of courses, subjects and extension projects that address the relationship between taxes, the State and society. The program also promotes seminars, applied research workshops and interdisciplinary training programs, in which students play a leading role in the dissemination of tax knowledge and community service.

The NAF (Accounting and Fiscal Support Core) Program is the operational axis of this integration, being recognized as an instrument of learning, extension, and citizenship. As presented in previous paragraphs, the NAFS function as laboratories for the practical application of Fiscal Citizenship: they provide free guidance to the population, disseminate good practices, and serve as spaces for civic and social living. With more than 465 active centers in Brazilian universities, the NAF has become one of the largest university extension programs in Latin America, consolidating the role of the Receita Federal do Brasil as a promoter of knowledge and inclusion.

1.4.2.4. Knowledge production and institutional exchange

Another relevant aspect is the valorization of scientific and pedagogical production related to Fiscal Citizenship. The RFB encourages the publication of articles, theses and technical reports that explore the relationship between taxation, citizenship, and public policies, fostering an academic community oriented to innovation in the field of tax administration.

To this end, actions have been conducted by fiscal regions with the aim of encouraging such productions, there being an annual Certification for the NAF, which values innovative projects that, due to their social relevance, demonstrate regulatory changes or represent an action with a potential positive impact for society.

1.5. Post-structuring results up to November 2025

Throughout this article, it has been possible to identify various results related to the RFB's Fiscal Citizenship restructuring plan. However, some of the most relevant results of this program can still be mentioned both internally and externally to the Receita Federal do Brasil.

1.5.1. Internal results and impacts at the Federal Revenue Service

Since the implementation of the new model, the results have evidenced a significant institutional consolidation. Between 2023 and 2025, the actions of the RFB's Fiscal Citizenship Program reached all Brazilian states and registered a continuous increase in the adherence of partner institutions, both in the educational and social fields. The main observed impacts include:

- Exponential growth of the NAF network, with more than 465 active and expanding cores.
- Expanding the presence of tax education in school curriculum and university extension programs.
- Formalization of inter-institutional alliances with control bodies, education secretariats, universities, and public policy councils.
- Integration of the topic Fiscal Citizenship into the institutional planning instruments of the RFB, ensuring its permanence and strategic recognition.
- Creation of a specific portal to collect RFB Fiscal Citizenship documents and materials internally (Intranet) and of a page on the Federal Revenue Service website with a similar objective and external focus.
- Improvement of the efficiency indexes and the institutional image, evaluated by perception indicators.

In addition to the quantitative results, the program has been consolidating an important symbolic impact: the transformation of internal and external perception about the role of the Federal Receita. The institution is beginning to be recognized not only as a collecting agent, but also as a social educator and promoter of Fiscal Citizenship, strengthening its legitimacy before society.

1.5.2. Results and impacts external to the Federal Revenue Service

The work conducted throughout Brazil over the years of restructuring the RFB's Fiscal Citizenship expanded the spaces of presence of the Federal Revenue Service in social life, generating greater closeness and breaking down prejudices, fears, and distorted visions about the role of the institution. Noteworthy examples include:

- The increase, in the media, in invitations and in the visibility of Fiscal Citizenship initiatives conducted by the RFB or its partners.
- The expansion of the offer of spaces in national, regional, and local events for the Federal Revenue Service to present its actions and strengthen its approach to society.
- The positive perception of taxpayers, in comments on social networks, when the Federal Revenue Service discloses actions related to the Fiscal Citizenship program.
- The increasing updating of regulations in the area of education, at all federal levels, to include tax education as a central focus, progress driven by the coordinated work of the RFB.
- The increase in the participation of the population in the voluntary allocations of part of the income tax to social projects, being emblematic the example of the campaign to support the state of Rio Grande do Sul that, in 2024, had one of the most significant collections – in the whole country – for the Funds of the Rights of Children and Adolescents and of the Elderly, thanks to the support of individuals and organizations from all Brazilian states.

2. FUTURE PROSPECTS

Despite the progress achieved, the program still faces challenges that require strategic attention. Without listing them all, some considered central are mentioned:

- In the organizational context, ensure institutional and budgetary continuity, especially in contexts of management change.
- As a means to make the maintenance and evolution of the works feasible, to ensure a structure that maintains dedicated teams in all the projections of the RFB.
- In the field of actions in basic education systems, expand integration with state and municipal education systems, strengthening the federative character of the policy.
- In the regulatory field, to expand the organic presence of Fiscal Citizenship in the RFB and the representativeness of citizenship and tax education in national, state, and municipal legislative norms.
- From the perspective of accountability and continuous improvement of processes, improve the qualitative evaluation mechanisms, incorporating social impact and learning metrics, as well as automated information systems, such as dashboards.
- From the point of view of communication, to intensify social communication and public transparency, promoting citizen commitment.
- Considering the contribution to the internal culture, investing in continuous training for servers and employees of the RFB, creating spaces for citizens to reach their greatest destiny within the institution, which is its transversal effectiveness.
- With the aim of making tax education effective in basic education, investing in training actions for collaborating teachers, ensuring the pedagogical and methodological quality of the activities.

To conclude, for the biennium 2026–2027, COGEA plans new stages of improvement, including the expansion of partnerships with the Ministry of Education, in order to advance in the consolidation of Fiscal Citizenship as a State public policy.

FINAL THOUGHTS

The restructuring of the Federal Revenue Service's Fiscal Citizenship Program represents a far-reaching institutional transformation, both in terms of the scale of its implementation and the depth of its impact.

It redefines the relationship between the State and society by introducing, into the organizational culture of the federal tax administration, principles related to education, shared responsibility, and citizen participation, thereby strengthening the institutional values of transparency and respect for citizens.

The trajectory initiated by RFB Ordinance No. 214/2022, consolidated by the Fiscal Citizenship Framework (2025), demonstrates the institutional maturity achieved by the Federal Revenue Service (RFB) in integrating its traditional functions of collection and enforcement with a citizen-oriented dimension—educational and pedagogical in nature—aimed at enhancing the social contract.

The Fiscal Citizenship Program is positioned as a strategic instrument of public governance for the RFB, capable of aligning institutional goals with the promotion of public value, transforming tax education into a permanent component of management and a vector for democratic strengthening.

More than just disseminating knowledge about taxes, the RFB's Fiscal Citizenship Program teaches people to understand the State, its functions, and the importance of every citizen's participation in building a just and solidarity-based society. By making visible the link between the act of paying taxes and the implementation of public policies, the program helps to increase social trust in public institutions and reinforces the role of the Federal Revenue Service as a promoter of the common good.

The Federal Revenue Service's new Fiscal Citizenship model incorporates into its educational dimension—which constitutes its primary purpose—a structural foundation designed to ensure its sustainability, supported by an institutionally integrated, replicable, and sustainable management model aligned with best practices in contemporary tax administration.

Its consolidation, which enables the effective mainstreaming of Fiscal Citizenship within the RFB and, in coordination with partner institutions, extends this approach to various social segments, is the result of the collaborative work of hundreds of civil servants, educators, and partner organizations committed to the mission of educating to understand, participate, and transform.

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Beyond Penalties: Tax Shaming, Fiscal Transparency, and the Architecture of Global Tax Governance

Antonio Lopo Martinez

SYNOPSIS

This study examines the use of tax shaming as a reputational enforcement tool in modern tax systems. It evaluates whether public disclosure of tax non-compliance can strengthen fiscal transparency and promote voluntary compliance without infringing on rights such as privacy and due process. Drawing on regulatory theory and cross-country comparisons—including the UK, Nordic countries, the EU, Australia, the United States, Brazil, and Spain—the analysis identifies key principles of legitimacy, proportionality, and fairness that should guide its application. The study concludes by proposing a balanced framework to ensure that reputational enforcement supports effective and trustworthy tax governance.

KEYWORDS: Tax Transparency, Tax Shaming, Tax Compliance, Global Tax Governance, Reputational Sanctions

CONTENTS

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INTRODUCTION

In the face of a worldwide challenge to fiscal legitimacy, governments are increasingly driven to explore non-traditional methods to achieve tax compliance, moving beyond the reliance on conventional penalties. In recent years, reputation mechanisms based on transparency and public scrutiny have gained prominence (Okafor, 2023). One such instrument is tax shaming, in which authorities publicly identify individuals or corporations accused of tax non-compliance. Rooted in naming-and-shaming strategies, this approach aims to deter misconduct by imposing reputation costs. It represents a hybrid model that blends moral sanction with public policy, which is part of a broader shift toward regulation through information and social accountability.

Despite its growing use, tax shaming raises complex questions regarding legality, fairness, and effectiveness. How can jurisdictions leverage reputational enforcement without undermining core taxpayer rights, such as privacy, due process, and proportional treatment? This study addresses these tensions by examining whether and how tax shaming can enhance fiscal transparency while remaining legitimate in democratic governance.

To explore this, this study draws on regulatory theory and international practice. Section 2 outlines the conceptual underpinnings of reputational enforcement and responsive regulation. Section 3 surveys comparative legal frameworks, including the United Kingdom's deliberate defaulter regime, Nordic full-disclosure systems, the European Union's public CbCR mandate, Australia's evolving hybrid model, and the U.S. Corporate Transparency Act and contrasting cases such as Brazil and Spain. Section 4 evaluates normative constraints such as proportionality, fairness, and procedural safeguards. Section 5 considers governance implications, including tax shaming's role in global regulatory coordination and its integration into ESG and corporate accountability. It also proposes a framework for balanced reputational enforcement. Finally, Section 6 presents the conclusions and future research directions, emphasizing that reputational strategies must align transparency with rights protection to achieve lasting trust and legitimacy in tax systems.

1. THEORETICAL AND CONCEPTUAL FRAMEWORK

1.1. Reputational Regulation and Governance by Disclosure

Reputational incentives, often referred to as governance through disclosure, have become a defining feature of modern regulatory capitalism. Rather than relying solely on coercive tools, regulators increasingly use transparency and public exposure to influence behaviors. As Black (2008) notes, achieving legitimacy in such regimes depends on constructing new dynamics of accountability and effectively mobilizing societal actors, such as the media, consumers, and investors, as enforcers of norms. Similarly, Levi-Faur (2013) highlights the expansion of "new governance mechanisms" that shift away from traditional command-and-control toward information-based and reputational strategies.

In this context, naming and shaming emerge as hybrid regulatory instruments. It works by publicizing non-compliance to activate moral sanctions, such as shame and social disapproval, as well as reputational consequences. Unlike formal penalties such as fines or imprisonment, the sanction is informal, based on the loss of social standing or goodwill, but can be a potent deterrent. It is essential to distinguish between reputational enforcement and humiliation. When implemented with clear public interest and policy objectives, naming and shaming enhances transparency and accountability of the government. When applied arbitrarily or excessively, it risks being punitive and abusive. The challenge lies in maintaining this balance, which is the core concern of this study.

1.2. Tax Shaming as a Form of Reputational Enforcement

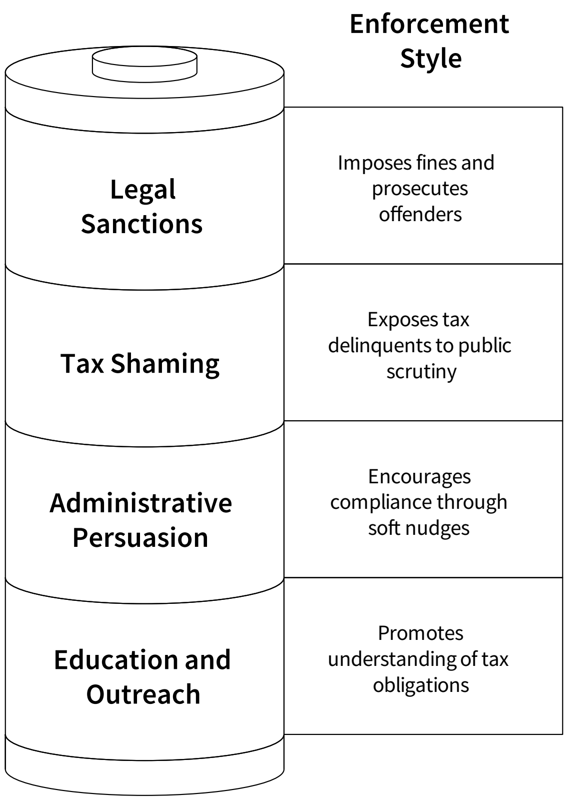
In the fiscal context, tax shaming has emerged as a distinct form of reputational enforcement. Governments are increasingly disclosing tax-related data, such as lists of major delinquents and corporate tax contributions, to influence behavior. Hanlon, Hoopes, and Shackelford (2025) document how public exposure to tax avoidance can trigger reputational costs that rival formal sanctions. For publicly traded companies, the risk of consumer backlash or investor divestment can act as a strong compliance incentive.

Legal dimensions are equally important in this regard. Tax shaming, although aimed at promoting transparency and fairness, must respect the boundaries established by law, including the principles of proportionality, privacy, and due process. The theory of responsive regulation (Braithwaite 2009) offers guidance. It envisions a graduated enforcement model in which authorities escalate from persuasion to sanctions only when needed. In this model, tax shaming occupies an intermediate tier. It is more assertive than education but less intrusive than prosecution and seeks to appeal to taxpayers' internal motivations and sense of civic duty.

Recent findings suggest that reputational enforcement is most effective in sectors where public image matters. For instance, business-to-consumer (B2C) firms are more likely to respond to reputation exposure than business-to-business (B2B) firms. This supports the idea that tax shaming influences behavior not only through fear but also by leveraging social dynamics and reputational concerns.

The section concludes by presenting a figure that demonstrates the role of tax shaming within the larger scheme of regulatory strategies.

Figure 1: Tax Shaming in the Pyramid of Responsive Regulation



This illustration underscores the importance of reputational tools in ensuring compliance. It indicates that these tools can facilitate voluntary adherence before the need for enforced measures arises.

2. COMPARATIVE LEGAL FRAMEWORKS OF FISCAL TRANSPARENCY AND TAX SHAMING

This section surveys how various countries and regions have implemented fiscal transparency measures that amount to tax shaming and how their legal systems have responded. The examples range from nations embracing public disclosure as a cultural norm to those with strict taxpayer confidentiality rules, illustrating a spectrum of approaches to tax information disclosure.

2.1. United Kingdom

The United Kingdom pioneered a formal name-and-shame program for tax offenders through HMRC's Deliberate Tax Defaulters list. This policy was authorized by Section 94 of the Finance Act 2009, which gave HMRC power to publish the identities of taxpayers penalized for deliberate tax evasion or fraud[1]. Under HMRC's rules, a taxpayer can be named if three conditions are met[2]: (1) they incurred a deliberate tax penalty; (2) the tax underpaid exceeds £25,000; and (3) they did not obtain the maximum penalty reduction by fully cooperating with HMRC. Only serious cases of intentional non-compliance are targeted, and even those can avoid publicity by cooperating with investigators. HMRC published its first defaulter list in 2013 and updates it quarterly.

Several procedural safeguards exist in UK law to ensure this. HMRC must notify the taxpayer in advance of the intention to publish and allow them to make representations. Only exceptional circumstances (e.g., serious risk to an individual's safety) prevent naming. There is no separate right to appeal the decision to publish apart from appealing the underlying penalty. Entries were removed after 12 months, following the principle of proportionality. HMRC confines publication to its website and states that it complies with human rights and data protection standards.

The UK model has sparked debates regarding its fairness and efficacy. While intended to deter non-compliance and reinforce tax morality, critics argue that it targets minor offenders and spares high-end tax avoiders. Its reputational impact seems to be limited. However, authorities claim that it helps prompt cooperation and enhances the monitoring of repeat offenders. Overall, the UK cautiously applies tax shaming within legal bounds and for a limited duration; however, questions remain regarding its effectiveness and fairness.

2.2. Nordic Countries (Norway, Finland, Sweden)

In the Nordic region, public tax disclosure has long been practiced as a social equity norm. Norway, Finland, and Sweden legally mandate the transparency of tax information. Norway has published citizens' tax returns since 1863. Today, anyone can look up others' income and taxes paid (Doyle & Scrutton, 2016). A recent change requires that taxpayers be notified of who accessed their data, reducing casual inquiries. Finland and Sweden have similar systems. The Finnish media publishes a list of top earners annually.

These measures are embedded in the cultural values of trust and equality. The "Law of Jante" emphasizes that no one should act superior to others.[3] Transparency reinforces the shared burden of taxation. Scandinavian surveys rank highly in terms of public trust, and their tax agencies enjoy a strong reputation.

However, privacy concerns exist. Norway ended anonymous access due to misuse fears. Finland restricted mass commercial publications after legal challenges. In the *Satakunnan v. Finland* case (2017)[4], the European Court of Human Rights upheld limits on the bulk republication of tax data by third parties, emphasizing the need to balance privacy with the public

1 Finance Act 2009, c. 10 (UK), § 94.

2 HM Revenue & Customs, Publishing Details of Deliberate Tax Defaulters (PDDD) – policy guidance (updated 2025).

3 The "Law of Jante" (*Janteloven*) is a Nordic cultural norm emphasizing modesty and social equality, helping explain the high societal acceptance of broad fiscal transparency.

4 Satakunnan Markkinapörssi Oy and Satamedia Oy v. Finland, no. 931/13, European Court of Human Rights (Grand Chamber, 27 June 2017). Available at: https://hudoc.echr.coe.int/eng?i=001-175121

interest. GDPR compliance remains essential, and Nordic governments have introduced safeguards to regulate the duration and openness of tax information circulation[5].

In summary, the Nordic model shows that broad transparency can function with strong public support and legal protection. Although it may not translate easily elsewhere, it remains a benchmark for combining openness and social cohesion.

2.3. European Union

The European Union has adopted tax transparency as a tool to curb corporate tax avoidance. Directive 2021/2101[6] requires large multinationals to publicly report country-by-country tax data. This includes revenue, profit, taxes paid, and employee figures per jurisdiction. The directive, effective by 2026, exceeds OECD requirements by mandating public disclosure, not just reports to tax authorities.

The EU frames this as a corporate accountability measure, aligned with ESG standards and the European Green Deal. Transparency is meant to pressure companies whose tax behaviors appear aggressive or unbalanced. Reports showing profits in low-tax countries without corresponding activity can trigger reputational backlash.

However, legal limits exist. In 2022, the CJEU invalidated public access to beneficial ownership registers (Joined Cases C-37/20 and C-601/20)[7] under privacy rights. This ruling underscored the need to balance transparency and individual rights. EU rules focus on corporate, not personal, data and are calibrated to align with the GDPR.

Overall, the EU presents a structured use of reputational enforcement, focused on large companies, designed to foster fairness and public scrutiny while avoiding breaches of personal privacy (Dourado, 2015).

2.4. Australia

Australia has adopted a hybrid model. Legislation enacted in 2013 requires the Australian Taxation Office (ATO) to publish the tax data of companies above certain revenue thresholds. Since 2015, annual transparency reports have disclosed total income, taxable income, and the income tax paid. Although many companies report zero tax due to losses or legitimate deductions, these disclosures have generated reputational pressure and public scrutiny.

Complementing this mandatory disclosure, a voluntary Tax Transparency Code (TTC) introduced in 2016 encouraged companies to provide more detailed narrative reports on tax strategy, governance, and effective tax contributions. While approximately 60% of eligible firms have adhered to the code, the Australian Treasury has noted that adoption is inconsistent and that the voluntary framework yields uneven results. According to the *Multinational Tax Integrity and Enhanced Tax Transparency* consultation[8], the government considers mandatory public country-by-country reporting as a necessary step to ensure consistent and credible disclosure practices.

5 The General Data Protection Regulation (GDPR) is the European Union's data-protection framework. In the Nordic countries, compliance requires limiting how long tax data remain accessible and controlling their republication to avoid disproportionate exposure.

6 Directive (EU) 2021/2101 of the European Parliament and of the Council of 24 November 2021 amending Directive 2013/34/EU as regards disclosure of income tax information by certain undertakings and branches. OJ L 429, 1.12.2021, pp. 1–14.

7 WM and Sovim SA v. Luxembourg Business Registers, Joined Cases C37/20 & C601/20, CJEU (2022).

8 See: Australian Treasury (2022), *Multinational Tax Integrity and Enhanced Tax Transparency*, Consultation Paper, available at https://treasury.gov.au/consultation/c2022-297736

This shift reflects the broader tension between reputation and fairness. Raw aggregate data without explanatory context may mislead the public, and voluntary reports may omit unfavorable details. Australia's evolving framework illustrates the difficulty of balancing meaningful transparency with accurate interpretation and the growing movement toward mandatory, standardized reporting to reduce reputational distortions.

2.5. United States

The United States has adopted a centralized transparency model through the Corporate Transparency Act (CTA), enacted in 2021 and effective in 2024. The CTA requires most corporations, LLCs, and similar entities to disclose their beneficial owners to the Financial Crimes Enforcement Network (FinCEN), which maintains a non-public federal registry accessible only to law-enforcement agencies, financial institutions performing customer due diligence, and certain regulators.[9] This marks a substantial shift in U.S. anti–money laundering policy, embedding beneficial ownership disclosure into federal compliance architecture (LeFever, 2024).

Unlike the EU or Nordic countries, the U.S. framework does not make ownership or tax data publicly available. Nonetheless, the possibility of enforcement actions, data requests, or investigative reporting can still create indirect reputational pressure, particularly for entities operating in regulated sectors. Moreover, the CTA imposes significant civil and criminal penalties for non-compliance, reinforcing the coercive effect of the reporting obligation.

In 2024–2025, federal litigation introduced uncertainty regarding the law's scope. A U.S. District Court initially held the CTA unconstitutional as applied to a trade association and several business owners, leading to a temporary, party-specific enforcement suspension.[10] Although the ruling did not invalidate the CTA nationwide, it highlights an ongoing tension in the U.S. between privacy advocates, federalism concerns, and proponents of stronger financial transparency.

The American model illustrates a regulatory preference for privacy-protective enforcement while leveraging transparency mechanisms to deter illicit financial behavior.

2.6. Contrast Cases: Brazil and Spain

Brazil enforces strict tax secrecy laws. Article 198 of the National Tax Code prohibits the public disclosure of taxpayer information, which is treated as financial secrecy and may only be shared under specific legal conditions.[11] One exception is the public listing of taxpayers with enrolled debt in the *Dívida Ativa da União*, permitted because, at that stage, the tax obligation has become a final and enforceable public debt.[12]

9 The Corporate Transparency Act (31 U.S.C. § 5336) creates a federal beneficial ownership reporting system administered by FinCEN. Reports are confidential and accessible only to law-enforcement agencies, financial institutions for required due diligence, and authorized foreign authorities.

10 See *National Small Business Association v. Yellen*, No. 5:22-cv-01448 (N.D. Ala. Mar. 1, 2024), which enjoined FinCEN from enforcing the CTA solely against the plaintiffs. The court's ruling did not extend nationwide, and the federal government has appealed.

11 Article 198 of the Brazilian National Tax Code imposes strict fiscal-secrecy rules and prohibits disclosure of taxpayer information, except in narrowly defined legal circumstances.

12 The *Dívida Ativa da União* is Brazil's public registry of tax liabilities that have become final and enforceable as public debts. Its publication serves debt-collection purposes only and does not disclose tax-return data or ongoing disputes.

However, this mechanism serves debt-collection purposes and does not constitute a reputational sanction or a tax-shaming policy. Beyond this narrow exception, Brazil does not authorize the publication of tax returns, tax arrears under administrative dispute, or any other taxpayer-specific information. As a result, broader fiscal-transparency initiatives face both legal and cultural resistance.

Spain, by contrast, adopted a limited form of tax shaming in 2015 through the publication of an annual list of large tax defaulters (*lista de morosos*).[13] Under Article 95 bis of the General Tax Law (*Ley General Tributaria*), the tax agency publishes the names of individuals and companies with outstanding tax debts exceeding €1 million, provided such debts are final and not suspended or under appeal. The list is made available on the tax authority's website for a restricted period of three months and is deliberately formatted to limit indexation by search engines.

Although the measure has encouraged some debtors to settle liabilities before publication, it continues to raise concerns regarding proportionality, fairness, and compliance with Spain's stringent data-protection framework. Critics note that many listed taxpayers are insolvent—reducing the deterrent effect—and that the reputational impact may exceed what is justified for a civil-tax enforcement mechanism.

These contrasting cases show how legal traditions and privacy norms shape fiscal transparency policies. Brazil maintains confidentiality, whereas Spain adopts a cautious and legally bounded approach to reputation enforcement.

Table 1
Comparative Summary of Tax Shaming and Fiscal Transparency Approaches

Jurisdiction	Main Mechanism	Nature	Public Scope	Legal Basis
United Kingdom	Defaulters list	Reputational	Public (12 months)	Finance Act 2009, Section 94
Nordic Countries	Full tax disclosure	Cultural-normative	Public (open access)	National transparency laws
European Union	Public CbCR	Regulatory	Public (from 2026)	Directive 2021/2101
Australia	CbCR + Voluntary TTC	Hybrid	Partial/Voluntary	Tax Law + TTC + proposed reforms
Brazil	Tax secrecy	Protective	Confidential	CTN, Article 198
Spain	Large debtor list	Reputational	Public (3 months)	Ley General Tributaria, Art. 95bis
United States	Beneficial Ownership (BOI)	Centralized	Non-public	Corporate Transparency Act (2021)

Source: Own elaboration.

13 See: *Lista de morosos con Hacienda 2025* (list of tax delinquents), El País, 27 June 2025. https://elpais.com/especial/lista-morosos-hacienda/

3. NORMATIVE ASSESSMENT: LEGITIMACY, PROPORTIONALITY, AND DUE PROCESS

This section evaluates tax shaming in light of core legal and ethical principles. While increased transparency can improve accountability, it must be implemented in a manner that respects the rules of law and fundamental rights. Key considerations include the principle of proportionality (whether the intrusion on privacy is justified by public benefit), fairness and accuracy of the disclosed information, and procedural safeguards to protect taxpayer rights (Barile et al., 2025).

3.1. The Principle of Proportionality in Public Disclosure

Proportionality is essential when assessing measures that interfere with individual rights. In the context of tax shaming, public disclosure of taxpayer information must serve a legitimate aim and not exceed what is necessary to achieve that aim. Courts in Europe have reviewed such measures under privacy rights frameworks (e.g. Article 8 of the European Convention on Human Rights and similar EU Law provisions). A key example is the CJEU's 2022 ruling on beneficial ownership registers, which struck down open-access rules for being overly broad. The judgment clarified that while fighting financial crime is legitimate, the generalized exposure of personal data must be tightly tied to that purpose.

Therefore, tax-shaming policies must be targeted and restrained. Limits, such as monetary thresholds (e.g., Spain's €1 million or the UK's £25,000) and publication timeframes (e.g., one year in the UK, three months in Spain) help demonstrate that the policy is proportionate. These boundaries distinguish transparency from punishment and reinforce the aim of compliance, not perpetual public condemnation.

The distinction between deterrence and punishment is particularly critical. If naming measures are perceived as punitive rather than preventive, legal protections, such as the presumption of innocence, may be triggered. Courts have addressed this issue. For example, in Chan v. HMRC (UK, 2014)[14], a tribunal held that the public's right to know about a solicitor's deliberate non-compliance outweighed the individual's reputational interest. Conversely, the European Court of Human Rights in Satakunnan (Finland, 2017)[15] emphasized that publishing tax data in bulk without editorial context could breach privacy rights.

In short, proportionality requires tailoring by limiting the scope, duration, and target population. When tax shaming is applied within these constraints, it is more likely to be legally valid and socially accepted.

3.2. Fairness and Accuracy

Publishing taxpayer data has reputational consequences, making it essential that the information released be accurate, contextualized, and fairly presented. Fairness begins with ensuring that only final and undisputed assessments are disclosed; authorities must implement strong safeguards against errors, including internal reviews and high thresholds for publication. Equally important is providing context. A taxpayer reported as paying no tax may appear non-compliant when, in fact, the outcome results from legitimate deductions or carried-forward losses. To avoid misleading interpretations, disclosures should include explanatory notes or other clarifying tools—an approach already used by Australia's ATO when releasing transparency reports.

Timeliness is another dimension of fairness. Data must be current and subject to prompt revision or removal

14 *Chan v. Commissioners for Her Majesty's Revenue and Customs, [2014] UKFTT 256 (Tax Chamber).*

15 Satakunnan Markkinapörssi Oy and Satamedia Oy v. Finland, no. 931/13, European Court of Human Rights (2017)

when circumstances change. If a taxpayer pays an outstanding liability shortly after publication, the public record should be corrected accordingly. Spain's three-month publication window and the United Kingdom's one-year limit illustrate how time-bound disclosures help prevent outdated information from causing disproportionate reputational harm.

Fairness also requires consistent treatment across taxpayers. Publication policies should not arbitrarily single out individuals while sparing corporations, or vice versa, and they must be guided by clear, uniform criteria. In sum, responsible transparency demands accurate, contextualized, and up-to-date information, supported by procedures that prevent misinterpretation and correct errors. When these fairness safeguards are absent, public trust erodes and the credibility of enforcement suffers.

3.3. Procedural Safeguards

Tax shaming often occurs outside traditional judicial processes, which makes robust procedural safeguards essential for upholding due process. A fundamental requirement is **prior notice**: taxpayers should be informed in advance of the intended publication and given an opportunity to present arguments or evidence against it. This protects fairness and can even lead to resolution before disclosure becomes necessary. Procedural integrity also requires that the underlying tax assessment be subject to **judicial or administrative review**, even where direct appeals of naming decisions are not available.

Ensuring proportionality also depends on **time limits**. Public disclosures should be temporary and followed by automatic removal after a defined period so that reputational effects do not persist indefinitely. Equally important is allowing taxpayers a **right to comment** or provide a brief clarification alongside the disclosure, reducing the risk of one-sided or misleading narratives. Finally, jurisdictions must address **collateral consequences** by regulating how third parties—such as credit agencies or financial institutions—may use published information, preventing disproportionate or unintended harm.

Countries that have institutionalized tax shaming, such as Ireland and the United Kingdom, typically incorporate these safeguards into their administrative design. Embedding such procedural protections strengthens legal resilience, enhances public legitimacy, and ensures that reputational enforcement operates as a fair and defensible component of tax governance.

4. GOVERNANCE IMPLICATIONS AND POLICY PROPOSALS

4.1. Tax Shaming in the Architecture of Global Tax Governance

Reputational enforcement mechanisms, such as tax shaming, are increasingly embedded in international tax governance as forms of soft power and indirect regulation. Institutions such as the OECD and the United Nations promote transparency to fight tax avoidance and evasion. In Latin America, for example, the OECD has documented substantial progress under the Punta del Este Declaration, which has helped expand information exchange and align regional standards with global transparency norms (OECD 2023). For instance, the OECD's Base Erosion and Profit Shifting (BEPS) project introduced Country-by-Country Reporting (CbCR), initially designed for confidential use but later expanded in public versions by the EU. The Global Forum on Transparency and Exchange of Information applies peer reviews and blacklists, creating reputational incentives for jurisdictions to meet standards. In this sense, tax shaming occurs not only at the taxpayer level but also at the country level.

Public CbCR in the EU reflects soft harmonization via transparency. The United Nations similarly advocates public accountability to meet the Sustainable Development Goals. The 2021 FACTI Panel recommended public tax disclosures and global asset registries to enable civil society monitoring. While these proposals vary in scope, the overarching trend points toward reputational governance as a means to transcend the limitations of national enforcement.

Cross-border reputational pressures can generate coordination. For example, the Panama Papers leak prompted global legal reforms despite not being an official enforcement act. When one country publicizes misconduct, others may face public and diplomatic pressure to respond.

However, global reputational enforcement raises concerns. Countries differ in legal capacity, privacy norms, and willingness to disclose, and global assessments show that several major financial centers continue to rank highly in terms of secrecy risk, exacerbating asymmetries in transparency (Tax Justice Network, 2025). These differences may lead to a "transparency divide," where some nations advance and others resist. Legal conflicts may also arise; a firm required to publish data in one country might be barred from doing so elsewhere. To avoid fragmentation, scholars have proposed a Global Charter on Reputational Fiscal Transparency. Such a framework could outline shared principles—ensuring that reputational tools respect human rights and support cooperation rather than tension.

When used carefully, tax shaming can enhance legitimacy in international tax governance. However, poorly coordinated efforts risk backlash and uneven burdens. The goal must be fairness, mutual accountability, and consistent standards.

4.2. The Role of ESG and Corporate Accountability

Tax behavior has become a core component of Environmental, Social, and Governance (ESG) standards. As part of corporate responsibility, firms are expected to disclose their tax strategies and demonstrate their alignment with the social contract. The GRI 207: Tax Standard (2019) formalized this by requiring public reporting of tax policy, governance, risk management, and CbCR.

Companies are increasingly issuing Tax Transparency Reports to prevent reputational damage. Investors and stakeholders evaluate tax behavior as part of ESG performance evaluation. A good tax reputation can attract funding, whereas aggressive avoidance may result in exclusion from responsible investment portfolios. Institutions now use tax conduct as a filter for environmental and ethical investment strategies (Christensen & Murphy, 2019).

The European Union's Corporate Sustainability Reporting Directive (CSRD) will make this trend a requirement. It treats fair tax contributions as part of a just economic transition. Thus, reputation is institutionalized: companies gain or lose legitimacy based on their fiscal behavior.

Tax shaming in ESG standards context is a private enforcement tool. Even in the absence of state action, NGOs, journalists, and shareholders may spotlight avoidance or opacity. The dynamics are no longer top-down. Firms are encouraged to be transparent not just to avoid sanctions, but to maintain their "license to operate."

4.3. Proposal: A Framework for Balanced Reputational Enforcement

Building on the preceding analysis, a coherent framework is needed to guide policymakers in designing tax-shaming mechanisms that are both effective and legally defensible. Such a framework aligns with principles discussed by Dwenger and Treber (2022) and rests on several interrelated dimensions. First, legitimacy requires a clear legal foundation, established through democratic processes and accompanied by transparent objectives—whether enhancing compliance, promoting fairness, or supporting deterrence. Without this foundation, disclosure risks being perceived as arbitrary and may undermine institutional trust. Second, proportionality demands that reputational measures be narrowly tailored in scope and duration, supported by thresholds, time limits, and periodic reviews to ensure that public exposure does not exceed what is necessary to achieve regulatory aims.

A third dimension involves fairness and accuracy, meaning that disclosures should concern only verified and final cases, presented with contextual information to avoid misinterpretation and updated promptly when circumstances change. A fourth element involves procedural safeguards, including prior notice, opportunities for taxpayers to respond, and mechanisms for correction or delisting, all of which reinforce due process and strengthen the normative legitimacy of the measure. Finally, clarity of purpose is essential: communication must emphasize transparency and deterrence rather than moral condemnation, avoiding stigmatizing language that could transform administrative enforcement into punitive spectacle.

Taken together, these principles could inform the development of a Global Charter on Reputational Fiscal Transparency, fostering international coherence and reducing the risks of excessive, conflicting, or inequitable practices across jurisdictions. Ultimately, reputational enforcement must be approached with care. Poorly designed systems risk eroding taxpayer rights and public trust, whereas balanced and procedurally sound frameworks can strengthen compliance, reinforce perceptions of fairness, and enhance the credibility of tax governance.

The key elements of this framework are summarized in Table 2.

Table 2
Key Elements for a Framework on Reputational Enforcement in Tax Policy

Principle	Description
Legal Legitimacy	Clear legal foundation and public-interest justification
Proportionality	Limits on scope, time, and intensity of public disclosure
Fairness and Accuracy	Publication of verified, contextualized, and updated information
Procedural Safeguards	Prior notice, response mechanisms, correction or delisting options
Purpose Clarity	Communication focused on compliance and public interest—not punishment

Source: Own elaboration.

CONCLUSION

This study demonstrates that tax shaming—public exposure of non-compliant taxpayers—has become a significant feature of modern tax enforcement. This reflects a shift from purely coercive tools to strategies that rely on transparency and reputational pressure. When carefully designed and implemented, tax shaming can contribute to fiscal transparency and voluntary compliance with tax laws. However, its legitimacy depends on achieving a careful balance between public interest and individual rights.

Transparency can increase public trust in the tax system, deter evasion, and reinforce a sense of collective responsibility among taxpayers. However, when disclosure measures are disproportionate or indiscriminate, they risk undermining the rule of law and violating principles such as privacy and due process. Tax shaming is effective and defensible only when applied in a targeted, fair, and transparent manner. It should highlight clear and egregious misconduct, not serve as a routine enforcement shortcut.

For countries with strong privacy traditions or fragile institutions, advancing transparency requires gradual reforms and cultural adaptations. Brazil exemplifies the challenges of transitioning from a secrecy-based model to one of greater openness. Incremental steps, such as disclosing aggregated data or setting transparency examples among public officials, may lay the groundwork for broader reforms. Importantly, legal frameworks must be updated through democratic processes to reflect evolving societal expectations, ensuring that transparency measures are not imposed at the expense of fundamental rights.

Globally, reputational enforcement illustrates how tax governance has become more socially embedded. The boundaries between public and private sectors in fiscal matters are changing, especially for high-profile actors such as multinational enterprises. Over time, norms may shift to the point where transparency is expected by default, and reputational sanctions become less necessary. Compliance will then be driven not by fear but by alignment with societal values.

Future research should explore the long-term effects of tax shaming on behaviors and trust. Key empirical questions remain: Does it materially increase compliance rates? How does it affect taxpayer morale and perceptions of fairness? Does it work differently across taxpayer segments and cultures? Addressing these questions is critical for refining reputational tools and understanding their role in the compliance ecosystem.

In summary, tax shaming is a powerful yet delicate instrument. It should not be treated as a shortcut to enforcement, but as a complement to sound legal and institutional frameworks. When grounded in law, guided by proportionality and fairness, and accompanied by procedural safeguards, reputational enforcement can enhance the legitimacy and effectiveness of tax systems. Countries pursuing such measures must coordinate their efforts, share lessons, and remain vigilant against misuse. Regional organizations such as CIAT are particularly well placed to translate these principles into practical guidance and peer-learning processes for tax administrations in Latin America and beyond. Ultimately, the success of such policies will be measured by public trust in the fairness of the tax system and in the willingness of others to comply. Transparency and legitimacy must advance together for tax governance to reach its full potential.

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Elements of Data Quality in Tax Administrations

Antonio Seco

SYNOPSIS

The objective of this article is to offer tax administration professionals a clear and structured overview on the main concepts, methods and techniques related to data quality management, recognizing the fundamental role it plays in the framework of the digital transformation driven by "Tax Administration 3.0."

The article approaches the topic from an integral perspective, combining technological, operational, and management aspects, incorporating references and good practices that allow deepening the topics covered. The analysis focuses especially on international experiences promoted by multilateral cooperation organizations, complemented by relevant contributions from the private sector.

KEYWORDS: Data Quality, Tax Administration 3.0, Quality Dimensions, Data Profiling, Augmented Data Quality.

CONTENTS

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INTRODUCTION

Fundamentals

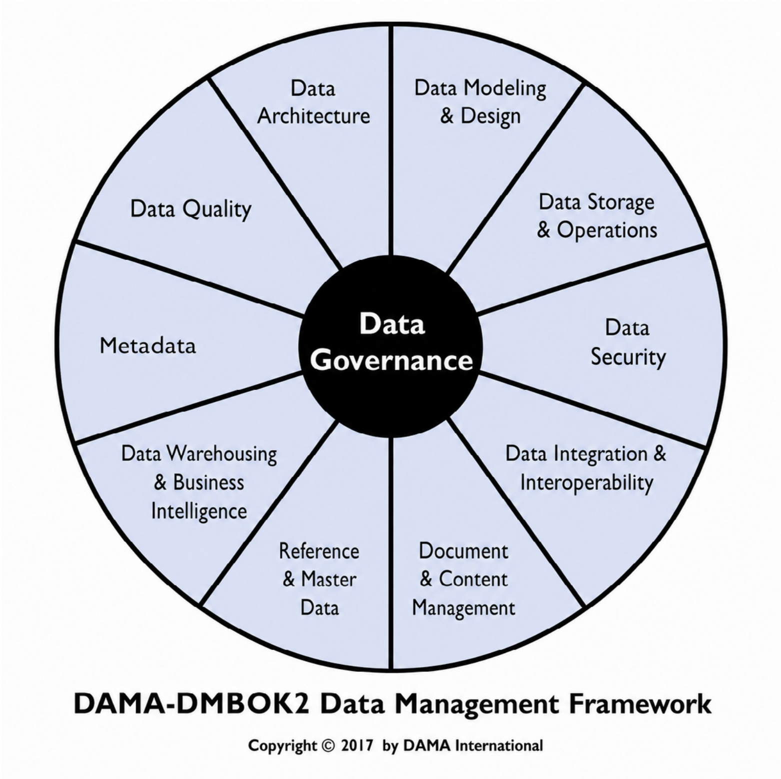
Modern tax administrations rely on data to fulfill their mandates and support informed decision-making. The concept of *Tax Administration 3.0 (OECD, 2020)* is characterized by the advanced use of data and automation and identifies “data management and standards” as one of its six core components.

The data used by Tax administrations (TAs) comes from a wide range of sources, both internal and external to the public sector, and is generated in increasingly large volumes.

For data to be effectively treated as a strategic asset, tax administrations must adopt a structured data management framework designed to prevent fragmented, reactive, and error-prone practices. Such a framework should define the principles, processes, and roles required to govern the entire data lifecycle.

One of the most widely recognized data management frameworks is the DAMA-DMBoK2 model. This model defines 11 key disciplines for data management, led by “Data Governance,” which coordinates the others, as illustrated in Figure 1 and discussed in Duque et al. (2024).

Figure 1
The DAMA-DMBoK2 data management framework (The DAMA Wheel)



Source: based on DAMA International (2017).

Among the disciplines identified, *data quality* is an essential and cross-cutting component of any data management framework. This is evident in the DAMA Wheel (Figure 1), associated with the DAMA-DMBoK2 model, where "data quality" is included in the governance cycle. Likewise, models such as DCAM[1], DMM[2] and ISO/IEC 25012[3] integrate data quality as one of their fundamental pillars.

For tax administration, data quality has a direct impact on the effectiveness, efficiency, and fairness of processes. In contemporary administration, where most functions (registration, audit, collection, taxpayer services, risk analysis, etc.) depend on digital information, the effects of poor data quality or high-quality data a are substantial. In this regard, the OECD (2025) indicates that 85.2% of the tax administrations surveyed evaluate the quality of the data they receive.

The importance of data and its quality is also reflected in new methodologies for assessing maturity in advanced data analytics within tax administrations, in which data quality is a key factor, as highlighted by Calijuri et al. (2025).

Synopsis and outline of the article

The objective of this article is to offer tax administration professionals a clear and structured overview of the main concepts, methods, and techniques related to data quality management, recognizing its fundamental role in the context of digital transformation driven by *Tax Administration 3.0*.

The article approaches the topic from an integrated perspective, combining technological, managerial, and operational aspects, incorporating references and best practices that enable further exploration of the issues discussed. The analysis focuses in particular on international experiences promoted by multilateral cooperation organizations, complemented by relevant contributions from the private sector.

The sources include specialized books and articles, as well as institutional websites of international organizations, tax administrations, and leading consulting companies and technology suppliers.

The article addresses the key concepts, methods, and techniques for data quality management in tax administrations. It begins with the fundamental concepts of data classification, quality dimensions, and the cost of quality; then analyzes the usual data quality management methods and techniques in the context of tax administrations, and reviews organizational structures for quality management and data governance. It also addresses quality analysis in external data sources and explores the use of artificial intelligence to enhance data quality. It ends with key consiiderations for the adoption of data quality management in contemporary tax administrations.

1. DATA, INFORMATION, KNOWLEDGE, AND WISDOM

It is appropriate to start discussions on data quality by highlighting some basic concepts that distinguish data, information, knowledge, and wisdom.

One of the most well-known models for this differentiation is the DIKW framework (*Data, Information, Knowledge, Wisdom*), which describes how data is

1 *Data Management Capability Assessment Model*

2 *Data Management Maturity*

3 See https://iso25000.com/index.php/normas-iso-25000/iso-25012

progressively transformed into information, knowledge, and finally, wisdom.

Data → Information → Knowledge → Wisdom

Data consists of raw facts, without context or interpretation, e.g., "Invoice #12345, amount: 1,500 Monetary Units, date: 12/09/2025." This stage is primarily associated with capture and storage.

Information arises when the data are contextualized, for example: "Taxpayer X declared sales of 1,500 Monetary Units on 09/12/2025."

Knowledge emerges from interpreting the information and relating it to the experience, rules, or domain-specific understanding. For example: *"The level of sales reported by Taxpayer X is inconsistent with their purchases or economic capacity."*

Wisdom implies sound judgment, ethical consideration, awareness of the social context, and the ability to make appropriate decisions. For example: "It is advisable not to audit this taxpayer at this stage, but rather to provide assistance, as their behavior suggests financial difficulties, rather than fraudulent intent."

Different forms of artificial intelligence can support the first three levels, but they encounter limitations when addressing *wisdom*, which requires understanding of human consequences, ethical judgment, and responsibility. While artificial intelligence can generate scenarios and recommendations, final decisions involve a level of moral judgment, experience, and values. These remain, at least for now, intricately linked to human judgement and accountability. This topic continues to be explored in literature, including studies such as Sinha and Lakhanpal (2024).

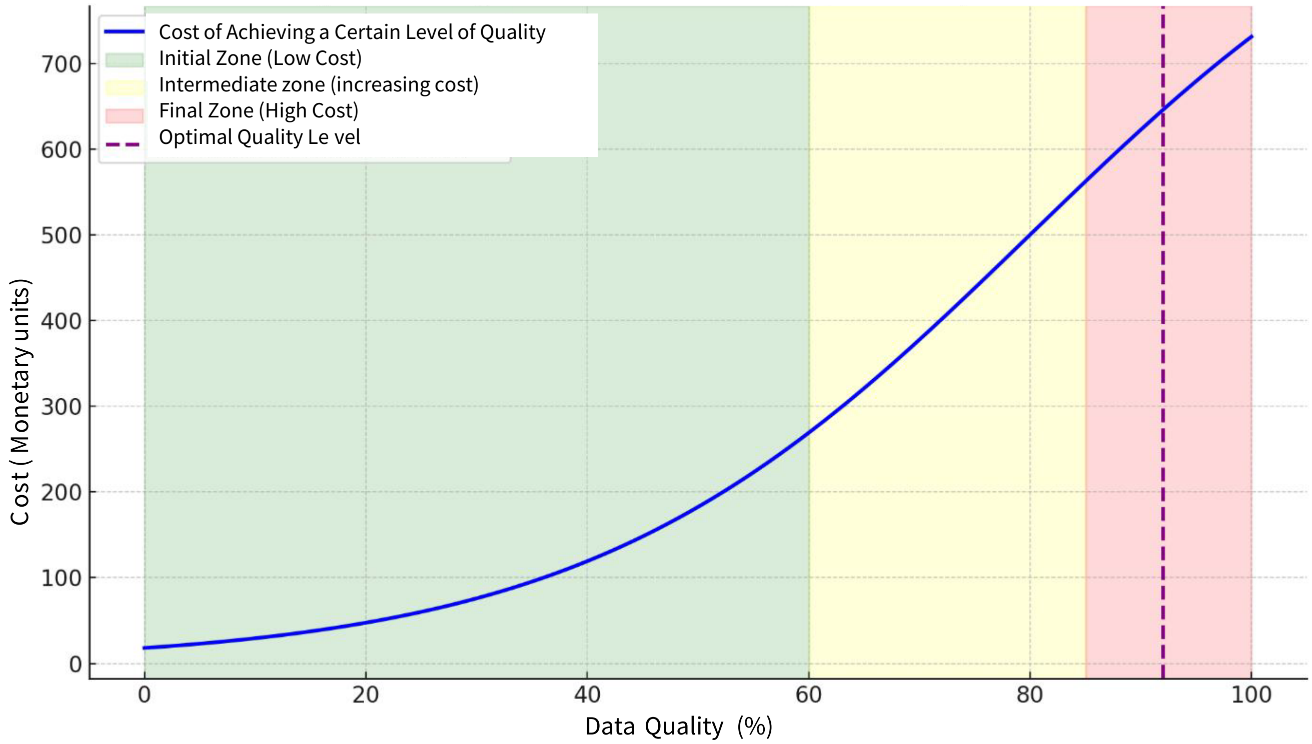
Due to the principle of progressivity, deficiencies in data quality that arise at the base of the chain (data) are amplified throughout the subsequent stages, potentially undermining the reliability of information, the validity of knowledge, and the soundness of decisions derived from them.

2. WHAT IS DATA QUALITY?

Data quality is not absolute but depends on how well it serves the purpose for which it is used. In other words, data quality can be defined as *fitness for use*. This widely accepted definition originates from the field of quality management and has been applied to data.

Among the most critical factors related to data quality are the costs necessary to achieve and sustain it over time. Various sources in the literature illustrate this relationship by means of an exponential or asymptotic curve, which reflects how the marginal costs of improvement increase significantly as they approach the maximum level of quality. Figure 2 presents a schematic example that illustrates this behavior between quality and cost.

Figure 2
The relationship between data quality (%) and the cost of achieving it



Source: Prepared by the author with the assistance of artificial intelligence tools.

The cost of improving quality levels is represented by an exponential upward curve, which can be divided into distinct quality zones expressed in percentages. The example presented is structured into an initial quality range (0–60) where small investments produce large gains in quality; an intermediate range (60–85), where the costs begin to grow rapidly, because they involve creating more complex processes and controls; an advanced or final range (85–95), where the gains are lower for each monetary unit invested, since this stage requires more sophisticated tools to detect inconsistencies and often involves manual reviews; and a near-perfect range (95–100) where costs increase sharply, as achieving full data quality requires a disproportionate effort.

Labovitz & Chang (1992) proposed the "1–10–100" rule, which highlights the escalating cost of poor quality: prevention at the source has a relative cost of 1, detection after occurrence increases costs to 10, and correction after external impact can raise costs to 100.

Accordingly, the cost of improving data quality is significantly lower when validation controls are applied at the point of origin or during the initial data capture, compared to subsequent corrections. Therefore, investing in quality at the source therefore yields significant returns in efficiency and effectiveness.

3. DIMENSIONS OF DATA QUALITY

Haug (2011) suggests that data quality can be better addressed when it is divided into subcategories or dimensions. The same study and subsequent studies have identified dozens of data quality dimensions, some highly specific to certain academic or industrial domains. For instance, Wang & Strang (2013) identified twenty distinct dimensions of data quality.

This same body of work presented a synthesis of the dimensions mentioned most frequently in scientific and industrial literature, partially reproduced in Table 1.

Table 1
Most frequently mentioned data quality dimensions (excerpt)

#	Dimension	#	Dimension	#	Dimension
25	Accuracy	15	Completeness	5	Precision
22	Reliability	9	Currency	4	Format
19	Timeliness	8	Consistency	4	Interpretability
16	Relevance	5	Flexibility	3	Content

Source: Adapted from Haug (2011).

Data quality challenges are best addressed through structured frameworks or models, which provide a comprehensive approach.

The Federal Committee for Statistics and Methodology (FCSM) of the United States government has developed a data quality framework used in the federal government, based on three domains (utility, objectivity, integrity) and eleven dimensions (FCSM, 2020).

Similarly, the ISO/IEC 25012 standard, adopted with few variations by European countries, defines a model for data quality based on fifteen dimensions. This standard is used to establish data quality requirements, define metrics, plan evaluations, and verify compliance with regulatory frameworks.

The data quality model proposed by DAMA International (2017) analyzes the key contributions found in the literature and identifies eight core dimensions, presented briefly below:

Accuracy; Completeness; Consistency; Integrity; Reasonableness; Timeliness; Uniqueness; Validity.

Accuracy: the extent to which the data correctly reflects the real-world objects or events they represent.

Completeness: the extent to which all the required data are present.

Consistency: the extent to which data remains coherent across different systems, sources, and time periods.

Integrity: the extent to which data preserves valid relationships, traceability, and logical structure between entities.

Reasonableness: the degree to which data values are logical and consistent within an expected context or range.

Timeliness: the extent to which data are up-to-date and available when needed.

Uniqueness: the requirement that each entity be represented only once within a system, without duplication.

Validity: the extent to which data conform to defined formats, rules, domains, and business constraints.

In this article, the data quality model proposed by DAMA International is adopted, particularly in terms of its data quality dimensions, and is adapted to the specific needs of tax administrations. The approach is complemented with concepts and practices from other internationally recognized models and frameworks, to cover the practical requirements of the tax environment.

As indicated in the specialized literature and particularly by Wang & Strong (2013), different applications prioritize different quality dimensions, and the required level of quality depends on the intended use of the data. Consequently, each function or process of the tax Administrations demands emphasis on specific quality dimensions and goals and defines corresponding quality objectives based on their purpose and operational criticality.

4. DATA QUALITY DIMENSIONS APPLICABLE TO EACH FUNCTION OR MACRO-PROCESS OF TAX ADMINISTRATIONS

The dimensions of data quality can be evaluated for all data domains used by functions and macro-processes of tax administrations. In addition, empirical analyses make it possible to identify which dimensions are most critical for each function or macro-process, considering their operational characteristics and associated risks. These priority dimensions are applicable across the data domains supporting each function.

The functions and macro-processes considered in this work were selected from the preliminary version of the *Tax Management Manual* of CIAT (Inter-American Center of Tax Administrations), currently under development.

For each function or macro-process, suggestions for the most relevant dimensions of data quality are identified, along with a brief justification of their relevance.

Taxpayer Registration

Accuracy, Completeness, Uniqueness, Validity, Integrity

The accuracy of the data ensures that the identity of the taxpayer (name, tax identification number, address, economic activity) is correct and verifiable. Completeness ensures that all required fields are populated. Uniqueness prevents duplication of taxpayer records in the system. Validity guarantees compliance with predefined formats and reference catalogs (e.g., economic activity codes). Integrity ensures that relationships between entities—such as individuals, legal entities, establishments, and representatives—are correctly defined and maintained.

Pre-filled Returns

Accuracy, Consistency, Timeliness, Validity

To achieve accuracy, the pre-filled data must come from reliable sources (electronic invoices, withholdings, third parties). Consistency ensures alignment across tax types and reporting periods. Timeliness guarantees that the information is up to date for filing deadlines. Validity ensures compliance with business rules and regulatory requirements.

Payment Management

Accuracy, Integrity, Timeliness, Consistency

Accuracy prevents errors in the allocation of payments. Integrity ensures a correct linkage between payments and tax obligations. Timeliness allows payments to be recorded without delay. Consistency maintains coherence between banking systems, the taxpayer's current account, and treasury records.

Verification of Declarations

Accuracy, Consistency, Reasonableness, Validity, Completeness

Verification involves crosschecking information between sources (invoices, tax returns, external records). Accuracy is essential for reliable comparisons. Consistency ensures coherence across periods and tax types. Reasonableness assesses whether values are proportional to the taxpayer's economic activity. Validity ensures compliance with rules, and completeness ensures that all necessary data are available.

Taxpayer current account

Consistency, Integrity, Accuracy, Timeliness

The current account consolidates liabilities, credits, and payments. Consistency between accounting systems and statements is critical. Integrity maintains the links between taxes, periods, and transactions. Accuracy prevents incorrect balances, and timeliness guarantees their real-time or timely updating.

Revenue Accounting

Accuracy, Integrity, Consistency, Timeliness

This requires consistency between accounting records and actual payments received. Accuracy ensures correct figures. Integrity links accounting records to original sources. Consistency ensures alignment across systems, and timeliness ensures up-to-date reporting.

Tax Refunds

Accuracy, Validity, Timeliness, Reasonableness, Completeness

Refunds require verification that the declared credits are valid and accurate. Reasonableness evaluates whether the requested amounts are consistent with the taxpayer's historical behavior. Timeliness ensures prompt processing of the refunds, while completeness ensures that all required information is available for proper evaluation.

Tax Regularization

Accuracy, Consistency, Validity, Completeness, Timeliness

The correction of inconsistencies requires valid and consistent data. Accuracy and consistency enable proper adjustments of balances. Timeliness avoids delays that affect interest or sanctions, and integrity links together all the stages of the macro-process.

Services to Taxpayers

Accuracy, Timeliness, Completeness, Validity

Taxpayers' services require correct, complete, and updated information to provide appropriate guidance. Timeliness ensures that responses reflect current data, while validity ensures that advice is aligned with the applicable legal and regulatory framework at the time of the interaction.

Cooperative compliance

Accuracy, Reasonableness, Consistency, Integrity

Cooperative compliance programs are based on trust and transparency. Reasonableness is essential to identify atypical behaviors. Accuracy and consistency guarantee credible reports; integrity ensure traceability of the shared information.

Collection

Accuracy, Consistency, Integrity, Timeliness

The data must correctly reflect outstanding debts. Timeliness is key to effective management and timely notification. Integrity ensures linkages between debts, enforcement actions, and taxpayers, while consistency maintains coherence across systems.

Cryptoassets

Validity, Accuracy, Completeness, Reasonableness, Consistency

Data related to operations with cryptoassets require strict validations of origin, valuation, and records of transactions. Reasonableness and consistency are crucial to detect potential money laundering, or tax evasion. Validity guarantees compliance with AML/CFT regulations[4].

Informality (Regularization)

Accuracy, Completeness, Consistency, Reasonableness, Integrity

To address informality, cross-referencing data from multiple sources (banks, employment, consumption) is necessary. Accuracy and completeness are essential to identify unregistered taxpayers. Reasonableness helps validate income levels and behavioral patterns, and integrity ensures relationships between heterogeneous sources.

Artificial intelligence / Data analytics

Accuracy, Reliability, Completeness, Consistency

Accurate and reliable data helps avoid the generation of biased results, while complete and consistent data ensures effective training of artificial intelligence models, avoiding gaps or inconsistencies that can distort predictions. One exception should be noted: tax authorities may apply artificial intelligence and advanced analytics even with data of imperfect quality, especially during the exploration, segmentation, or prediction phases, provided that the data is sufficient, consistent, and representative.

5. HOW MUCH QUALITY IS ENOUGH?

As indicated in Figure 2, the relationship between data quality and the cost required to achieve it follows a curve of exponential nature. Therefore, to optimize the cost–benefit ratio, it is essential to define the level of quality required in each dimension, according to the functions or macro-processes of tax administrations.

However, it should be noted that certain data domains or data sets are shared by multiple functions or macro-processes. In such cases, the level of quality required in each dimension must be adjusted to the highest level, to ensure the reliability and coherence of the information in all its institutional uses.

In an empirical analysis conducted by the author, the level of data quality required in each dimension for the selected functions and macroprocesses was evaluated. A quality scale was established at three levels: high = essential; medium = necessary, but with an operational margin; low = desirable, but not critical.

Tax administrations should establish numerical scale indicators based on the analysis and assessment of their needs. The following empirical scale, which uses percentages as a unit of measurement, can be taken as an example: low (70–80%); medium (80–90%); high (> 90%). That is, data with a quality level below 70% would be unacceptable.

Table 2 provides an example of quality grade assignment required for the data used in functions/macro-processes of tax administrations, for each quality dimension, based on a three-level quality scale.

4 AML/CFT (*Anti-Money Laundering/Countering the Financing of Terrorism*) is a set of laws, regulations and measures designed to prevent criminals and terrorists from using the financial system for illicit activities.

Table 2
Example of assignment

Macroprocess / Dimension	Accuracy	Completeness	Consistency	Integrity	Reasonableness	Timeliness	Uniqueness	Validity
Register of taxpayers	3	3	3	3	2	2	3	3
Pre-filled returns	3	2	3	3	2	3	2	3
Payment management	3	3	3	3	3	3	3	3
Verification of declarations	3	3	3	2	3	2	2	3
Current account	3	3	3	3	3	3	3	3
Income accounting	3	3	3	3	3	2	3	3
Tax refund	3	3	3	3	3	3	3	3
Tax regularization	2	3	2	2	2	2	2	2
Services to the taxpayer	3	3	3	3	3	3	3	3
Cooperative compliance	3	3	3	3	3	2	2	3
Collection	3	3	3	3	3	3	2	3
Cryptoassets	3	2	3	3	3	3	3	3
Informality (regularization)	2	2	2	2	2	2	1	2
Data analytics / artificial intelligence	3	3	3	3	3	3	3	3

Note. 3 = high, 2 = medium, 1 = low. Prepared by the author with the assistance of artificial intelligence tools.

To fill in Table 2, the following analytical criteria were used: Financial processes require maximum quality in all dimensions; Research processes may tolerate a lower level of integrity (since it is necessary to investigate the data); taxpayer service processes require particularly high level of timeliness and accuracy; data related to informality may initially accept lower quality, with a focus on data capture and improvement; and artificial intelligence and analytics generally perform better with high-quality data.[5]

5 Artificial intelligence and advanced analytics applications in tax administrations can operate with data of imperfect quality, particularly in discovery, segmentation, or prediction phases, provided that the volume, structural consistency, and representativeness of the data are adequate.

Tax administrations can define alternative criteria according to their processes, risk profiles, and operational needs.

The analysis presented in Table 2 suggests that high data quality is a desirable—and in many cases indispensable—requirement across all functions and macro-processes of a tax administration. This finding reinforces the need to adopt a strategic approach to data quality management, including continuous improvement practices.

In principle, the level of data quality defined for a function or macro-process extends to all the information domains and subdomains that support it. However, when the analysis requires greater precision, it may be necessary to increase the granularity of the assessment, assigning differentiated quality levels to specific data domains or subdomains according to their relevance and use within the process.

By way of illustration, in the data domain corresponding to the taxpayer register, the subdomains related to economic activity and tax classification typically demand more rigorous quality controls in certain dimensions, due to their direct impact on the determination of tax obligations and risks.

6. METHODS AND TECHNIQUES

6.1. Selection of priority data domains

Data quality management should initially be implemented based on a few selected data domains, allowing practices and processes to be tested and refined before gradually expanding the scope.

The priority data domains should be determined from those that directly support the mission processes, such as collection, control, taxpayer attention, and compliance management, as well as master data domains that serve as the basis for interoperability.

As observed empirically, about four data domains are indicated as a reference to initiate a data quality management process.

Data Quality in management and operational performance evaluation: TADAT and ISORA

Tax administrations currently use tools that perform management and operational performance evaluations. TADAT (*Tax Administration Diagnostic Assessment Tool*) and ISORA (*International Survey on Revenue Administration*) are among the most prominent.

TADAT evaluates the performance of tax Administrations by referring to nine Performance Outcome Areas (POA). These POAs include indicators that depend directly on data quality, such as POA 1 (Integrity of the taxpayer registry), POA 3 (Support for voluntary compliance), POA 6 (Accuracy of the information declared), and POA 8 (Efficient collection management). While the framework does not explicitly address “data quality” as a separate domain, the indicators incorporate dimensions such as accuracy, completeness, timeliness, consistency, and integrity of data.

ISORA collects and analyzes data on the operations of tax administrations and other characteristics based on standardized questions and definitions agreed by five international organizations. The survey covers areas such as revenue collection, human resources, technology, and compliance. While ISORA does not include a module dedicated exclusively to data quality, many of its indicators depend on data that meet essential quality dimensions, including accuracy, completeness, consistency, validity, and timeliness.

For tax administrations that use ISORA as an operational tool, improving the quality of their data helps ISORA indicators to reflect reality more reliably. If an internal data quality framework is being developed, ISORA indicators can serve as indirect quality tests. If an indicator shows an outlier or inconsistent value, it could point to a data problem in the corresponding dimension.

TADAT and ISORA therefore address data quality in an indirect and partial manner, primarily from an institutional performance perspective. In contrast, comprehensive data quality management requires a more integrated approach, encompassing operational, technical, and continuous processes, with clearly defined roles, controls, and metrics applied directly to data assets. Given their strategic importance for tax administrations, the data domains covered by TADAT and/or ISORA evaluations can constitute a valuable starting point for the implementation of practices and disciplines in tax administrations.

6.2. Quality rules, Quantitative Indicators, and Metrics

Quality rules

Quality rules make up a subset of business rules that focuses on ensuring the *fitness for use* of data. They are derived directly from the policies, legal frameworks, and the standards governing a tax administration. Each rule is composed of a business statement (what is expected from the data) and a technical specification (how to verify that expectation), covering the different dimensions of data quality.

Examples of business rules for data quality / dimension:

- **Uniqueness**: The identification of a taxpayer must be unique in the entire database.
- **Consistency** (data format): Dates should follow the format (dd/mm/yyyy) to ensure consistency.
- **Validity and Completeness**: The postal code provided must be listed in the table published by the Post Office.
- **Consistency, Integrity, and Validity**: For company ownership data, verify that a partner's individual taxpayer identification number is not associated with any entity classified as "cancelled due to tax irregularity."

It is advisable periodically conduct evaluations of the state of data quality in each domain, to confirm the validity of the quality rules.

Indicators and metrics

Data quality indicators are constructed from one or more quantitative metrics, with the purpose of granting greater analytical meaning and guiding strategic decision-making.

Data quality metrics are objective measures that allow organizations to evaluate, track, and monitor the quality of their data over time. They facilitate the identification of trends and patterns, as well as the evaluation on the effectiveness of the techniques and controls applied to guarantee the quality of the data.

A ***Key Performance Indicator*** (KPI) for data quality is a specific and measurable metric that evaluates the degree to which a dataset meets the quality criteria established by an organization. In the field of data management, KPIs transform technical metrics into indicators of institutional performance, linking data quality with operational effectiveness and public trust.

These indicators are crucial because they allow institutions to objectively measure the performance of their data management processes, identify deficiencies, and make informed decisions to improve operational efficiency and regulatory compliance.

According to DAMA International (2017), the best practices for conducting a data quality assessment include: defining data quality objectives; involving stakeholders; using various evaluation methods; establishing clear data quality metrics; implementing data profiling; monitoring data over time; integrating data quality into operational workflows; and deploying specialized data quality tools.

ATAF (2025) proposes a structured approach to data cleansing in a Tax Administration, based on governance, prioritization, and iterative improvement.

The following is an example of quality and attributes business rule specification:

- Quality business rule number “n”:

In all changes in the database, the identification of the author and date/time of execution must be recorded. (Completeness, Validity)

Measurement: Count the number of modified records without the authorship information and compare with the total number of modified records.

Metrics: Divide the number of records without the authorship of information by the total of modified records and multiply by 100.

KPI threshold: Values above 1% are considered inacceptable.

KPI & TADAT

TADAT is one of the most effective and widely adopted tools for the assessment and management of tax administration performance.

Table 3 presents a proposal of key performance indicators (KPIs) related to data quality, linked to the nine Performance Outcome Areas (POAs) defined by TADAT.

These KPIs provide an operational translation of the implicit data requirements within each performance area, enabling regular monitoring of the quality of the data underpinning key processes. By linking data quality metrics to TADAT performance areas, tax administrations can strengthen their institutional capacity to demonstrate progress and results—not only during formal TADAT assessments, but also as part of continuous performance monitoring.

The acceptable thresholds of each KPI will be defined by the capabilities, maturity level, and strategic objectives of each Tax Administration.

Table 3
Examples of data quality KPIs associated with TADAT

POA	Main objective	Quality + relevant dimensions	Examples of associated data quality KPIs
POA 1 – *Integrity of the taxpayer registry*	To ensure that the registration is complete, accurate, and up to date.	Accuracy, Completeness, Uniqueness, Validity.	• % of records of the taxpayer registry with data verified in external sources. • % of duplicates detected in the Registry. • % of the taxpayer registration with ISIC[6] valid and up to date. • % of cancellations or suspensions processed within the deadline.

6 International Standard Industrial Classification

POA	Main objective	Quality + relevant dimensions	Examples of associated data quality KPIs
POA 2 – *Effective risk management*	Ensure that risk decisions are based on reliable and up-to-date information.	Consistency, Completeness, Reasonableness.	• % of risk variables with valid data (without null or inconsistent values). • % of risk models with certified data sources.
POA 3 – *Support for voluntary compliance*	Taxpayers have the necessary information to comply at a reasonable cost.	Timeliness, Accuracy, Validity.	• % of notifications sent with correct and updated information. • % of errors in contact details with taxpayers. • Average time to update information on portals.
POA 4 – *Timely submission of statements*	Ensure that returns are filed on time and correctly.	Validity, Consistency, Opportunity.	• % of inconsistencies detected automatically between periods. • % of statements rejected due to formatting or domain errors.
POA 5 – *Timely payment of taxes*	Ensure the accuracy and timeliness of tax payments.	Integrity, Consistency, Accuracy.	• % of payments automatically reconciled with declarations. • % of payments processed within the deadline. • % of discrepancies in bank reconciliations.
POA 6 – *Accuracy in the information declared*	Evaluate the reliability and completeness of the data reported by the taxpayers.	Accuracy, Reasonableness, Consistency.	• % of inconsistencies between declared income and electronic invoicing. • % automatic corrections of arithmetic or formatting errors. • % of atypical deviations identified by analytics.
POA 7 – *Effective resolution of tax disputes*	Ensure transparency, traceability, and consistency in appeal cases.	Integrity, Traceability, Consistency.	• % of complete and auditable electronic records. • % of decisions with complete traceability of documents. • Average time to update the case status.
POA 8 – *Efficient management of the collection*	Ensure the reliability, integrity, and traceability of accounting records and that legitimate returns are paid quickly.	Integrity, Accuracy, Traceability.	• % of income records reconciled between systems (collection ↔ accounting). • % of returns made within the established period. • Agreement index between internal and external reports.

POA	Main objective	Quality + relevant dimensions	Examples of associated data quality KPIs
POA 9 – *Accountability and transparency*	Promote transparency, publication, and ethical use of information.	Reliability, Traceability, Security.	• % of published indicators with documented source and methodology. • % of databases with access and usage records. • % of reports with updated and traceable metadata.

Note. Basis: TADAT 2019; prepared by the author with the assistance of artificial intelligence tools.

Scorecards (Dashboards)

According to the Gartner Glossary, dashboards are reporting tools that aggregate and display key metrics and indicators (KPIs) enabling rapid analysis by a wide range of stakeholders. These visual tools support decision-making by presenting contextualized information in an intuitive format, using charts, graphs, gauges, and other visual elements to track performance against defined targets.

Data quality KPIs can be presented using dashboards, manually constructed or using specialized application software, highlighting PowerBI, Looker Studio, Qlik and Tableau. All the mentioned products are part of the "Leaders" quadrant of Gartner's Magic Quadrant for Analytics and Business Intelligence Platforms (2025)[7].

6.3. Data profiling

Data profiling is a set of processes, techniques, and technologies that allow detecting and investigating data quality problems, such as duplication, lack of consistency, accuracy, and integrity. This is achieved by analyzing one or more data sources and collecting metadata that reveals the structure, content, and overall condition of the data. This allows analysts to investigate and identify the root causes of quality issues[8].

Data profiling is an essential practice in quality management and data governance in tax administration. Its application goes far beyond the initial cleansing of databases: it becomes a strategic tool to understand, evaluate, and improve the reliability of tax data across all domains (taxpayer registration, returns, payments, audit, and compliance activities).

Profiling allows for the examination of existing data in each source (database, file, information system) to evaluate its structure, content, relationships, and quality characteristics.

Typically, profiling deals with duplicates records, incorrect formats, missing or null values, atypical distributions, orphaned foreign keys, unexpected patterns, incomplete data, logical inconsistencies, unusual value frequency distributions, referential integrity violations, structural integrity problems, non-compliance with business rules.

Data profiling can be understood as a quantitative diagnosis (X-ray) of the state of data that serves as a

7 Reproduction and *reprint* available in: https://tinyurl.com/4z6uur7y

8 See https://www.gartner.com/en/information-technology/glossary/data-profiling

basis for corrective actions, migrations, and advanced analytics initiatives.

The example below summarizes profiling models available on the Web applied to taxpayer records:

Case: Profiling of the Taxpayers Registry (RUC)

Sources: database of the Taxpayers Registry, electronic invoicing, banking system.

Variables analyzed: name, type of person, registration date, activity status, address, ISIC classification, email, and related taxpayer identifiers.

Profiling results:

- 3% of RUC duplicates.
- 7% with incomplete addresses.
- 1.5% with invalid or outdated economic activity classifications.
- 2% with "active" status but no recorded transaction for more than 2 years.

Derived actions (e.g., from checking limits/KPIs):

- Data cleansing and consolidation of duplicate records.
- Automatic validation of addresses against official cadaster databases.
- ISIC updates using artificial intelligence techniques.
- Proactive communication with inactive taxpayers.

Data profiling also provides valuable inputs for other areas of tax data management besides quality, such as risk analysis, data lineage, and the identification of bias and noise in datasets.

Further information on data profiling techniques applied to data quality can be found in Atlan (2023) and Actian (2022).

The consulting company Forrester defines data quality solutions as "tools to ensure accuracy, integrity, consistency, reliability and monitoring, while respecting business policies and standards." In the current context, this aspect is increasingly incorporated into "augmented data quality" management solutions, as discussed in a later section of this document.

7. STRUCTURING OF TAX DATA QUALITY MANAGEMENT

Tax administrations have faced challenges related to data quality since their inception, although in the past such efforts tended to be ad hoc, scattered, and uncoordinated.

In the context of *Tax Administration 3.0,* as mentioned above, data quality acquires greater relevance, becoming a critical factor for digital transformation, advanced analytics, and evidence-based decision-making.

It is not surprising, therefore, that in many cases the implementation of Data Governance frameworks establishes as a priority the systematic improvement of the quality of institutional data. Achieving this objective requires establishing a formal data quality management structure aligned with the broader data governance framework.

Duque et al. (2024) present various data governance structures for tax administrations operating in different operational scenarios, in which data quality management functions are embedded. Readers are encouraged to consult this reference to obtain a comprehensive overview of the organizational structuring options for data governance and data quality management in tax administrations, which are summarized below.

A data quality governance framework at the institutional level should indicate:

Data quality policy and standards.

Roles and Responsibilities: Data owners.

Data stewards.

Committees and governance bodies.

Accountability and follow-up mechanisms.

For this, the most relevant typical data governance structures and roles in data quality management tasks are:

Data Owners is the person or role responsible for one or more specific data domains within an organization. They supervise and ensure accuracy and the overall quality of the data of the domains under their responsibility, including the approval of glossaries and the creation of verification methods/systems. In tax administrations, multiple stakeholders have needs in the same data domain. It is therefore essential to formally assign data ownership to a single accountable role, while ensuring active coordination and collaboration with other stakeholders and domain users.

Data Stewards are responsible for the management and oversight of data within an organization, ensuring that data are of high quality, accurate, accessible, and in compliance with Data Governance policies. In some cases, they function as a link between the business and technology areas, and they can be a dedicated role or a responsibility shared across several jobs.

Quality management is articulated in several types of data managers, which can be summarized as follows:

Business Data Stewards: They focus on how data is used within tax administration processes. Their core functions include aligning data with business objectives and requirements; defining and maintaining data quality standards; and managing the data lifecycle from a functional perspective.

Technical Data Stewards: They focus on systems and data infrastructure. They are usually part of the ICT area (Information and Communication Technologies), supporting data governance from the point of view of technology. Core functions: provide information on the creation, transformation, and movement of data; document the history of data and its current state; and work with specific systems, applications, data warehouses, and ETL (extraction, transformation, loading) processes.

The Data Stewards role can be a dedicated role or with assignments shared between several jobs.

In summary: Data Owners hold decision-making authority over data domains and define quality requirements. Data Stewards implement and monitor these decisions, ensuring their operational application. Business and Technical Data Stewards provide functional and technical support to maintain data quality throughout their lifecycle.

These roles must operate within a coordinated governance framework to ensure consistency, accountability, and continuous improvement.

Table 4 presents a mapping between data quality management and the Data Governance roles, which can serve as a reference for its application in specific cases.

Table 4

Proposed link between data quality management functions and Data Governance roles

Data Quality Management Function	Description	Key role	Support roles	Typical products or deliverables
1. Data quality planning	Define the objectives, dimensions, thresholds, and quality policies aligned with the objectives of the Tax Administration	**Data Owner**: Defines the business-critical quality requirements.	Data Governance Office, Data Stewards	Data Quality Policy, Quality KPIs, Service Level Agreements (SLA).
2. Definition of data quality	Establish quality (business) rules, metadata and reference definitions that describe the meaning of" quality data".	**Data Owner:** Approves the definitions.	Data Stewards: Documents business rules; Metadata Manager.	Business Glossary, Data Dictionary, Rules Repository.
3. Profiling and evaluation of data	Analyze existing data to measure completeness, accuracy, consistency, uniqueness, validity, etc.	**Data Steward**: executes the profiling and analysis.	Technical Data Steward: provides access; Data Governance Office – consolidates results.	Profiling Reports, Quality Dashboards, Control Boards.
4. Data quality monitoring	Implement continuous measurements and monitoring based on the established thresholds.	**Data Steward**: Monitors the quality metrics.	Data Governance Office: Integrates dashboards; ICT/ Operations: Automate controls.	Quality Indicators and KPIs, Alerts, Dashboards.
5. Data quality remediation	Correct errors, delete duplicates, or activate correction workflows.	**Data Steward**: Initiates corrective actions.	Technical Data Steward: executes the technical corrections; Data Owner: validates the changes.	Cleaning Records, Incident Tracking, Remediation Reports.
6. Continuous improvement of data quality	Identify root causes of recurring problems and update processes or systems to avoid repetition.	**Data Owner**: Approves changes in processes.	Data Steward: analyzes causes; Data Governance Office: Record of lessons learned.	Data Quality Improvement Plan, Recording of Lessons Learned.
7. Data quality reporting and governance	Communicate results, trends, and policy compliance to institutional management.	**Data Governance Office (CDO Office).**	Data Owner, Data Stewards.	Data Quality Report, Performance Dashboard, Quarterly Governance Report.

Source: prepared by the author with the assistance of artificial intelligence tools.

In a Tax Administration with a mature implementation of a Data Governance model, the so-called Data Governance Office coordinates the functions of Data Owners and Data Stewards.

Reiterating what was stated in Duque et al. (2024), in small tax administrations, where there is a shortage of human resources, the specified roles can be shared by several positions or jobs.

8. QUALITY MANAGEMENT FOR PUBLIC AND PRIVATE DATA SOURCES

Tax administrations 3.0 are based on the intensive use of data from a wide variety of sources.

A sizable portion of this data comes from the taxpayers themselves, through electronic systems provided by the Tax Administration. This creates opportunities to implement controls and business rules at the point of data entry, ensuring maximum data quality at the source.

In addition, tax administrations increasingly rely on external data sources. These may include data obtained through formal agreements or contracts, publicly available datasets, or information collected from internet sources. The level of data quality varies significantly across these sources: while contractual data exchanges may include defined quality standards, publicly available or web-based data often require careful validation and quality assessment by the receiving tax administration.

According to a survey promoted by the OECD (2025), 88.9% of the tax administrations surveyed receive data from third parties and 14.8% of them routinely access data stored in corporate taxpayer management systems, such as SAP, Oracle or custom-developed systems. This highlights the growing importance of managing data quality across multiple external ecosystems.

Furthermore, data protection regulations, such as the General Data Protection Laws (LGPD in Brazil), often aligned with the European GDPR, determine data quality aspects that agencies must comply with. As an example, the LGPD of Brazil, based on its European equivalent, determines in Article 6–5 “Data quality: guarantee of data accuracy, clarity, relevance and timeliness of data subjects’ data, according to their needs and for the fulfillment of the purpose of their processing”.

8.1. Data obtained through contracts and agreements

Tax administrations usually establish data reception or exchange agreements with various external entities, such as financial institutions, public bodies, and public-private entities (notaries, chambers of commerce, among others).

Tax institutions have extensive experience in the preparation of agreements and contracts for this purpose, in which they are usually highlighted as main requirements:

- The technical quality of the data highlights the dimensions of accuracy, completeness, validity, and consistency.
- Security and confidentiality, including the protection of personal and fiscal data.
- Traceability and shared responsibility regarding the origin, updating, and use of data.
- Semantic and metadata harmonization, essential to ensure interoperability.
- Quality parameters must be established in the agreements/ contracts, including penalties for errors and delays. Tax administrations must verify compliance with these parameters upon receipt of the data and issue compliance reports.

The contractual penalties most commonly used in data quality failures are: refusal of delivery / return of the batch of data until its correction; temporary suspension of automatic exchange until the minimum quality is restored; formal notification and registration of the breach before the governance committee or the coordinating entity (for example, Ministry of Economy or Secretariat of Digital Government); and commitment to remediation within a defined period (e.g., 10 working days).

8.2. Open data

Open data refers to the data publicly available for free reuse, on company websites, social networks, blogs, etc.

In the use of open data in tax processes, there is no possibility of suing or litigating with the provider for poor data quality: the Tax Administration itself must evaluate the data and whether they are worth using "*as-is*", with due care, either adjust them (based on other data from reliable sources) or discard them.

According to Datos.gob.es (2017) and other documents available on the Web, open data can frequently contain the following quality problems:

- Lack of accuracy and reliability.
- Incompleteness or partial coverage.
- Inconsistency between sources.
- Outdated information.
- Lack of integrity and traceability.
- Absence of normative or semantic validity.
- Risk of algorithmic bias[9].
- Confidentiality and legal compliance issues.

The following measures can mitigate these risks:

- Evaluate the quality before integrating data: apply data profiling and rules recommended by DAMA and ISO 25012.
- Use source metadata: check the update date, coverage and responsible party for the dataset.
- Apply interoperability standards: standardize codes, formats, and catalogs (e.g., ISO, ISIC, territorial).
- Classify level of trust: create a *Data Confidence Index (Data Trust Index)*[10] for external sources (high, medium, low).
- Validate with internal official sources: cross-check information with the taxpayer registry, electronic invoicing, or customs records.
- Register lineage and license document the origin, rights of use and transformations of each data set.
- Automate validations with LLM (Large Language Models): use LLM techniques to detect inconsistencies or duplicates, maintaining human supervision.

In general, data from social networks are used only as indications, which must be confirmed by other reliable sources or additional research.

9. AUGMENTED DATA QUALITY

Augmented data quality is an approach that integrates artificial intelligence, machine learning, and active metadata to automate and strengthen traditional data quality management processes. Rather than relying solely on human intervention, this approach leverages advanced technologies to detect, correct, and monitor quality issues, thereby increasing the reliability and value of institutional data more efficiently.

9 Bias is a major quality problem hidden in datasets, which can impair impartiality, effectiveness, and public trust in tax administration.

10 A Data Trust Index is a measure of the reliability of a data set, which helps organizations quantify their trust for decision-making and other uses. These indices are often calculated using formulas that incorporate factors such as data accuracy, completeness, and user feedback.

According to the consulting firm Gartner, augmented data quality can be enabled in three specific areas: discovery; recommendations; and automation, summarized below.

Discovery: the discovery function in augmented data quality is based on the combined use of artificial intelligence and metadata to analyze and understand large volumes of local or distributed data. Its goal is to help users identify hidden patterns, relationships, and anomalies that would be impossible to detect manually. This function comprises three main capabilities:

Metadata analysis: Augmented data quality tools leverage active and passive metadata to provide context, traceability, and semantic information about data assets. This allows the automated enrichment of the Data Catalog and facilitates a comprehensive understanding of the information ecosystem.

Pattern detection: Machine learning algorithms are used to identify patterns, deviations, and anomalies in data. These detections enable proactive quality management, from the identification of capture or integration errors to the detection of structural or behavioral deviations.

Relationship mapping: Using graph analysis techniques, the tools can automatically identify connections and lineages between different entities and data assets, revealing dependencies and information flows that strengthen data traceability and governance.

Recommendations: based on the findings obtained, the augmented data quality tools proactively formulate recommendations to solve quality problems, significantly speeding up the remediation process. The main functionalities include:

Recommendations for corrective actions: The system can suggest the most appropriate remediation actions to correct anomalies, learning from historical user behavior patterns, and the results of previous actions.

Automated rule suggestions: Artificial intelligence and machine learning models can infer and propose quality rules for relevant data. This bottom-up approach, based on observation of existing data, complements traditional top-down methods, which rely on manual definitions and are more time-consuming.

Enrichment recommendations: In the context of a Data Catalog, the system can suggest attributes or relationships that could be linked to a certain entity, as well as recommend ways to enrich the metadata, increasing the analytical and semantic value of the information assets.

Automation significantly reduces the need to execute manual, repetitive, and error-prone tasks in data quality management, which increases operational efficiency and scalability of the processes. This approach is especially valuable for tax administrations, which manage large volumes of information from multiple sources. Among the main applications are:

Automated profiling and monitoring: Artificial intelligence makes it possible to automate the statistical analysis of data sets and the continuous monitoring of quality problems, detecting anomalies in a timely manner, massively reducing the time for manual review.

Automatic corrective actions: Systems can be configured to automatically correct anomalous data entries when there is an elevated level of confidence, applying predefined rules or rules learned through machine learning algorithms.

Automated matching and merging: Machine learning-based algorithms can detect and remove duplicate records with high accuracy, even when there are small variations, such as spelling errors or abbreviations, which represents a significant advance over traditional deterministic matches.

Workflow integration: Automated workflows facilitate incident and task management, allowing remediation and control processes to be accessible even to business users without specialized technical knowledge.

Data quality management applications based on augmented data quality techniques are an emerging field of artificial intelligence and advanced analytics, rapidly expanding and with specific solutions already available on the market (see Gartner's Magic Quadrant 2025 on augmented data quality products[11]).

11 Reproduction and *reprint* available in: https://www.informatica.com/data-quality-magic-quadrant.html

FINAL COMMENTS

Data quality is an essential pillar for maintaining confidence in the tax system.

Tax administrations advancing in their digital transformation should recognize data as a strategic asset and implement a comprehensive data management model that promotes data quality as a decisive factor for success.

Considering that the primary source of data for the Tax Administration is the taxpayer himself, mandatory electronic filing systems must incorporate controls and business rules that ensure the highest possible quality of the data received.

Emerging technologies, especially artificial intelligence, and advanced analytics applied to the field of augmented data quality, offer tax administrations the opportunity to evolve from a reactive approach toward predictive and automated management of their data quality.

It is essential that tax administrations receive support from multilateral and international organizations, capable of consolidating, documenting, and disseminating successful experiences across countries, to strengthen the planning and development of methodologies, standards, and tools in data quality.

Finally, as has been evidenced throughout this document, data quality is not only a technological issue. It involves the entire tax organization and requires active participation in the roles of Data Owners, Data Stewards, and support from the Data Governance Office, in a collaborative governance framework aimed at continuous improvement.

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The BEPS Country-by-Country Report, Implementation in Mexico and an Overview in Latin America

Brenda Jaqueline Díaz Pérez

SYNOPSIS

The article examines Mexico's experience in implementing Action 13 of the BEPS Action Plan, with particular emphasis on the country-by-country report, its regulatory evolution, and the results obtained by Mexico in the OECD peer reviews. It also provides a brief overview of progress and outcomes in selected Latin American countries.

KEYWORDS: OECD, BEPS Action Plan, Action 13, Country-by-Country Report (CbC), Peer Review.

CONTENTS

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INTRODUCTION

In 1993, following the publication of *the search for the perfect language*, it was suggested that *"the great danger of globalization is that it pushes us to a single universal language"*[1]. In the field of taxation, rather than a threat, this has represented a challenge and almost an obligation for tax administrations to modernize and continuously evolve. Today, tax administrations are still in the process towards consolidating this "common language" through a variety of mechanisms, a process that has received increasing attention in international forums.

A clear example of these efforts is provided by the work of the G20, within whose framework the Action Plan on Base Erosion and Profit Shifting (BEPS) was developed. Formally launched in 2013 following discussions initiated at the 2012 G20 meetings in Mexico, this initiative represents a coordinated international response to the challenges posed by globalization.

The BEPS action plan emerged from the difficulties faced by tax administrations in adapting to increasingly globalized economic activity, combined with the absence of harmonized tax rules. Multinational enterprises were able to take advantage of gaps and mismatches between different tax systems, engaging in tax planning strategies aimed at shifting profits to jurisdictions with more favorable tax treatment, thereby eroding national tax bases.

At the same time, multinational enterprises groups have justified these practices as legitimate tools to support international trade and investment. However, the interaction of diverse tax regimes—particularly in the absence of a sufficiently harmonized framework—has allowed taxable profits to be reduced or relocated depending on the jurisdiction, typically in favor of low-tax environments.

The BEPS action plan was conceived in this context, comprising fifteen actions, four of which constitute minimum standards. Although its objectives are varied, they are all aimed at preventing the erosion of the taxable base, as well as advancing the development of a common—if not fully uniform—language that is sufficiently aligned to facilitate mutual understanding among tax administrations. In the case of a country like Mexico, this effort is of critical importance. In 2025, tax revenues accounted for approximately 56.9% of public expenditure, meaning that more than half of public spending on programs such as health, housing, and social welfare depends on effective tax collection. Failure to meet projected revenue targets may lead to expenditure cuts[2], reduction in social programs and even runs the risk of increasing the public debt, challenges that are common across many Latin American countries. This underscores the importance of ensuring a fair and adequate distribution of taxing rights among jurisdictions, as well as the need to effectively combat the erosion of the taxable base.

1. MEXICO AND ACTION 13 IN THE BEPS ACTION PLAN

Although the first BEPS report was published in 2013, Mexico had already made progress in the field of transfer pricing. Following the adoption of the North American Free Trade Agreement (NAFTA), important

1 Ecco, U. (1993). *The search for the perfect language.* Crítica.

2 Ibid.

regulatory changes were introduced in 1996[3] mainly to the Tax Code of the Federation and the Income Tax Law, with the aim of incorporating the arm's-length principle into that legislation, as well as establishing the obligation to maintain documentation demonstrating that transactions were conducted at market values, through a document commonly referred to as a "transfer pricing study." However, this framework was not sufficient and there remained significant gaps in terms of the information and documentation now considered necessary to conduct an adequate transfer pricing analysis for entities belonging to a multinational group, since the "transfer pricing study" did not fully capture the global allocation of income, activities, and risks within multinational enterprises.

Action 13 of the BEPS Action Plan was introduced to address these gaps in information and documentation faced by Mexico and other jurisdictions—which had led to a growing transparency crisis involving multinational companies and tax authorities—as well as to regulate the proper use of existing information and the new information requirements. Its implementation has posed a significant challenge, both for tax authorities in the legislative sphere and for taxpayers, particularly in terms of legislative adaptation and compliance obligations.

Action 13 of the BEPS plan, in its final report of the year 2015[4] proposed the implementation of a requirement for taxpayers to file three documents through which the transfer pricing position of group companies could be examined. These documents, in turn, would provide the authorities of the countries where the multinational group operates with information and documentation enabling them to assess the transfer pricing risks associated with their transactions; These documents consist of the current *"transfer pricing information reports,"* which are the Master File, the Local File, and the country-by-country (CbC) report.

While the Master File provides detailed qualitative and transactional information from the multinational groups, and the and Local File focuses on the taxpayer's local activities in Mexico, the CbC Report focuses on the distribution of income and economic activity across jurisdictions and constitutes the main focus of this study.

Among the main challenges that Mexico faced with implementing Action 13 was the lack of an adequate legal framework to require taxpayers to file these reports, as well as the absence of clearly defined sanctions in cases of non-compliance.

In response, the tax reform of 2016 introduced the necessary legal provisions, notably Articles 76-A of the Income Tax Law and 32-H of the Federal Tax Code, which established the scope of the obligation and defined the taxpayers required to comply with the new reporting requirements.

At that time, Mexico established in its national legislation two criteria to define the taxpayers obliged to submit the three new informative returns: thresholds based on income and criteria related to the nature of the taxpayer's activities.

Under the income-based criterion, taxpayers required to submit the reports were those obligated to file the

3 Monsalve J. (2017). *Origin of transfer pricing documentation obligations in Latin America: Cases Mexico, Argentina, and Venezuela.* Inter-American Center of tax administrations Retrieved from https://ciat.org/origen-de-las-obligaciones-de-documentacion-de-precios-de-transferencia-en-america-latina-casos-mexico-argentina-y-venezuela/

4 Organization for Economic Cooperation and development and G-20. (2015). *OECD/G20 project on tax base erosion and profit shifting: transfer pricing documentation and country-by-country report (Action 13- Final Report 2015)*. OECD. Retrieved from https://www.oecd.org/es/publications/documentacion-sobre-precios-de-transferencia-e-informe-pais-por-pais-accion-13-informe-final-2015_9789264267909-es.html

"*informative tax situation return*" under Article 32-H, generally corresponding to entities with annual revenues equal to or exceeding MXN 644,599,005.

Likewise, under the second criterion, the following entities were also included: publicly listed companies; commercial corporations participating in the optional corporate group regime; state-owned entities; and foreign residents with a permanent establishment in the country.

These criteria have evolved over time. In 2021, an additional threshold was introduced, requiring taxpayers with revenues equal to or exceeding MXN 1,650,490,600—and who are subject to statutory financial statement audits by a certified public accountant registered with the Tax Administration Service, to comply with the transfer pricing reporting requirements.

Additionally, the scope was extended to include related parties of obligated taxpayers, including individuals, thereby significantly broadening the range of entities subject to these obligations.

In this regard, the categories of taxpayers subject to these obligations remain unchanged to date, except for the periodic updates to the monetary thresholds defining obligated taxpayers, which are currently defined as follows:

Table 1
Thresholds for reporting obligations

Exercise	Obligated entities	
	ISSIF	Statutory Audit
2016[5]	$644,599,005.00	Not required
2021[6]	$904,215,560.00	$1,650,490,600.00
2025[7]	$1,062,919,860.00	$1,940,178,120.00

Source: own elaboration based on data from the Tax Law on the Income for the fiscal years 2016, 2021 and 2025.

In addition, as part of the necessary legal framework to ensure that this regime was complete and enforceable, it was essential to establish consequences for non-compliance, including failure to file the relevant returns or submitting them with errors or inconsistencies.

Accordingly, in 2016 Article 81, Section XL of the Federal Tax Code was amended to classify as a tax offense the failure to provide the information required under Article 76-A of the Income Tax Law, as well as submitting such information incompletely, with errors or inconsistencies, or in a manner that does not comply with the applicable tax provisions. The financial penalty for this violation

5 Chamber of Deputies (2016). *Income Tax Law*. Mexico: Chamber of Deputies. Retrieved from https://www.diputados.gob.mx/LeyesBiblio/ref/lisr.htm

6 Chamber of Deputies (2021). *Income Tax Law*. Mexico: Chamber of Deputies. Retrieved from https://www.diputados.gob.mx/LeyesBiblio/ref/lisr.htm

7 Chamber of Deputies (2025). *Income Tax Law*. Mexico: Chamber of Deputies. Retrieved from https://www.diputados.gob.mx/LeyesBiblio/ref/lisr.htm

currently ranges from a minimum of 199,630.00 to a maximum of 284,220.00 Mexican pesos, depending on various factors, such as whether or not the taxpayer is a repeat offender.

Additionally, Mexico has also implemented the general administrative rules, currently contained in the Miscellaneous Tax Resolution, which regulate the operational aspects of preparing, filing, and processing of these information returns. These rules address key procedural questions—such as how, when, and where the returns must be filed—and can be consulted in detail in the current Miscellaneous Tax Resolution[8].

2. MEXICO'S EXPERIENCE IN IMPLEMENTING THE COUNTRY-BY-COUNTRY REPORT

Although the legal reforms detailed in the previous section provided a solid framework to implement these reporting obligations, Mexico still faced additional challenges, because it was still necessary to establish secondary legislation, and undergo the OECD evaluations to consider that the action was fully implemented. This was in addition to the likelihood of legal challenges by taxpayers who could resist the addition of additional compliance obligations within their already extensive regulatory catalog.

To address these aspects in greater detail, it is necessary to return to some of the objectives and characteristics of the CbC declaration, because it is worth recalling that Action 13 of BEPS aims to provide certain information from multinational groups to tax administrations and that the primary objective of the country-by-country report is to consolidate the information related to *"the overall allocation of the group's income and taxes"*[9] according to the location of the economic activity conducted.

In this vein, it should be kept in mind that implementing this measure necessarily involved not only the establishment of a national legal framework creating the obligation and its corresponding consequences, but also the development of mechanisms for the exchange of information among countries, including the signing of multiple agreements on information exchange and international cooperation. In the specific case of Mexico, this includes the Multilateral Agreement among Competent Authorities on Country-by-Country Information Exchange, signed by Mexico on January 27, 2016. However, these international agreements are not analyzed in detail in this article, as their scope would require a separate and more comprehensive analysis.

In addition, it was necessary to enact secondary legislation to specifically regulate the details of the procedure, deadlines, requirements, and conditions for filing the country-by-country report. Accordingly, Mexico introduced several important rules within its administrative framework.

Rule 3.9.7 establishes the requirements for filing the annual informative returns on related parties, guiding taxpayers to the appropriate filing formats and procedures for each type of return.

Rule 3.9.10 Information and deadlines for submission of the Informative Declaration Country by Country: This rule aimed to highlight the temporality of the fulfillment of the obligation.

8 Official Journal of the Federation (2024). Miscellaneous Fiscal Resolution for 2025. Mexico Retrieved from https://www.dof.gob.mx/nota_detalle.php?codigo=5746354&fecha=30/12/2024#gsc.tab=0

9 OECD. (2017). *Guidance on the appropriate use of information contained in country-by-country reports*. Retrieved from http://www.oecd.org/tax/beps/beps-accion-13-guia-sobre-el-uso-apropiado-de-la-informacion-contenida-en-los-informes-pais-por-pais.pdf

Rule 3.9.13 relating to the Multinational Enterprise Group's Annual Country-by-Country Report: This rule specifies the information and documentation that must be submitted by the multinational parent company of the group on an aggregated basis for each tax jurisdiction in order to be considered compliant with the reporting obligation. The information generally includes the group's total revenue, profits or losses, income tax paid and accrued, capital stock or equity, number of employees, tangible assets, as well as a list of the group´s constituent entities.

Additionally, the Tax Administration Service has published on its portal, in addition to these rules, several technical guidance[10], *"Minimum technical characteristics of declarations of related parties", "Guide format for the submission of the informative declaration country by country"*, "*Country by country report Outline: User guide for tax administrations and taxpayers*", and *"Frequently asked questions on related party information Reports",* which clarifies details and addresses the most common issues taxpayers have regarding the filing process.

Furthermore, it should be noted that Action 13 itself included provisions clarifying which practices would be considered inappropriate in relation to the use of information contained in *Country-by-Country Reports*. However, it was considered necessary to develop the *Guidance on the Appropriate Use of Information Contained in Country-by-Country Reports*, published in 2017 by the *Organization for Economic Cooperation and Development (OECD)*[11]*,* in which the commitments of the competent authorities and the penalties for non-compliance for member countries of the BEPS inclusive framework were defined in greater details.

In particular, the guidance specifies that the information contained in Country-by-Country Reports should not be used as a basis for transfer pricing adjustments. However, no restriction is imposed on the use of such information for purposes such as tax risk assessment and audit planning.

The guidance also emphasizes the obligation of tax administrations to report any cases of inappropriate use of information and to ensure that their internal procedures comply with the principles governing the use of Country-by-Country data. It further provides practical guidance to facilitate the appropriate use of such information by tax authorities.

In this regard, the experience of Mexico has been largely positive, as, according to the *Compilation of peer review reports of the country-by-country Reporting, (Phase 3)"*[12], the implementation of action 13 in Mexico currently complies with all the relevant internal legal and administrative requirements, indicating an adequate implementation. Nevertheless, the process has not been without difficulties, and it is useful to analyze the recommendations issued in peer review reports and the manner in which they were addressed.

Mexico was evaluated in 2020 with respect to the follow-up points formulated in the 2017/2018 and 2018/2019 peer review cycles that focused on the actions undertaken since 2016.

10 Tax Administration Service (N.F.). *Tratados internacionales y precios de transferencia: Documentos relacionados*. Retrieved from https://www.sat.gob.mx/portal/public/tramites/tratados-y-precios

11 OECD. (2017). *Guidance on the appropriate use of information contained in country-by-country reports*. Retrieved from http://www.oecd.org/tax/beps/beps-accion-13-guia-sobre-el-uso-apropiado-de-la-informacion-contenida-en-los-informes-pais-por-pais.pdf

12 OECD (2020), *Country-by-Country Reporting – Compilation of Peer Review Reports (Phase 3)*: *Inclusive Framework on BEPS: Action 13, OECD/G20 Base Erosion and Profit Shifting Project*. Retrieved from https://doi.org/10.1787/fa6d31d7-en

In the area related to *"National legal and administrative framework"*, the 2017/2018 review period identified, under the sub-heading *"Limitation of the local filing obligation"* that Mexican legislation did not clarify when and how the tax authority would require the CbC to the group's last ultimate parent entities resident in Mexico for exchange with the jurisdictions in which the Multinational Group operates, as no established deadline has been established in the domestic legal framework.

To clarify this point, Mexico specified that it would apply paragraph 60 of the final report on Action 13, which states that, in cases where a country-by-country report has not been required to be filed from the ultimate parent entity of a group, it is considered more appropriate for the CbC report to be filed by a designated entity within the multinational group and for the exchange of information to be conducted by the country in which that entity is resident; as a result, the follow-up point raised by the OECD was considered resolved.

This approach was also reflected in the document called *"Frequently asked questions on informative annual statements of related parties:"*[13] published by the Tax Administration Service, in which Mexico's position regarding the application of paragraph 60 of the final report of action 13 was clearly articulated, as illustrated below:

> *"8. What happens if the jurisdiction of residence of the ultimate parent entity does not require the submission of the country-by-country report? (…)*
>
> *The tax administrations of these countries may request local filing by an entity that has a tax presence in their jurisdiction. However, recognizing that local filing generates more compliance costs for companies, an alternative to local filing has been developed. This allows groups of multinational companies to choose a group entity in a country that has implemented the legislation as a surrogate or designated reporting entity. That entity would file the Country-by-Country Report, and the information would be exchanged automatically with other jurisdictions."*
>
> This approach ensures that all jurisdictions can access the information in the report, regardless of whether the country of the ultimate parent entity requires filing, including cases where the ultimate parent entity is resident in Mexico.

Another follow-up point raised by the OECD in the 2017/2018 peer review, also under the heading "*Domestic legal and administrative framework*," subheading "*Limitations on local filing in the case of surrogate filing*," concerned the fact that the limitations on local filing of the Country-by-Country report were not clearly defined in cases where it was submitted by surrogate jurisdictions.

In this regard, Mexico states that, although there were no express limitation in its domestic legislation preventing surrogate filing, this issue would be addressed through administrative guidance. This approach was reflected in the document called *"Frequently asked questions on related parties annual information reports"*[14] published by the Tax Administration Service in which, under the following approach, in which Mexico's position was clarified as follows:

> *16. Transitional filing options for multinational groups (surrogate filing of the ultimate parent entity)*
>
> *Do groups of multinational companies whose ultimate parent entity whose residence is located in a jurisdiction where the legal framework for*

13 Tax Administration Service (N.F.). *Tratados internacionales y precios de transferencia: Documentos relacionados*. Retrieved from https://www.sat.gob.mx/portal/public/tramites/tratados-y-precios

14 Ibid.

Country-by-Country reporting becomes effective for reporting periods after January 1, 2016, voluntarily file a Country-by-Country Report for fiscal periods beginning on or after that date in that jurisdiction? What is the impact of such filing on local filing obligations in other jurisdictions?

(…)

When surrogate filing becomes available (including filing by a surrogate parent entity), local filing obligations will generally not apply to the multinational enterprise group in any jurisdiction that would otherwise require local filing where the group has a constituent entity. This is subject to the following conditions:

1. *The ultimate parent company has made available to the tax authority of its jurisdiction of tax residence a Country-by-Country report that meets the requirements of the Action 13 report, within the applicable filing deadline (i.e., 12 months after the last day of the multinational group's fiscal year).*

2. *At the time of the filing deadline, the jurisdiction of tax residence of the ultimate parent company must have its legislation in force that requires the submission of the Country-by-Country Report (even if the submission of such a report for the fiscal year in question is not required under these provisions).*

3. *By the filing deadline, a Qualified Competent Authority Agreement is in effect between the jurisdiction of residence of the ultimate parent entity and the local jurisdiction*

4. *The tax residence jurisdiction of the ultimate parent company has not notified the tax administration of the local jurisdiction of any systemic failure.*

5. *The following notifications have been provided:*

   - *The ultimate parent entity has notified its jurisdiction of tax residence no later than the last day of the multinational enterprise group's fiscal year.*

   - *A constituent entity resident in the local jurisdiction has notified its tax administration that it is neither the ultimate parent entity nor the surrogate (or designated) reporting entity and has indicated the identity and tax residence of the reporting entity, no later than the last day of multinational enterprise group's fiscal year.*

Jurisdictions that have confirmed that the surrogate filing will be available in accordance with the above framework for ultimate parent entities resident in their jurisdiction, in respect of fiscal periods beginning on or after January 1, 2016".[15]

Therefore, it became clear that Mexico defined the conditions under which surrogate filing would be accepted, thus addressing the follow-up issue indicated by the OECD.

In the *"Country by country reporting-Compilation of Peer Review Report (Phase 3)"*[16] issued in 2020, it was highlighted that Mexico fully complied with all the requirements related to the appropriate use of country-by-country reports. As of March 31, 2020, Mexico had established 73 bilateral relationships through information exchange agreements enabling the automatic exchange of information between tax administrations, with no inconsistencies identified. Consequently, the report was concluded without issuing any recommendations for Mexico.

15 Ibid.

16 OECD (2020), *Country-by-Country Reporting – Compilation of Peer Review Reports (Phase 3)*: *Inclusive Framework on BEPS: Action 13, OECD/G20 Base Erosion and Profit Shifting Project*. Retrieved from https://doi.org/10.1787/fa6d31d7-en

Currently, Mexico has 84 information exchange instruments in force and is expected to undergo a new peer review evaluation in 2026.

Following the same line, the Inter-American Center of Tax Administrations (CIAT), through its periodic monitoring on the implementation of each of the BEPS action plan in the countries of the Americas, via the CIATData database[17], has also expressed a positive assessment on Mexico in this regard. It has determined that Mexico has adopted the recommendations issued by the OECD and considers all the measures corresponding to said action to have been implemented, therefore Action 13 of the BEPS Action Plan is regarded as effectively implemented in Mexico.

In addition, in that report, the Mexican State reported positive results from the implementation of this Action 13, noting increased availability of information for risk assessment purposes, as well as the receipt of Country-by-Country reports from other jurisdictions. These developments have provided tax authorities with a more comprehensive understanding of the operations of multinational enterprise groups.

Despite successful regulatory implementation in Mexico and the positive OECD monitoring outcome, some taxpayers expressed discontent, as when the introduction of the primary legislation on the matter was published, it faced legal challenges. This reaction is understandable, given that the new framework introduced an additional and highly complex compliance obligation.

In the appeal for review 782/2016[18,19] filed against the decree amending the Income Tax Law implementing Action 13 of the BEPS Action Plan, the taxpayer argued that Article 76-A violated the principles of legality and legal certainty. Specifically, the taxpayer contended that the provision failed to clearly establish the timing under which the Country-by-Country report could be required from the Mexican subsidiary of a multinational group and further argued that the information contained therein was not subject to exchange.

However, this means of defense was resolved against the taxpayer, thereby setting a precedent in Mexico. In particular, the constitutionality of article 76-A of the Income Tax Law was upheld, as it was determined that the obligation to submit informative returns is of a formal rather than substantive nature, since it does not directly affect the payment of taxes, but rather aims to provide the tax authority with relevant information on multinational enterprise groups. Accordingly, it was concluded that the obligation did not cause harm to taxpayers. Furthermore, the implementation of this measure—aimed at preventing tax evasion and avoidance—was considered legitimate and duly justified.

It was also emphasized that the information provided by the taxpayer is protected by tax secrecy provisions; therefore, this did not constitute a violation of personal data protection, particularly considering that *guidance on the appropriate use of the country-by-country reports* was issued shortly after.

From the above, it is possible to observe that Mexico, like other countries, faced a series of challenges to align with the emerging "common language" associated with the country-by-country reporting. These included the need to adapt its primary and

17 CIAT (2024). *CIATData BEPS monitoring database*. Retrieved from https://www.ciat.org/ciatdata/

18 The amparo is an autonomous constitutional judgment that is initiated against general rules, or acts or omissions of authorities. Soberanes J (2021).

19 Supreme Court of Justice of the Nation (2017). *Constitutional appeal (Amparo) under Review 782/2016*. Retrieved from https://bj.scjn.gob.mx/busqueda?indice=sentencias_pub&page=1&q=782%2F2016&semantica=0&filtros=

secondary national legislation and undergo the peer review process conducted by the OECD, which will take place again in 2026, and address legal challenges from taxpayers. Nevertheless, Mexico overcame these challenges to a significant extent.

3. OVERVIEW OF THE SITUATION IN SOME LATIN AMERICAN COUNTRIES REGARDING THE IMPLEMENTATION OF THE COUNTRY-BY-COUNTRY REPORT

Although the outlook in Mexico regarding the implementation of Action 13 of the BEPS Action Plan is favorable in Mexico, this is not the case in all Latin American countries.

For example, in the case of Costa Rica, although all the necessary measures for the implementation of this action have been adopted, CIATData[20] indicates that progress remains ongoing. In 2024, the country's Tax Administration had incorporated the use of Country-by-Country reporting into its risk analysis processes, while continuing to develop the systems required to enable the effective receipt and exchange of information with other jurisdictions. Accordingly, it may be considered that the implementation of this Action is still in a stage of consolidation.

In the case of Honduras, Decree 563-2023 was issued in recent years, establishing the obligation to file *CbC reports* starting in 2025; as a result, the country is currently in the initial phase of receiving such reports.

In Brazil, by contrast, the CbC reporting has been in place since 2017, and the country has developed data analyzing tool, which allows analyzing the information from these reports at various levels of aggregation and combining it with other data belonging to other internal databases. This tool, known in Brazil as "Analytics," ensures adequate comparisons between different economic groups and represents a positive advance to be considered by other tax administrations that are still developing their analytical capabilities.

Argentina also presents favorable conditions, as it incorporated the necessary legislative amendments in 2017 to implement the Country-by-Country Reporting, and aligned its regulations to enable the required exchange of information.

From the foregoing, it may be observed that the outlook in Latin America, in general, is favorable, although countries are at different stages of development. Overall, it can be noted most jurisdictions remain engaged in the ongoing effort to consolidate a shared "common language" in tax matters.

20 CIAT (2024). *CIATData BEPS monitoring database*. Retrieved from https://www.ciat.org/ciatdata/

CONCLUSIONS

Mexico, like other countries, has undergone successive stages of adaptation and refinement in the implementation of this measure. From a legal perspective, it amended its primary legislation and enacted secondary regulations to comply with the required standards, including successfully meeting the OECD peer review requirements.

In this process, Mexico has also faced legal challenges brought by taxpayers, reaffirming through judicial decisions that the legislation adopted is consistent with its legal system and does not violate the principles or rights of taxpayers.

Mexico also developed guidance tools for taxpayers to help them become familiar with their new obligations, and these tools remain in force.

While Latin American countries participating in the BEPS Inclusive Framework are generally committed to implementing Action 13 with the objective of enhancing transparency and promoting the appropriate use of information, their respective situations vary. Some jurisdictions are still refining their domestic regulatory frameworks, others are at the early stages of implementation, and several already have well-established systems in place.

It is important to recognize that the adaptation of regulatory systems to the demands of globalization represents significant challenges for both tax administrations and taxpayers. Accordingly, legislative frameworks must evolve in a way that ensures not only compatibility with domestic legal systems, but also coherence with international standards and responsiveness to the needs of other jurisdictions and global economic actors.

Ultimately, it can be said that—without exception—countries, tax authorities, and taxpayers alike are engaged in an ongoing process of learning and refinement, contributing to the gradual construction of a shared "common language" in international taxation.

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Main Tax Identification Numbers in the World: Structural Analysis and Standardization Prospects

Caroline C. Ferreira

SYNOPSIS

The study you are about to read was based on an investigative and comparative analysis of the structures of Tax Identification Numbers (TIN) adopted by a sample of 63 countries, with the purpose of identifying patterns, divergences and potential paths of international standardization. This research explored not only relational, methodological and qualitative and quantitative elements, but also the development of Python scripts to better investigate possible practical solutions to address a major problem of validation and integration of systems of various governmental and private -sector organizations. The results reveal the diversity of administrative approaches, governmental systems and cultural contexts, despite numerous compatibilities among them, pointing to the possibility of a universal validation model. The data presented in this document allows readers to understand that the standardization of TINs would represent a strategic advance for the integration and cooperation among financial institutions, tax administrations and international organizations, favoring the security, efficiency, reliability and traceability of tax records.

KEYWORDS: Tax Identification Numbers, International Standardization, System Integration, Tax Validation, Tax Systems.

CONTENTS

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“Life is more enjoyable for me because I have a new chance, every day, to be better than yesterday, and yet I remain at ease enough to know that I am not as good as I will become tomorrow.” Caroline C. Ferreira (2025).

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INTRODUCTION

Long ago, even before Brazil was discovered, there in prehistory and ancient civilizations, societies were so small and, in a certain way, organized, that each individual was recognized only by a nickname or specific personal name. As populations grew, surnames became necessary to identify and group families; as happened with the ancient Greeks and Romans, who supplemented the names with geographical information or affiliation. Mioranza (1998) states that between the ninth and fifteenth centuries, the current surnames were created. People began to be named according to four characteristics: first names (about 37 %), places (37 %), professions (15 %) or nicknames (11 %). Then a man who worked with iron could easily be nicknamed, along with all his successors, Ferreira, or a family that grew olives, would bear the surname of Oliveira. In English, a very common example, used to this day, would be identifying one's father, in this way "John's son" becomes "Johnson". It is also interesting to mention that, in China, the first surnames appeared around the third millennium BC.

As we continue to move forward in time, it is easy to see that with the constant increase in population only names and surnames would not be enough to identify everyone. In the fifteenth century, Europe was recovering from a considerable population drop caused by the Black Death, leading to a slow increase in population after centuries of uneven growth. The Americas and Africa were continents with a significant population, but they were not very well known or explored by Europeans at the time. Thus, in the year of Brazil's discovery, the world had an estimated population of 450 to 500 million people. Harari (2020) complements that the transition from 500 million in 1500 to the first billion, which occurred in 1804, marked a period of rapid growth, driven by the Industrial Revolution. How could each individual within such a large population be uniquely identified, without unintentionally duplicating the" primary key "?

It is clear that defining this enigma and putting its solution into practice was a job for the respective governments of each place and time, depending on each context and need. We have no records of where or when the first legitimate identification format was created, because as discussed earlier, since the dawn of civilization, human beings have found ways to identify one another." The moment of the archive is the moment of the entry into writing of the historiographic operation. Testimony is originally oral; it is heard, understood. The file is a writing; it is read, consulted" (Ricouer, 2000, p.209). Popular sources claim that the first mention of a form of government collecting personal information from the people dates back to 3800 BC, during the Babylonian Empire.

A good example to be considered as the first "modern identity document "was the idea of King Henry V of England in 1414, when issuing the first passport of all time, so that citizens could prove their identity while they were outside the country; these papers were called "letters of safe conduct", since they guaranteed the safety of these English travelers in a neighboring country when such trips or vacations were offered by the monarch.

"The last centuries of the Middle Ages, namely the Thirteenth, Fourteenth and fifteenth centuries, are marked in Europe by an increasing concern to fix in writing [...] legal and administrative documents." (France, 2007, p.58). Later, in the Modern age, the need arose to identify people for tax or military purposes, which led to the development of records in several countries, such as in the Roman Empire or Great Britain.

It is remarkable that such an identification would not only serve to differentiate people and make each individual unique. It would be as useful for the payment of taxes, a subject which has also existed since the smallest and simplest societies were formed, whether paid in money, food, animals or materials of interest. Now we can talk more directly about the subject of this article: Tax Identification Numbers, also known as TINs. These are nothing more than mechanisms for uniquely identifying each person within a nation, making them easily identified in their rights and duties, which includes paying taxes, hence the use of the term "tax". "Registration as a taxpayer implies obtaining a tax identification number (TIN) and is an essential condition for many acts of everyday life, not only tax, but related, in particular, to employment, contracts, bank account openings, and social security" (Portal das Finanças, 2025, P.2).

Many secretly hope that their taxes will be collected from others. These are duties that are commonly targets of dissatisfaction and questioning, but TINs also help ensure that everyone receives what is rightfully theirs. João da Silva, for example, would not like to work the whole month only to discover at the end of the period that his payment and other benefits were deposited to the wrong "João", just because they shared the same name and surname. This is why unique identifiers are important. Rights and duties, TINs serve for both.

Without forgetting that each country has its own identification system. Each nation has its own overview of national rules in jurisdictions (...) governing the issuance, structure, use and validity of Tax Identification Numbers ("TIN") or their functional equivalents." (OCDC, 2025). Which makes everything more complex, considering that the world is well globalized, we have contact, Business and agreements with numerous countries all the time and with an increasing frequency it is necessary to validate Tax Identification Numbers of both individuals and legal entities to guarantee the originality and veracity of documents, contracts and so on.

Many banking institutions, non-profits, corporations, governments and multinational companies need a consistent way to validate TINs from several different countries, in order to avoid risks of fraud and other forms of misrepresentation. How to make such validation be carried out if each country has its particular norms and structures? How can access be obtained to these rules of each nation? Where can group so many details be consolidated and how can so much data be used solely to validate identification numbers? This is what we will answer in this article.

1. METHOD

Considering that the problem addressed in this document is related precisely to this difficulty in validating TINs from so many nations with such a variety of rules, it is easy to understand why the initial step of this process was to seek to understand, in an analytical way, how truly distinct these structures are. Gramacho (2022) corroborates this by stating that experimental design requires a clear definition of variables, rigorous measurement of data, and understanding of differences between conditions to validate hypotheses. Just as a certain level of understanding about the significance of the TINs was reached during the research to support the entire project, let us then resume its definition. Tax Identification Numbers, known as TINs, are unique codes assigned to individuals and legal entities with the aim of identifying them before the tax authorities of a country. Each nation has a specific format and rules for the generation and validation of these numbers, reflecting the particularities of its tax and administrative system.

In general, TINs are essential for activities such as filing taxes, opening bank accounts, signing contracts, and fulfilling various legal obligations. They function as a kind of" CPF "or" CNPJ "—in the case of Brazil—and their use extends to all spheres of the financial and institutional life of a citizen or company.

Thus, the purpose of the project was precisely to facilitate the use of such validations by a wide variety of organizations. The codes developed in Python for the validation of TINs from several countries represent a powerful and versatile tool that can benefit a wide range of users and institutions. Governments, private companies, banks, fintechs, educational institutions, e-commerce platforms, enterprise management systems, and even NGOs can benefit from these scripts by implementing automatic validations in their systems. Through them, it is possible to ensure that the data entered are valid and authentic, consistent with the format required in each country. This not only prevents fraud and errors in registration, but also facilitates audits, improves the quality of databases, and contributes to compliance with data protection legislation and tax regulations. In addition, these codes can be used in digital onboarding systems, identity verification processes, in payment gateways, and other contexts where the accuracy and security of tax information are essential. In an increasingly globalized and digital world, having a system capable of validating international Tax Identification Numbers is a strategic step towards efficiency, trust, and interoperability between platforms and jurisdictions.

Mattar (1996) argues that sampling is a stage of great importance in the design of research, capable of determining the validity of the data obtained. Its basic idea refers to the collection of data relating to some elements of the population and their analysis, which can provide relevant information about the entire population. To this end, the specifics of a sample of 63 countries were analyzed and subsequently compared through a constantly updated digital archive and other reliable sources to formulate a survey as robust as possible. The list was organized in descending order of priority according to the countries having the most relevant exchanges and relationships with Brazil, based on the criteria established by the Federal Revenue Service.

In fact, this was the most delicate part of the whole process, since we often depend on the direct contribution of representatives from countries where information is required and this did not always happen as expected. As further support for this argument, Gil (2008) explained that the collection of primary data implies direct contact with the subjects or institutions researched, which often represents additional costs, delays in the schedule, and risks of not obtaining the desired information. In this way, the following steps were slightly compromised at times, leading to the temporary redirection of attention to the next country on the list.

A spreadsheet was created with all the particularities of each of the 63 items in the sample, revealing distinctions and similarities among them from the outset. This led to the practical challenge of "how to" validate so many unique TINs with their respective structures in one place. The Python language was chosen to develop the test codes, since, according to Lutz (2013), it has become one of the most used options in data science and test automation, largely due to the wide range of libraries available and, therefore, its increasing usefulness in secondary functions and, especially, the graphical visualization of results.

For the development of these codes in Python, an extensive survey and analysis of the structure of the TINs listed in the sample was conducted. This detailed study considered several specific aspects of each TIN, such as the distinction between individuals and legal entities—whether they share the same type of number or have different formats—, the exact length of the code, whether it is numeric or alphanumeric and even the presence of embedded information, such as the date of birth in the case of individuals.

Some countries, for example, incorporate gender or date of birth information into the number itself, while others use purely numeric sequences without any explicit personal data. There was also the identification of patterns involving regional prefixes, check digits, and validations algorithms such as the Luhn algorithm or modular calculations.

This thorough mapping allowed the creation of highly accurate validation functions adapted to the reality of each country, promoting not only the correct verification of inputs, but also an understanding of the logic behind each tax identification system.

In addition to the individual analysis of the rules and structures of the Tax Identification Numbers of the 63 countries, an in-depth comparative analysis was carried out using an Excel spreadsheet. In this worksheet, the following information was organized and cross-referenced:

Table 1
Names of the 12 columns used for sample analysis

TIN number (individuals or legal entities)	Both with the same number of digits
Amount of digits	Prefixes in at least one of classification
Alphanumeric	Check digit
TIN for Individuals and legal entities	Changes that have occurred over time
Same name for both classifications	Birthday date or registry date
Both are alphanumeric	A characteristic identifying foreigners

Source: Created by the author.

With only about a dozen individual codes functioning, that is, suitable for both validation and reporting of the invalidity ratio of numbers, including sequences of real citizens, the level of understanding necessary to establish a standard method was reached, although the 63 had their individual codes finalized to complement the research.

The next step was to work with the possibility of developing a database and WEB page to better harvest the results. Loudon (2015) formulated that in large web applications, it becomes essential to use modularization techniques and reusable components to organize the Code, group functionalities and avoid duplication; frameworks that provide a set of ready-made components allow centralizing common behaviors, facilitating maintenance and scalability. In this way, the scope of the method with numerous functions and web components was created as a map, an idea that would later be made available free and publicly to all those who wanted to explore or use commercially. To this end, all steps, descriptions of the individual rules, codes and documentation have been added in an open repository on GitHub, which can be easily accessed via the link github.com/ReceitaFederal/world-documents.

2. RESULTS

As part of the overall analysis, below is a good example of how the sample spreadsheet was constructed, following the information contained in Table 1 of this document, to broaden understanding of the patterns that could be identified despite the many cultural and bureaucratic differences among nations.

Table 2
Sample comparison worksheet

	NOME DO NIF - PF	NOME DO NIF - PF
VENEZUELA	RIF	RIF
ARGENTINA	CUIL	CUIT
COLÔMBIA	NIT	NIT
CHINA	TIN (RIC)	TIN
BOLÍVIA	NIT	NIT
PERU	RUC	RUC
FRANÇA	NIF (NFR)	SIREN
CHILE	RUT	RUT
SUÍÇA	UID OU IDE OU CHE-NUMMER	UID OU IDE OU CHE-NUMMER
CUBA	NIT	NIT
ANGOLA	NIF	NIF
HOLANDA	BSN	RSIN
LUXEMBURGO	MATRICULE (NDI)	TVA OU VAT NUMBER
MÉXICO	RFC	RFC
IRLANDA	PPS NUMBER	VAT NUMBER OU TAX REFERENCE
SÍRIA	ID	NIF OU TIN
ALBANIA	NIPT	NIPT
ANDORRA	NRT	NRT
GUINÉ-BISSAU	NIF	NIF
SUÉCIA	PERSONNUMMER	ORGANISATIONSNUMMER
AFEGANISTÃO	NIC OU TIN	NIC OU TIN
DINAMARCA	CPR-NUMMER	CVR-NUMMER
BELIZE	TIN	TIN
NORUEGA	FøDSELSNUMMER	ORGANISASJONSNUMMER
QUÊNIA	PIN	PIN
BANGLADESH	E-TIN	BIN
EGITO	NIF	NIF
GRÉCIA	AΦM	AΦM
BAHAMAS	TIN (OU NIB)	TIN
NOVA ZELÂNDIA	IRD NUMBER	IRD NUMBER
MARROCOS	IDENTIFIANT FISCAL	IDENTIFIANT FISCAL
REINO UNIDO	NIN OU NINO	UTR OU CHRN
CANADÁ	SIN	BN

Source: Created by the author.

Next, an example is presented of how Argentina`s specifications are described, in the OCDC (2025) digital file.

Picture 1

Argentina Web Archive OCDC (2025) specifications

Jurisdiction's name:		**ARGENTINA**	
Information on Tax Identification Numbers			
Section I – TIN Description			
The Federal Administration of Public Revenue assigns a unique number (CUIT, for its Spanish acronym) to each taxpayer enrolled. The registration process differs between individual or legal persons. The **individual** is registered at the agency corresponding to its fiscal domicile (in which the economic activity is performed) and provides the necessary information and documents to prove its identity (birth date, ID N°) and domicile (certificate by a notary public, title deed or rental agreement, bank account or credit card statement, municipal permit, among others). Argentinian individuals may also request their CUIT electronically with the mobile APP "Mi AFIP". For this they will need a mobile device with a camera and their ID (DNI). In the case of **legal persons,** the request for registration must be done electronically, providing the identifying information about the partnership (registered name, legal domicile and any other related data), information about the members (authorities, equity shares, partners and shareholders), and any other information related to the activity performed, taxes and fiscal domicile. The representative will appear in person at the AFIP premises in order to provide all the necessary documentation to prove the existence of the legal person, which will vary according to the legal nature (partnership business, trust, permanent establishment, etc.) After having verified the documents submitted and accepted the registration, the AFIP will provide the CUIT assigned to said legal person.			
Additional information on the mandatory issuance of Tax Identification Numbers (TINs)			
Question 1 – Does your jurisdiction automatically issue TINs to all residents for tax purposes?			
Individuals	[~~Yes~~/No]	**Entities**	[~~Yes~~/No]

Source: OCDC (2025).

Statistically, considering the sample analyzed, 35% of countries have alphanumeric TINs, that is, they include both numbers and letters, while 65% are only numeric, as can be seen in the examples from China.

Picture 2

Alphanumeric example from China

Individual (using Chinese passport as its identification)	C99999999999999999 C99999999999999999x
Individual (using Foreign passport as its identification)	W999999999999999999 W99999999999999999x
Individual (using Soldier card as its identification)	J9999999999999999

Source: OCDC (2025).

Picture 3
Numerical example from China

Entity	999999999999999 (old TIN) 999999999999999999 (new TIN) 99999999xxxxxxxxxx (new TIN)
Individual (using Chinese ID card as its identification)	999999999999999999 99999999999999999x

Source: OCDC (2025).

All countries surveyed have their own tax identification numbers for individuals and legal entities, differentiating them. 25% have both the individual and legal-entity TINS in alphanumeric formats, while the remainder this structure in only 1 of the classifications or use exclusively numeric format for in both. 65% of the two categories (Individuals and Legal entities) share a single name and 63% keep the same amount of digits in both, as can be seen in the image below.

Picture 4
Specifications from Switzerland demonstrating the same structure for PF and PJ

Format	Explanation	Comment
999999–9999 999999+9999	10 digits	Personal identification number: natural person who is or has been resident in Sweden
999999–9999	10 digits	Co-ordination number: natural person who is not and has not been resident in Sweden
999999–9999	10 digits	TIN for legal persons: legal person registered by a Swedish authority

Source: OCDC (2025).

Something very curious and, relatively little used, between countries is the prefix. It serves to separate and identify categories. As in the example of Andorra, if the letter a begins the tin, it means that it is a joint-stock company. Letter E refers to non-resident legal entities and so on. In this case, only 38% of the sample uses prefixes in their structures. Moreover, they can also define specific groups of taxpayers, as in India.

Picture 5

Specifications of Andorra exemplifying the use and meanings of prefixes

A-123456-Z	A + 6 digits + 1 control letter	Limited company *(societat anònima)*
L-123456-Z	L + 6 digits + 1 control letter	Private limited company *(societat limitada)*
E-123456-Z	E + 6 digits + 1 control letter	Non-resident legal entities (including legal persons)
Other entities		
C-123456-Z	C + 6 digits + 1 control letter	Joint ownership arrangements *(comunitats de béns)*
D-123456-Z	D + 6 digits + 1 control letter	Public entities/bodies
G-123456-Z	G + 6 digits + 1 control letter	Tax groups
O-123456-Z	O + 6 digits + 1 control letter	Collective Investment Schemes

Source: OCDC (2025).

Picture 6

India's specifications regarding taxpayer groups

Section II – TIN Structure

A typical PAN is **AFZPK7190K.**

First three characters i.e. "AFZ" in the above PAN are alphabetic series running from AAA to ZZZ.

Fourth character of PAN represents the status of PAN holder i.e. "P" in the above PAN represents the status of the PAN holder.

"P" stands for Individual,
"F" stands for Firm,
"C" stands for Company,
"H" stands for HUF,
"A" stands for AOP,
"T" stands for TRUST
"B" stands for Body of Individuals
"L" stands for Local Authority
"J" stands for Artificial Juridical Person
"G" stands for Government

Fifth character i.e. "K" in the above PAN represents first character of the PAN holder's last name/surname.

Next four characters i.e. "7190" in the above PAN are sequential number running from 0001 to 9999.
Last character i.e. "K" in the above PAN is an alphabetic check digit.

Source: OCDC (2025).

Historical structural changes are sometimes necessary, as single numbers can be rapidly depleted by population growth when the available numerical sequence contains only of few digits. Leading the country to increase the amount of characters to support the creation of so many "primary keys" intended for citizens, companies and foreigners; not to mention, of course, enhanced security. Some studies on authentication show that alphanumeric identifiers or passwords, which combine letters and numbers, offer greater resistance to guessing or brute-force attacks than purely numeric identifiers, according to S. V. & Sundararajan (2021). Brazil, in fact, is going through this at the moment, with the renewal of CNPJ models. "The Federal RS published normative instruction RFB No. 2.229, of October 15, 2024, which changes the format of the National Register of legal entities (CIN). In response to the growing demand for new CNPJ numbers, the format will be modified to include letters and numbers."(Gov.br, 2024). Although it is a good response due to such a common situation, only 14% of the countries studied have implemented this change, according to available record. Once again, China is used as an example to visualize this change, being the second most populous nation in the world, behind only India.

Picture 7
Demonstration of China's historical change

Format
999999999999999 (old TIN) 999999999999999999 (new TIN) 99999999xxxxxxxxxx (new TIN)

Source: OCDC (2025).

It is also especially common to include birth dates for individuals and date of incorporation in the case of legal entities. Such a structure varies between 6 and 8 digits, since some countries require the year to be abbreviated to 2 digits and others use all four digits. This makes the TIN even more personalized, although only 21% add this extra layer to their identifiers.

Picture 8

Specifications of Ukraine regarding the inclusion of the date of birth of individuals

For individual:

RNOKPP is the ten-digit numerical code (without use of letters, hyphens, or other symbols).

The structure of RNOKPP is as follows: XXXXXNNNNK, where:

XXXXX – sequence number of registration of birth date of an individual (for one date of birth two or more sequence numbers can be given);

NNNN – sequence number of the account card;

K – control category.

Source: OCDC (2025).

Picture 9

Greenland specifications regarding the inclusion of individuals ' date of birth

Section II – TIN Structure

For natural persons the format of the TIN is a 10 digits structure. From the left it is constructed in the following way:
the digits in the positions 1-2 indicate the day of birth of the person;
the digits in the positions 3-4 indicate the months of birth of the person;
the digits in the positions 5-6 indicate the year of the birth of the person, without indicating the century;
the digits in the positions 7-10 form a serial number. These digits are often separated from the preceding digits by a hyphen between the 6th and 7th digits.

For non-natural persons and legal entities the format of the TIN is an 8 digits structure.

Source: OCDC (2025).

Some, by the way, apply codes, or predefined sequences according to the date of birth or registration, as in the case of Norway.

Picture 10

Norwegian specifications regarding dates and codes

Section II – TIN Structure

National identity numbers and D-numbers

The national identity number consists of 11 digits. The first six digits represent the date of birth in the order day, month, year. The next three digits are an individual number, the third digit of which indicates gender – even numbers for women and odd numbers for men. The last two digits are control digits.

The three digits comprising the individual number are allocated sequentially within the specific date of birth. Individual digits are allocated as follows:

a) born 1854-1899: allocated from series 749-500
b) born 1900-1999: allocated from series 499-000
c) born 1940-1999: also allocated from series 999-900
d) born 2000-2039: allocated from series 999-500

For example

Day	Month	Year	Individual number	Control digits
01	12	99	551	31

Legal Entities

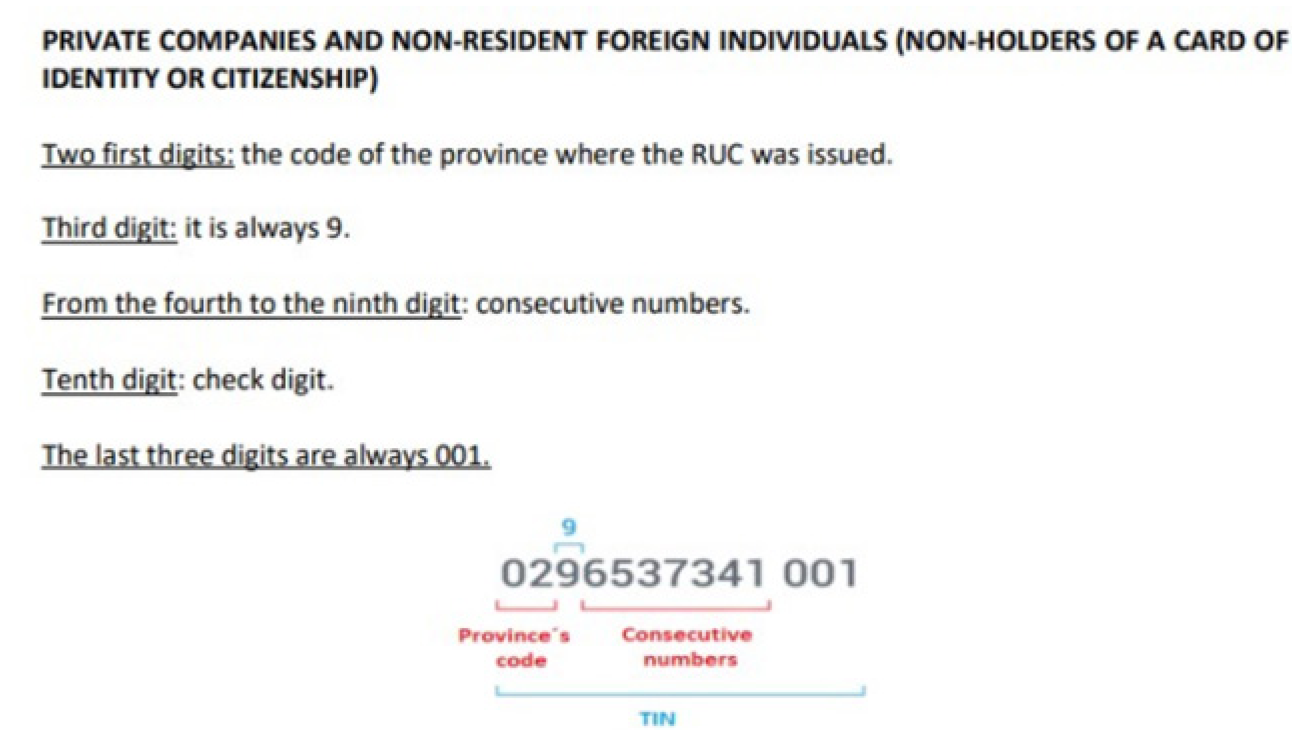
The organisation number (TIN) is a nine digit number. The technical construction of the number specifies that the first digit must always be either 8 or 9, with a modulus 11 check digit at the end. According the Central Coordination Register's website, the weighting factors are 3, 2, 7, 6, 5, 4, 3 and 2 calculated from the first digit. The digits are thus multiplied by the weighting factors and the product sum divided by 11. The leftover from the division is subtracted by 11 and the result becomes the check digit.

Legal entities which are registered in the Value Added Tax Register are required to

Source: OCDC (2025).

Other specific coding models refer to the use of first and last name, even if only the initials are used, as components of the TIN. Other incorporate a numerical sequence that identifies the province, office, or place of registration of each Tax Identification Number.

Picture 11
Specifications of Ecuador regarding the inclusion of the province code



PRIVATE COMPANIES AND NON-RESIDENT FOREIGN INDIVIDUALS (NON-HOLDERS OF A CARD OF IDENTITY OR CITIZENSHIP)

Two first digits: the code of the province where the RUC was issued.

Third digit: it is always 9.

From the fourth to the ninth digit: consecutive numbers.

Tenth digit: check digit.

The last three digits are always 001.

Source: OCDC (2025).

As if these were not enough singularities, Finland, for example, still accepts symbols in the composition of Tin, such as + and -.

Picture 12
Specifications of Finland regarding the use of symbols in TIN composition

Section II – TIN Structure

The structure of the TIN varies depending on the type of taxpayer.

For **individuals**, it consists of 11 characters:
- 6 digits
- 1 character which can be + (plus), - (minus) or the letter Y, X, W, V, U, A, B, C, D, E, F
- 3 digits
- 1 alphanumeric character

The 7th character (+, - or a letter) represents the century of birth and cannot be skipped: it shall be duly noted down and reported in all records. Character + means born 1800-1899, character - or letter Y, X, W, V, U means born 1900-1999 and letter A, B, C, D, E, F means born in 2000 or after that. These characters have no other meaning.

For **legal persons**, it consists of seven digits, a dash and a control mark, i.e. it has the form 1234567-8.

Source: OCDC (2025).

Regarding security, the check digit has exactly this function, ensuring that the TIN is authentic and unique. Briefly, it is a numerical element (or two), or even alphanumeric element, added to the end of an identification sequence for the sole purpose of ensuring the integrity and validity of the data. It is capable of detecting common typing errors, transposition of characters and even omissions when entering information into electronic systems. Its calculation is based on a mathematical algorithm that uses the previous numbers of the code as a basis. Thus, each digit of the TIN has a unique and verifiable combination, significantly increasing the reliability of the records.

Picture 13
Example from Ecuador illustrating the check digit

Two first digits: the code of the province where the RUC was issued.

Third digit: it is always 9.

From the fourth to the ninth digit: consecutive numbers.

Tenth digit: check digit.

The last three digits are always 001.

Source: OCDC (2025).

Despite its importance, not all nations have chosen to include a check digit. In fact, 14% of countries analyzed do not have one, relying solely on the uniqueness of each identifier and ensuring that identifiers are not assigned to multiple citizens or organizations.

Picture 14
Example from Nauru, without the check digit

Section II – TIN Structure
Format is either numeric or alphanumeric, may contain one or two letters/numbers and varies in size, 8 digits.

Source: OCDC (2025).

On the other hand, a few countries have adopted two 2 check digits or even a check letter to increase the level of protection.

Picture 15
Example from Ireland, with 2 check digits

Section II – TIN Structure

Format Examples TRN (both natural and non natural persons): 1234567T

or 1497955KA

Explanation: 7 digits + either 1 or 2 letters.

Comment: There can be one or two letters at the end of the digit sequence and there is no restriction on the letters used.

Format Example CHY Number (only non natural persons): CHY 1234

Explanation: The letters CHY followed by between 1 and 5 digits.

Source: OCDC (2025).

There are different ways to calculate the check digit when validating a TIN. The two most commonly used methods are module 10 and 11. Module 10, also known as Luhn's algorithm, applies alternating weights to the digits of a TIN, sums the results, and checks whether the total is divisible by 10; if the remainder of the division is zero, the number is considered valid, as shown in the South African example below.

Picture 16
Explanation of module 10-South Africa

Appendix I - Modulus 10 Validation

The last character is a check digit, calculated by applying the following algorithm:

Digit	Formula
Digit 1	Multiply by 2 (Add result to total)* See below
Digit 2	Add to total
Digit 3	Multiply by 2 (Add result to total)* See below
Digit 4	Add to total
Digit 5	Multiply by 2 (Add result to total)* See below
Digit 6	Add to total
Digit 7	Multiply by 2 (Add result to total)* See below
Digit 8	Add to total
Digit 9	Multiply by 2 (Add result to total)* See below

* When the result of the line item calculation exceeds 9, add the individual digits together to obtain a single digit result (e.g. 18 = 1 + 8 = 9)

Digit 10: Check digit

If the last digit of Total > 0 Then
The Check Digit should be equal to the result of 10 – (Total MOD 10)
If the last digit of Total = 0 Then
The Check Digit should be equal to zero

Example:

Tax Reference Number = 0001339050

Digit	Formula	Result
Digit 1	0 x 2	0
Digit 2	0	+ 0
Digit 3	0 x 2	+ 0
Digit 4	1	+ 1
Digit 5	3 x 2	+ 6
Digit 6	3	+ 3
Digit 7	9 x 2 = 18 (1 + 8 = 9)	+ 9
Digit 8	0	+ 0
Digit 9	5 x 2 = 10 (1 + 0 = 1)	+ 1
Total		**20**

Last Digit of Total is not greater than zero 0 so the check digit equal 0 and the number is therefore valid.

Source: OCDC (2025).

Module 11, on the other hand, uses increasing weights (usually from 2 to 9) applied to the digits of the number, summing the products and dividing the total by 11. The check digit, in this method, is obtained from the remainder of the division, and can be adjusted according to specific rules (such as replacing the remainder 10 with "X" or 0).

Picture 17
Explanation of module 11-Netherlands

Section II – TIN Structure

The Dutch TIN has 9 digits: 999999999.

Validation rule and check digid:

1. The TIN always has 9 digits: N1, N2, N3, N4, N5, N6, N7, N8, N9
   N9 is a check digit.

2. Algorithm for check digit:
   ((N1*9) + (N2*8) + (N3*7) + (N4*6) + (N5*5) + (N6*4) + (N7*3) + (N8*2)) modulo 11

   Check digit (N9) = remainder from above algorithm

   If remainder = 10, the TIN is not valid.

TIN-check-module: https://ec.europa.eu/taxation_customs/tin/tinRequest.html

Source: OCDC (2025).

Both calculations seek to identify transcription errors and digit transpositions. Module 10 is common in credit cards and civil identification numbers, while 11 is most often used in tax and banking systems.

An interesting finding observed during the study is that the most common format shared among countries is the following: 8 digits + 1 check digit, present in 13 of the 63 countries analyzed.

In addition to the structural and comparative analyses, individual Python scripts were developed for each of the 63 jurisdictions. Each module of the code template was designed to represent the rules of composition, validation and formatting of the respective tax identification numbers (TIN). The code below illustrates how it was applied in the case of Albania, although it is important to emphasize that the structure explained below represents the standard methodology applied to the other cases.

The script consists of four main sections: formatting, validation, generation and practical application, including the presentation of an example TIN. In the first step, the function remove_symbols() it facilitates the visualization and handling of the number by "cleaning" the input tin and removing any non-alphanumeric characters (such as spaces, dashes or symbols), thereby standardizing the input for the following steps. This cleaning is the basis for ensuring that the algorithm processes only the characters relevant to tax validation.

The second stage, represented by the function is_valid(), performs the validation of each element of the TIN within its correct structure, according to each country. In the case of Albania, it is checked whether the number contains exactly 10 characters, whether the first and last are letters, and whether the eight intermediate characters are numbers. Because Albania's check digit algorithm is not publicly available, validation is restricted to format compliance and therefore excludes internal cryptographic calculations. This same approach has been applied to other countries with partially disclosed rules.

In the next step, the function format_tin() reorganizes the TIN to make it visually readable and standardized. The format "X-XXX-XXX-XX-X" was chosen to facilitate the recognition of blocks of information and, of course, human readibility, according to good practices for displaying tax identifiers.

Finally, the function generate() simulates the creation of a valid TIN within the Albanian standard format. The generation takes place through a combination of predefined letters and random digits, representing the actual structure as closely as possible, although without any connection to official records. This function enables automated testing of validation and formatting routines, making it useful for creating testing and demonstration environments.

It is reiterated that this implementation reflects the methodological standard applied to all other nations evaluated in this study, respecting their formal specificities, thus enabling the construction of a modular and scalable system for the validation of international TINs.

Code 1

Individual code of Albania from random import randint, choice

```
# FORMATTING
#############

def remove_symbols(dirty_tin): # type: (str) -> str
  """
  Removes non-alphanumeric characters from the tin.
  """
  return "".join(filter(str.isalnum, dirty_tin.upper()))

# VALIDATION
#############

def is_valid(tin): # type: (str) -> bool
  """
  Validates an Albanian tin by format and check character.
  """
  tin = remove_symbols(tin)
  if len(tin) != 10:
```

```
        return False
    if not (tin[0].isalpha() and tin[-1].isalpha()):
        return False
    if not tin[1:9].isdigit():
        return False
    return True # Format validation only; actual check character algorithm is not public

# FORMATTING
#############

def format_tin(tin): # type: (str) -> str
    """
    Formats an Albanian tin for readability.
    """
    tin = remove_symbols(tin)
    if len(tin) != 10:
        return None
    return f"{tin[0]}-{tin[1:4]}-{tin[4:7]}-{tin[7:9]}-{tin[9]}"

# GENERATION
#############

def generate(): # type: () -> str
    """
    Generates a random valid Albanian tin.
    """
    first_letter = choice('JKL') # Types of entities
    digits = str(randint(10000000, 99999999))
        last_letter = choice('ABCDEFGHJKLMNPQRSTUVWXYZ') # Random valid control character
        return first_letter + digits + last_letter

# USAGE EXAMPLES
tin = generate()
print(f"Generated tin: {format_tin(tin)} – Valid? {is_valid(tin)}")

user_tin = input("Enter your Albanian tin: ")
print(f"Valid? {is_valid(user_tin)}")
print(f"Formatted tin: {format_tin(user_tin)}")
```

Source: Created by the author.

Such a detailed development is a prelude to the creation of a unified code with all the necessary functions to address any particularity of the countries studied.

Regarding the good practices for applying this study, it is important to highlight that systems should capture and distinguish these prefixes to avoid ambiguity between jurisdictions or types of taxpayers; that special attention should be paid to country-specific rules, avoiding the indiscriminate acceptance of all letters, group prefixes, dates, province codes or registration codes, etc.; that we should remember that the vast majority of nations allow consistency verification, increasing robustness against typing errors through the check digit, however, some continue without this feature; that regarding the "historical changes" issue, it is necessary to version or maintain legacy rules for a small group of countries; that in addition to identifying dates of birth or registration, these elements also allow the validation the age group, but require additional logic for extracting and calculating age; that validating resident and non-resident profiles may require different procedures in almost one out of five jurisdictions and, finally, it is worth mentioning the normalization of inputs (capitalization, removal of accents) and the use of generic regular expressions.

The present study sought to systematize and analyze the specifications of Tax Identification Numbers (TIN) of different countries in order to identify structural and functional patterns that can support standardization initiatives, systems integration, compatibility, and collaboration between international tax systems. The research allowed not only the recognition of the wide range of existing validation formats and methods, but also the identification of convergence trends, especially regarding the use of check digits, identifier prefixes, and common rules of numerical composition.

The main contribution of this work consists of providing an unprecedented comparative panorama, capable of guiding the development of computational resources and tools for the validation and integration of TINs at all levels of scale. Such systematization represents an essential step towards the creation of technological solutions applicable by financial institutions, governments, and multilateral organizations interested in increasing the accuracy, reliability, and traceability of international tax registries.

The results obtained reinforce the feasibility of developing a universal model for the validation of TINs, adjustable to local specificities, but supported by common structural principles. Future studies can further develop this proposal, expanding the sample of countries, incorporating temporal validity data of the formats and testing verification algorithms in real-world environment. In addition, it is recommended to investigate the regulatory and legal impact of harmonizing these identifiers, so as to ensure that future implementations respect both national legislation, customs and cultures.

In summary, this documented study demonstrates that the standardization of TINs, although challenging, is possible and desirable, offering concrete benefits in terms of technological integration between nations and economic sectors, as well as administrative efficiency and fiscal security.

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Rethinking Tax Closure

Daniel Alejandro Soria

SYNOPSIS

The document proposes a disruptive reform of the Argentine tax penalty regime to repase the ordinary closure through the introduction of the “Institutional Reproach”, which is a formal, visible, and pecuniary sanction. It is applied by affixing sanctionary bands, containing messages about the tax rule violations committed by the offender. It materializes before citizenship as a punishment that seeks to reinforce constitutional duty to contribute to public expenditure. The methodology utilized included normative, doctrinal, and jurisprudential analysis. The sanction respects due process and the protection of public interest. The central contribution is a sanction that preserves proportionality, has a pedagogical purpose, and acts preventively by reducing various externalities of the ordinary tax closure. The expected results include lower litigation rates, preservation of the economic flow, and the strengthening of tax citizenship.

KEYWORDS: Tax Penalty Regime Reform, New Sanction, Institutional Reproach, Ordinary Closure, Fiscal Compliance, Enforcement Modernization.

CONTENT

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*The information contained in this document is the sole responsibility of its author and does not reflect the official position of the Customs Collection and Control Agency (ARCA).

1. INTRODUCTION: TOWARDS A MORE INNOVATIVE TAX PENALTY REGIME

Given the upcoming debate announced regarding tax reform in Argentina, this should not be limited solely to the simplification of taxes or the optimization of tax collection. It also requires a review of the current tax penalty regime. The ordinary closure set forth in article 40 of Law 11,683 (t.o. 1998)[1], constitutes one of the most burdensome sanctions within the Argentine tax infractional regime.

Historically, its application has been the subject of multiple doctrinal and jurisprudential questions, highlighting certain frictions with core constitutional principles and guarantees. Making a tight chronological synthesis, from its creation to date, the ordinary closure has found few points that have led to a less severe system. On the contrary, the passage of time has increased the assumptions, together with other types of fines that seek to preserve a greater amount of legally protected interests.

From this framework arises the initiative to institute a new sanction denominated "institutional reproach" as a step prior to the ordinary closure, with the object of strengthening the system's legitimacy, improving taxpayers compliance and reducing administrative conflict.

The institutional reproach is not a mere warning; but we can frame it as a formal, public, and pedagogical sanction. Making the infraction visible attributes responsibility and generates a precedent without immediately resorting to material measures.

Thinking about its possible implementation would represent a step towards a more proportional and adaptive penalty system, readjusting the conflict over certain principles and guarantees[2] regarding the taxpayer. Furthermore, it also generates a change in society's perception of the tax administration management in the face of tax non-compliance, giving momentum to new and better formal sanctioning practices.

If the taxpayer is penalized with this new infraction and subsequently reoffends with the same transgression, then the sanction escalates to ordinary closure.

2. FUNDAMENTALS OF THE REFORM

In the last reform of our Magna Carta, the American Declaration of the Rights and Duties of Man was incorporated[2], a rule that states in its Article XXXIV: *"Everyone has the duty to pay the taxes established by law for the support of public services"*[3]. The breach of this duty not only violates the fiscal order, but also directly affects the distributive equity and social solidarity that sustain the democratic system.

However, the application of ordinary closure can be counterproductive regarding the legally protected interests it seeks to safeguard. The paralysis of trade, business or service directly affects the generation of wealth and, therefore, prevents the configuration of the taxable event. This interrupts the legal nexus that links the taxpayer with the birth of the tax obligation, generating a tension between the collection purpose of the system and the adverse economic effect of the sanction.

1 www. Infoleg.gob.ar

2 Argentine Constitution (CN) art. 14- Right to work and exercise of any lawful trade. Art. 28 Principle of reasonableness between the proportion of the penalty with the damage caused. Art.17 "Property right" over commercial goodwill, where closure constitutes a severe restriction on the economic use of the asset.

3 National Constitution Art. 75. inc. 22

Therefore, the central foundation of this initiative is that, in the face of certain non-compliances, there must be a moderate and innovative sanction in the tax penalty regime. This measure adapts to a society that demands a tax system that is fair, progressive, and equitable.

Faced with manifest informality, it is necessary to have fiscal tools, which in this case will be a sanction that stimulates and redirects voluntary compliance, but **without affecting the productive and financial capacity of the offenders in their first formal penalty**.

3. MOTIVATION FOR THE INNOVATION

The ordinary closure, in its current modality, continues to generate negative effects that impact not only on the offender, but also their employees, suppliers, clients, and the local economy. Consequently, the principle of the personal nature of punishment becomes distorted, indirectly generating an added social impact on third parties who are unrelated to the infringing conduct.

For this reason, the proposed sanction does not incur these negative externalities because it does not interrupt commercial activity, thus preserving employment, the value chain, and local or third-party economic cash flow. This is especially relevant in regional economies and sensitive sectors. Depending on the type of taxpayer/offender whether due to their activity, commercial size, financial situation, the application of the ordinary tax closure can generate unforeseen consequences that may even be unwanted by the legislator.

Therefore, the proposed new sanction is based on selective public exposure through the placement of a tax sanctionary bands.

Currently, the ordinary closure sanction is applied directly on the first occasion when the offender commits certain infractions duly typified in Law 11.683 (updated text). The proposal presented is that when the first infraction corresponding to the application of ordinary closure is verified, it is **substituted** by the "Institutional Reproach" sanction.

In the event of a re-offense for the same infraction by the same offender, this will give rise to the application of the ordinary tax closure.

To formalize this initiative, a parliamentary debate is needed, if applicable, and this new punitive tool must be included in Law 11,683 itself. It is noteworthy that this new sanction maintains the deterrent effect by directly generating social pressure on the offender, producing a multiplier effect that stimulates compliance by other taxpayers.

There are comparable measures in international practice that use visibility as a sanctioning tool, as in the United States (IRC §6103(k)(10))[4], Spain (Law 58/2003, art. 95a)[5], and South Korea.[6]

4. THE CONFLICT BETWEEN THE RIGHT TO PRIVACY AND THE DUTY TO COOPERATE WITH PUBLIC EXPENDITURE

To deepen the issue of the "Institutional Reproach" sanction, a legislative debate is required to analyze the different implications it has as a measure, and whether, as an institute, it can be suitable as a sanctionatory instrument prior to the application of tax closure. (See Annex B).

4 www.irc.gov

5 www.agenciatributaria.gob.es

6 https://elaw.klri.re.kr

The new sanction presented is interesting from a pedagogical point of view for society, but the use of this tool could generate certain tensions in the legal sphere. Indeed, this new sanction could generate a certain discord regarding the right to privacy. This considering the possible effects of the (selective) public disclosure generated by the tax sanctionary band.

Thus, the question would be, would the Institutional Reproach put the offender's right to privacy at stake?

Any firm sanction published by the enforcement authority could inevitably create a degree of tension between the rights assisting the taxpayer /offender versus and the legally protected interest[7].

Depending on the level of the tax law transgression, different damages are produced, which can reach prejudice against the social body as a whole. Given this, the legislator decided on the use of ordinary tax closure, a severe, economic sanction that carries a possible social reproach due to the publicity of the closure bands exhibiting the resolved sanction. Possibly, the same effect is produced by the Institutional Reproach through the publicity of the sanction band.

However, this possible method of sanctioning constitutes a new fiscal instrument that serves to **"reinforce the idea of social commitment to tax compliance"**. Because the State has the right and duty to inform citizens about the actions it carries out in defense of public interest.

Therefore, this sanctionary band fulfills a preventive, protective, and pedagogical function. Making the sanctionary band visible for non-compliance with the law first generates knowledge of what was done to society; Subsequently, this raises awareness among other taxpayers about the consequences of non-compliance with tax rules; and thirdly, it results in a non-oppressive form of civic education.

Therefore, the sanction clashes with the right to privacy but is inspired by the obligation of the inhabitants to cooperate with public expenditure. In this sense, Article 33 of the National Constitution (CN) states that "***The declarations, rights, and guarantees enumerated by the National Constitution shall not be construed as a denial of other rights and guarantees not enumerated, but which arise from the principle of the sovereignty of the people and the republican form of government***"[8]. (Emphasis added).

Indeed, there are situations where **the right to privacy is not necessarily an absolute right, since faced with certain realities they can yield when what is at stake is the public interest;** this leads to providing tangible legal protection to society as a whole[9].

Without further debate, the duty to cooperate with public expenditure by citizens is an obligation, as tax revenue are the means by which modern societies organize and build themselves from budgets and public finances. What better moment to invoke those famous phrases generated in a historical debate between deputies "Gorostiaga and Gutiérrez", at the time the 1853 National Constitution was being drafted, stating "*There is no state without resources and there is no power*

7 The infraction of the formal duties by the offender not only affects the Tax Administration in the accomplishment of its missions and functions. In addition, it affects an essential legal asset such as the long-awaited "co-participable tax resources" required by the National State, provinces and municipalities to be able to make the true legitimate and democratic exercise in public governance through their designated authorities.

8 https://biblioteca.afip.gob.ar/

9 Federal Oral Court No. 1. AFIP c/ Báez, Lázaro Antonio and others s/ aggravated evasion. Buenos Aires, 2016.

without a Treasury."[10] From that quote, the posture was established that it is not possible to think of carrying out a government without the financial support of taxes paid by its inhabitants. Without this, the government cannot carry out any management or provide the services and security it must fulfill. This jeopardizes and affects the economic and social interests of society and transcends certain rights such as those raised in this point.

In summary, the legal foundations can be stated as follows:

1) **The supremacy of the public and social interest**: it is proposed as a set of values and principles directly related to the general welfare invoked in the preamble of our constitution. Consequently, the State, through its government, is the true guarantor for promoting and strengthening that common good of the society that institutes it, encompassing its inhabitants, the individuals and legal entities within the national territory. But the social contract is broader regarding its inhabitants; the Government must also enforce those duties on public and private institutions. The Government will be the defender of the rights and guarantees that become obligations in the face of society's needs, as outlined in section II above. This series of duties covers all the inhabitants and their obligations to act, hierarchizing the imperative obligation to cooperate with State expenditure, which is the source that funds the general welfare envisioned by the Constitutional drafters, and which is affected, violated, and endangered by any "*deliberate action or omission of the taxpayer who, through artificial or deceptive means, tries to hide his real contributory capacity with the precise object of avoiding the full payment of the national taxes owed by law as the primary taxpayer or for a third-party debt"*[11].

2) **Applicable legal norm**: In the Tax Procedure Law N° 11683 (consolidated text 1998 and its amendments), the legislator sought to impose absolute confidentiality by means of art. 101, called fiscal secrecy for the taxpayer data managed by ARCA. This restriction over the years has been considering various exceptional cases, where this confidentiality yields to certain events.

To this regard, the first antecedent was established by Law 23,905[12] (Official Gazette [BORA], 16/12/1991) under Title VII (unnumbered article following Article 101)—"*The Executive Power may provide, with general scope and under the forms and requirements established by the regulations, that the bodies collecting income taxes, assets, and value added tax, as well as contributions to the national social security system, periodically publish the payroll of those responsible for them, indicating in each case the concepts and revenues settled with respect to obligations due after January 1, 1991. For the purposes of such publication, the tax secrecy provided for in Article 101 shall not apply.*"

Subsequently, Law 24.138 (BORA 02/10/1992)[13] in its article 1°, amended the text by the article incorporated by Law 23.905, following article 101 of Law 11.683, (t.o 1978 at the time). Noting that the Executive Branch, making use of its delegated powers drafted Decree No. 606/1998 (PEN and its amendments)[14] establishing other significant modifications to the institute of tax secrecy.

10 Vanossi Jorge R. – Argentine fiscal federalism – Constitutional Aspects – Sheet 15

11 Chiara Díaz, Carlos, "Ley penal tributaria y previsional N° 24.769" Editorial Rubinzal Culzoni, Santa Fe, 1997.

12 https://www.infoleg.gob.ar/

13 and 14 Idem 12

To address the economic situations that the State was facing on tax evasion, the text explicitly states: "The data referring to the non-filing of tax returns, the non-payment of due obligations, the amounts resulting from official tax assessments, and agreed adjustments are not covered by fiscal secrecy, nor are firm sanctions for formal or material infractions, the name of the taxpayer or responsible party, or the criminal charges alleged in criminal complaints.

The Federal Administration of Public Revenue (AFIP), under the Ministry of Economy and Public Works and Services, is authorized to publish these data, at the time and conditions that it establishes." (Emphasis added).

According to the recital of the norm, this is a measure that cannot be used indiscriminately but meriting the circumstances surrounding each case and justifying the publication of such information. In this way, the different regulatory modifications dealing with tax secrecy expose different objective and subjective situations by which they are not protected under the aforementioned institute.

Among these exceptions are formal and material fines, whether originating from tax audit adjustments or not. This empowers ARCA to publish the firm formal sanctions. Therefore, there seems to be no legal obstacle for the "Institutional Reproach", to be used, applied, and published as an alternative form of punishment for certain formal infractions. The publicity for this sanction through a fiscal band called Institutional Reproach is homologous to the closure bands used by the Tax Administration in ordinary tax closures.

Finally, the proposed bands are not covered by any restrictions on tax secrecy.

3) The non-issuance of vouchers by the offender violates **the principles of tax equity, equality before the law and contributory capacity, pillars of the Argentine tax system**. Tax equity requires that taxes be distributed fairly among taxpayers, based on their contributory and economic capacity. When a taxpayer fails to issue invoices, they hide income, which prevents the State from correctly determining their contributory capacity. This generates an unfair asymmetry compared to those who do fulfill their tax duties[15]. In other words, the principle of equality (art. 16 CN)[16] taxation requires that taxpayers in the same situation pay taxes equitably, while those in different situations may be taxed differently in accordance with legislative intent. This principle seeks to avoid arbitrary discrimination and relates to economic capacity and the progressiveness of the tax system.

When a taxpayer does not issue sales vouchers or services provision, they are:

- Hiding taxable income.
- Evading tax control, which prevents the State from verifying their true economic capacity.
- Generating an illegitimate advantage over those who do fulfill their tax duties.

In other words, the offender breaks horizontal equity, does not submit to the same rules as the rest of the administered parties, and therefore, aggravates the principle of equality by evading their part of the tax effort.

Finally, the concept of contributory capacity is one of the guiding principles of the Argentine tax system, although it is not explicitly enshrined in the Constitution. In 1947

15 CSJN, "Navarro de Castaño" – Ruling 330:4866

16 https://biblioteca.afip.gob.ar/

the Argentine Supreme Court recognized it as an implicit guarantee in the case “Ana Masotti de Busso and others v. Prov. of Buenos Aires. (Ruling, 207:270)[17] and it was reaffirmed by the Court in multiple rulings.

This principle contains three legal-ethical foundations, the first being the duty to pay taxes. This principle justifies the obligation of taxpayers to contribute to public expenditure, as it is considered tax justice that those with greater economic capacity must contribute to a greater extent to society. The second foundation is to measure the tax burden and design taxes that are proportional to the responsible party’s economic capacity, preventing tax burdens greater than they can tolerate. And the last represents the limit to taxing power to create and collect taxes, since the Government cannot impose taxes that in practice seize or confiscate private property or inhibit the taxpayer’s wealth-generating capacity.[18]

In a broad sense, and depending on the offender, their conduct and the type of infraction committed, the grievance can extend to the **principle of tax generality**. Indeed, this principle obliges all inhabitants to contribute to public expenditure, and tax evasion violates it, because the subjects who evade tax payments are the cause of the weakening of tax collection, forcing others to bear a greater burden.

This omission of duties by evaders, negatively affecting the financing of public services and trust in the tax system. Since this is posed from a comprehensive perspective over all members of society regarding taxes. In this case, the offender factually, and not legally, self-excludes from this foundational principle.

And for this reason, the evader fails to fulfill the duty to contribute to public-social expenditure.

Up to this point, the analysis has not only outlined the different principles and guarantees violated, but also the foundations that ratify and strengthen the legitimacy regarding the use of the new sanction Institutional Reproach. This fine does not publicize sensitive taxpayer data relating to financial or economic information, since the communication is limited to the fiscal norm that was transgressed.

In summary, there is a legitimate tendency in favor of preserving the general interest or superior interest of the care and protection of the sovereignty of the people, interpreting as such the society as a whole over the particular interest of the offender who is aggrieved.

Indeed, leaving pending the defense that the offender may present, since they may argue that this public communication, by way of sanction, significantly encroaches on the right to privacy. However, this tension becomes abstract due to the demonstrated and proved absence of civic and fiscal responsibility.

Therefore, **it is concluded** that in the face of formal breaches classified as severe, for which a less burdensome is proposed, providing a new opportunity to redeem oneself, without prejudice to the pecuniary aspect that forms part of a fine. For this reason, a sanction such as the “Institutional Reproach” would be appropriate. Since it is a manifest warning against conduct contrary to the constitutional mandate, and through this non-compliant conduct, it **endangers public security, the national treasury, public management and consequently the execution of**

17 CSJN. “Busso, Ana Masotti de, and others v. Buenos Aires, The Province its unconstitutionality of the Additional to the Real Estate Tax”, sentence of 07/04/1947 (Ruling 207:270). CSJN. “Navarro Viola de Herrera Vegas, María v. National State”, judgment of 19/12/1989 (Ruling 312:2467)

18 https://www.infoleg.gob.ar/

social protection and strategic infrastructure works, among other governmental obligations that could be cited.

5. A REFORM THAT MODERNIZES THE PUNITIVE TAX SYSTEM

Based on the above, there are sufficient foundations to propose replacing the ordinary closure by a new sanction, the proposed name of which is "**Institutional Reproach"**.

The term used encompasses technical language, reinforcing the ethical, organizational and republican character of the sanction. Furthermore, this title carries other messages directed at citizens and taxpayers in general, seeking to promote the culture of the "voucher as a consumer right" and "social duty". The message gives an implicit recognition to taxpayers /businesses that comply with the law, distinguishing tax formality, and highlighting that by requesting or demanding the invoice or ticket in every purchase, the citizen themselves reinforces tax control.

Even this sanction ends up being virtuous since it can prompt the sanctioned party to adopt the practice of issuing invoices for every sale to "restore credibility before buyers".

This sanction consists of affixing a sanctionary band with the legend "Institutional Reproach" in its center. In addition, another legend must be added at the bottom of this title, such as, for example: *"The taxpayer does NOT collaborate with social public expenditure"*. This conceptually reinforces the existing link between the failure to issue an invoice, tax evasion and the collective harm inflicted on society due to the scarcity of tax resources that make up the public budget.

Likewise, the violated tax norm must be stated on the same band, identifying the number of the ARCA administrative resolution dictating the sanction. This ensures the tax transparency regime[19] before the citizenship and makes it known that a prior legal process took place, respecting due process and the right of defense on the part of the offender.

Finally, the number of days the sanction must remain in force should be visibly stated to the public on the same band.

V.1 Concept

It is an autonomous, economic, non-regulatable, temporary, casuistic, preventive and pedagogical sanction.

V.2 Object

The "**Institutional Reproach**" band should be applied to the same non-compliances typified for the ordinary closure.

And, in the event of a re-offense by the offender for the same infraction, it will lead by operation of law to the application of ordinary closure.

V. 3 Methodology

The new sanction once applied and firm, is materialized by affixing the sanctionary band, at the offender's fiscal domicile or where the infraction was verified, this being a prerogative adopted by the administrative judge. Leaving a record of the procedure carried out in a formally executed act signed by the sanctioned taxpayer and the acting public servants.

The number of bands to be affixed shall be 2 (two), and they must be placed in locations visible to consumers, other buyers, and public in general. The suitable places to fulfill this purpose would be: first, on the exterior

19 Law 27.275 art. 32

and at the entrance of the premises, office, factory, warehouse, etc., and the band must be visible to the citizenship in general. The second place will be where invoices or sales tickets are to be issued, or the area designated for the attention of consumers and buyers in general.

V.4 Characteristics of the sanctionary band

The dimension of the band could be 50 cm long x 40 cm wide. The internal letters and the border of the band must be black. The background of the band should be carmine red. The legends on the band shall be arranged as follows: at the top the "ARCA IMPOSITIVA" logo (horizontal)[20] must be visible, and immediately below, in the middle of the band, it must say, INSTITUTIONAL REPROACH. Below that, it must cite the regulations violated by the offender.

Subsequently, different legends may be placed, depending on the infraction committed, which will be subject to the decision of the acting administrative judge. The legends could be, for example:

"In this business, they do not provide invoices/tickets to consumers and therefore, the offender DOES NOT cooperate with social public expenditure".

"The person responsible for this business evaded taxes, and DOES NOT cooperate with public social expenditure".

"Tax fraud was committed in these offices, and the responsible party did NOT cooperate with public social expenditure".

"Unregistered employees without rights were verified in this place, and the State CANNOT increase retirements and pensions due to the employer's lack of payment of social security contributions".

That is to say, this sanction is not only an ordinary punishment, but also encompasses a tax advertising campaign that forms part of a strategy regarding "awareness directed at society concerning the construction of tax citizenship", and regarding the possible consequences that befalls responsible parties for evading their tax obligations.

The material of the sanctionary band must be paper and must tolerate the outdoors and inclement weather.

For a model of the "Institutional Reproach" sanction band, see **Annex A**.

V. 5 Conditions for the application of the fine

The sanction becomes effective only when the originating procedure is final and conclusive, in the administrative instance, and if applicable, in the judicial instance.

V.6 Motivation

This sanction seeks a differentiated change over the various negative economic-financial effects already raised previously, of the reviled ordinary tax closure.

The Institutional Reproach is a less severe sanction, since it does not impede or restrict the offender's sales or provision of services, does not interrupt billing and does not paralyze the entry of final consumers or other buyers for the sale or exchange of goods or services that may arise. Notwithstanding, they can also enter the basic processing inputs, and the employees can continue to operate commercially, serving the public, without any impediment.

20 Visual identification manual – Annex I (ARCA)

All this allows the taxpayer/infringer to continue with their economic activity without qualms, as is the practice, and **this gives way for taxation to continue with its objective**.

V.7 Enforcement authority

The enforcement authority must be ARCA, being the body that possesses sufficient powers to apply this sanction to specific non-compliances of Law No. 11,683, provided for in Chapter VI.

V. 8 Infractional typification of the Institutional Reproach

It is necessary to establish the possible scenarios where Institutional Reproach can be applied. The new sanction have effects when the offender's conduct falls within the grounds provided for in art. 40 incs. a), b) and d) and g) of Law 11683 (t.o in 1998 and its amends) and with Law N° 26.565 – Chapter XI – art. 26 inc. (a) [21]

V.9 Scope

The jurisdictional administrative judge of ARCA will be the one to dictate the administrative resolution and the application of the Institutional Reproach, providing for its scope, applicable provisions, transgressed norm, and the days in which the sanction must be fulfilled, and the pecuniary amount of the sanction.

V.10 Sanction terms

The number of days the Institutional Reproach sanction will be applied, shall be 10 business days in all cases.

V.11 Offender with exclusively online activity

In those cases where the sales are exclusively online (online), and there is no visual and face-to-face contact between the taxpayer and the buyers and other consumers, "the Institutional Reproach" must be appear on the "registration certificate of the offender, established by General Resolution N° 1807/2004 (AFIP) and its modifications[22], and on the "invoices, receipts or electronic documents issued by the taxpayer" established by General Resolution No. 1415 (AFIP)[23] and its modifications. In all cases, the disclosure shall be for a period of 20 days, beginning 15 days after the date that the sanction becomes firm.

V. 12 Situations with the Institutional Reproach band

In those cases where one or both of the Institutional Reproach sanctionary bands disappear, are partially or totally broken, or is located in a place/s different from the one/s affixed, the procedure provided for in art. 44[24] of the updated text of the tax procedure Law shall apply.

The designated public servants must take the precautions and security measures for the case and may carry out verifications subsequent to the affixing of the bands for the sole purpose of verifying compliance with the measure, and if applicable, leave documented record of the violations observed therein, under the terms of art. 42 second paragraph of the updated text of the Tax Procedure Law.

V.13 The Jurisdictional administrative judge

The jurisdictional administrative Judge will be designated to carry out the entire administrative procedure and to resolve the application of the institutional reproach. They will have jurisdiction over everything concerning the guidelines and regulations of Law 11.683 and Law 19.549, its pertinent part, and the precautions provided for by Decrees 618/1997 and 953/2024 (PEN).[25]

21, 22, 23 y 24 www.biblioteca.afip.gob.ar

V. 14 Administrative appeals

The filing of the administrative appeals provided for in Law No. 11,683[26] arts. 77 and 78 will be conducive against this Institutional Reproach sanction.

V.15 Prescription of the Institutional Reproach

Regarding the prescription of the aforementioned sanction, the application of arts. 61, 62 and 63[27] of the updated text of the tax procedure Law will be applicable.

V. 16 Tax compliance requirements of the offender

Once the sanction period has expired and the seals have been removed, the offender must, within the three immediately following days, log in with their tax credentials on ARCA's website and, as a means of 'restoring their reputation' as a newly compliant taxpayer and, by way of "reparation of their reputation", must process a "tax compliance certificate" before the Collection Agency.

If they do not register any due or payable debt for the last 24 months, a web certificate will be issued, which must say, *"The Taxpayer XXX, TIN XX-XXXXXXXX-X does not register tax, social security and customs debt with ARCA for the last fiscal year".* This certificate must be exhibited and affixed in the same places where the Institutional Reproach sanction was set. The certificate will be valid for 60 consecutive days from its issuance and must be renewed every two months until completed one year from the date the sanction is lifted. Failure to comply with these provisions will result in the application of the sanction of article 39 of the tax procedural law. The purpose pursued by such a measure is to expose the offender's new behavior regarding their tax compliance and social security obligations before society.

V. 17 Comparative analysis of sanctions

See **Annex B**

26 and 27 www.biblioteca.afip.gob.ar

CONCLUSION

In the context of the imminent debate on tax reform in Argentina, it becomes both timely and technically pertinent to advance a reconfiguration of the tax penalty regime. This entails incorporating an innovative mechanism with significant technical, ethical, and communicational impact: the newly proposed sanction referred to as 'Institutional Reproach'.

This sanction, based on the selective public exposure of the offender through visible sanctionary bands in the commercial establishment, preserves the deterrent and exemplary character of the tax administration's management. Ordinary tax closure, in its current configuration, constitutes a sanction of high institutional impact that, due to its restrictive and disruptive nature, should be reserved for cases of severe repeated offense; that is, when the taxpayer registers background in the prior application of the Institutional Reproach.

Its application finds justification in the persistence of fiscally disvaluable behaviors that evidence a systematic breach of the duties proper to the tax citizen[28]. From the fiscal and tax policy perspective, the Institutional Reproach represents an effective, proportional, pedagogical and economic tool, that might allow sanctioning relevant formal non-compliances without affecting the productive flow or violating fundamental rights.

Furthermore, it could contribute to the strengthening of a tax culture based on civic responsibility, promoting voluntary compliance and strengthening the link between taxation and social solidarity.

Likewise, its implementation can generate a positive impact on administrative efficiency, by reducing litigation derived from the application closure sanctions, which translates into lower operating costs, human resources optimization and the possibility of functional reallocation towards strategic areas of control, taxpayer services, collection, data exploitation, etc.

It should be noted that the proposed reform does not imply a decriminalization of tax non-compliance, but rather a sanctionatory reconfiguration aimed at preserving economic activity, protecting constitutional principles and guaranteeing the equity that citizens demand regarding public transparency, tax justice and institutional efficiency.

This proposal offers a concrete, viable and transformative response, aligned with international standards of good tax governance.

In short, Institutional Reproach stands as a modern form of sanction, compatible with 21st- century challenges, allowing the State to exercise its sanctioning power in a manner that is proportionate, rational, and respectful of the constitutional order. Its parliamentary debate and eventual approval to be included in Law 11683 (t. updated) remain pending as a new autonomous sanctioning, pedagogical, pecuniary and corrective behavior tool for the benefit of the Argentine tax system and society as a whole.

And transiting from the seal to the ARCA sanctionary band.

28 Fiscal citizenship is the reciprocal relationship between the State and citizens, where the State offers goods and services in exchange for citizens complying with the laws and contributing financially to sustain that institutional pact (Pico, Nicolás J.; p.1).

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Ley General Tributaria N° 58/2003, art. 95 bis

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ANNEX

Annex A

Tax – Sanctionary Band

Annex B.

Comparative tables of sanctions

Criterion	Tax Closure	Institutional Repudiation
Interruption of activity	Yes	No
Reputational effect	High	High
Proportionality	Questioned	Moderate
Constitutionality	Questioned	Adjusted to law
Deterrence	Strong	Strong
Administrative cost	High	Low
Tax transparency	Yes	Yes
Litigation	High	Low
Cost to third parties	High	Low

Source: Generated by the author

Sanction	Occasion	Objectives
Institutional Reproach	First infraction Non-repeat offender	Visibility, deterrence, warning
Ordinary Closure	Repeated infraction	Coercive sanction, structural correction

Source: Generated by the author

Analysis of the Statute of Limitations and Discrepancies in Tax Law Due to Conflicting Interpretations: The Peruvian Case

Dulio Leonidas Solórzano Tapia

SYNOPSIS

In Peru, as in many other countries, the main challenge is to optimize the collection of tax liabilities, but these efforts are hampered by the lack of consistency among the regulations governing taxation. Among these is the statute of limitations applicable on tax debts, which leads to differing interpretations by the Tax Court (TF) and the Constitutional Court (TC). This situation may benefits tax debtors by enabling them to avoid paying their taxes, prolonging the resolution process, and subjecting debts to litigation. This creates uncertainty regarding the statute of limitations and results in a lack of legal certainty for taxpayers.

KEYWORDS: Legislative Decree, Non-Retroactivity, Statute of Limitations, Constitutional Court, Tax Court

CONTENTS

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INTRODUCTION

The purpose of the tax administrations, both in Peru and throughout Latin America, is the collection of taxes, however, many of these debts cannot be collected, resulting in a considerable accumulation of uncollectible amounts in the accounts of major companies totaling billions of soles. These companies have chosen to resort to judicial processes to avoid payment, which negatively impacts the state coffers.

A large part of these obligations remain outstanding due to regulatory discrepancies between the Tax Court and the Constitutional Court, especially regarding the different interpretations of the institution of statute of limitations (statute of limitations) under articles 43 to 49 of the Tax Code. This raises the question of whether the statute of limitations should be applied generally or only in specific cases.

This has motivated the preparation of the present study. In its initial part, an analysis is presented on the evolution of the statute of limitation in relation to the deadline for demanding compliance with obligations, tracing the chronology of the modifications that have taken place since Legislative Decree (D. Leg) 816 in 1996, Leg. D. 981 in 2007, Leg. D. 1113 in 2012, and ultimately Leg. D. 1421 in 2018 with respect to the Provisional Supplementary Provision (PDCT).

Also, a brief analysis of some practical cases is presented based on the pronouncements of the Constitutional Court. For example, in Judgment N° 556/2020, which declared unfounded the claim of unconstitutionality filed by the Bar Association of La Libertad against the PDCT of Legislative Decree N° 1421, it was argued that there was a violation of the constitutional regulation on the delegation of legislative powers, as well as the principle of non-retroactivity and legal security. The claim was based on both formal and substantive grounds.

Similarly, the analysis covers the case related to Judgment N° 998/2020, where the *amparo* lawsuit filed by Industrial Company Paramonga S.A.C. against SUNAT and the MEF was declared partially founded, in favor of the company. The court ordered the Tax Court to comply with a deadline for resolving the appeal and determined that SUNAT calculated the default interest without applying the interest accrued during the period of the excessive delay, pointing out that SUNAT must recalculate the limitation period under these new conditions.

1. THE STATUTE OF LIMITATIONS IN THE PERUVIAN TAX SYSTEM

1.1. The statute of limitations according to the Peruvian legal standards

According to the Political Constitution of Peru, Article 103 establishes the following framework (Under which Tax Courts Resolutions, or RTFs, and Constitutional Court rulings are viewed as special laws that guarantee non-retroactivity, repeal conflicting provisions and prevent the abuse of rights.

> *"**Article 103**.- Special laws can be issued because the nature of things requires it, but not because of the differences of people. The law, from its entry into force, applies to the consequences of existing relationships and legal situations and has no force or retroactive effects; except, in both cases, in criminal matters when it favors the prisoner. The law is repealed only by another law. It is also rendered null and void by a judgment declaring its unconstitutionality..."* Congress of the Republic, (1993).

Likewise, Article 139°, paragraph 13, indicates that the statute of limitations has the effect of *res judicata*.

> ***"Article 139.-** The following are principles and rights of the jurisdictional function:*
>
> *...13. The prohibition of reviving processes terminated by an enforceable resolution. Amnesty, pardon, definitive dismissal and statute of*

limitations produce the effects of res judicata."
Congress of the Republic, (1993).

Within this constitutional framework, the Criminal Code of Peru[1], enacted through the Leg. D. N° 635, in articles 78° to 91° describes the statute of limitations as a mechanism that extinguishes the criminal liability; in addition, its Article 80° establishes that the criminal prosecution expire within the deadlines set by law.

On the other hand, the Civil Code[2], through Leg. D. N° 295, addresses prescription in Articles 1989 to 2002, and in its article 1989 defines it as extinctive prescription, stating that *"the statute of limitations extinguishes the action, but not the right itself".* This means that, if the debtor makes a payment after the limitation period has expired, said payment remains valid, preserving the creditor's right to retain the fulfillment of this obligation; in this situation, the debtor cannot subsequently demand a refund for the amount paid.

On the other hand, article 2003, which deals with forfeiture (*caducidad*), states that this effect nullifies both the right and the relevant action. Thus, the statute of limitations is an essential component of the Peruvian legal system, ensuring legal stability.

1.2. The statute of limitations according to the Tax Code

According to the Tax Code, the statute of limitations is not considered a means of extinguishing the tax obligation as indicated in Article 27° of the Tax Code (CT). This institution of is regarded as a legal figure, through which the tax obligations become unenforceable after the passage of time, considering the emergence of the obligation and its breach within the established period. The statute of limitations is regulated in Chapter IV of Title III of the First Book of the Single Ordered Text of the Tax Code[3]. This section covers seven articles, ranging from Article 43 through 49. Article 43 refers to the limitation periods, Article 44 to the calculation of those periods, article 45° to the interruption of the statute of limitations and Article 46° to the suspension of the statute of limitation period.

In addition, the Tax Code establishes specific limitation periods. A period of four years is granted for determining the debt and request its payment, six years in case of not submitting the tax return, ten years if taxes withheld and / or collected on behalf of the administration have not been paid, and four years with regard to compensations and refunds.

2. TIMELINE OF THE STATUTE OF LIMITATIONS IN THE TAX SYSTEM

The institution of the statute of limitations in Peru has been documented since 1996, according to the Leg. D. No. 816. From then to the present, it has undergone a number of modifications, as illustrated in the following timeline.

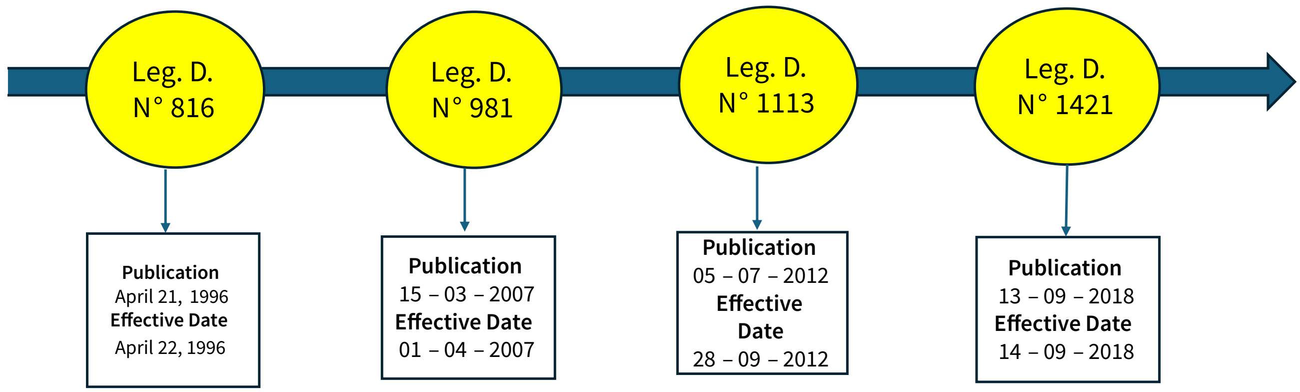
1 D. Leg. N° 635 published on 08.04.1991, updated on August 2024, containing the amendments of Law N° 32108 published on 09.08.2024

2 D. Leg. N° 295 published on 25.07.1984 entered into force 14.11.1984

3 Approved by the Supreme Decree No. 133–2013-EF, published in The Peruvian on June 22, 2013.

Figure 1

Timeline of the statute of limitations under legislative decrees



Source: Own elaboration

2.1. The the statute of limitations according to the Leg. D. No. 816

According to the Leg. D. No 816[4], which has been in force since 22.04.1996, the New Tax Code was implemented, which regulates the tax statute of limitations. Article 43° specifies the statute of limitations actions that can be exercised by the Tax Administration (TA), including: 1) action to establish the tax obligation, 2) action to demand payment of said tax obligation and 3) action to impose penalties. These provisions define both the statute of limitations applicable to tax assessment and that applicable for collection actions. This regulation considers four elements that constitute the institution of statute of limitations: 1) limitation periods, 2) calculation of deadlines, 3) interruptions of the statute of limitations and 4) suspension of the statute of limitations.

Likewise, in its article 44 of the Tax Code, which deals with the calculation of the limitation period does not distinguish among the different powers of the tax authority, establishing various beginnings for the limitation period, such as the first of January of the following year. These legislations were applied in generally and simultaneously to all powers of the TA, leading to the conclusion that the limitation period for determining the tax obligation and for demanding payment commenced at the same time. Accordingly, there was no possibility of questioning the beginning of the limitation period applicable to the powers of the TA; Nore were there any significant issue with the limitation periods since they all began, were interrupted and suspended simultaneously and for the same reasons, as can be illustrated in the following figure:

2.2. The statute of limitations according to the Leg. D. No. 981

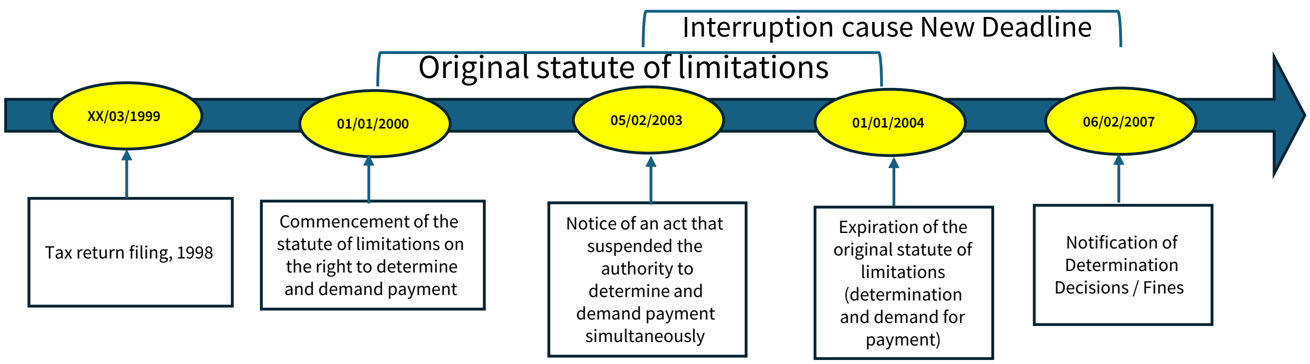
According to the Leg. D. No 981[5] which entered into force on 1 April 2007, amendments were made to articles 45° and 46°, specifying the powers of the Tax Administration by including new grounds for interrupting and suspending the limitation period; it should be noted that Article 44° was not altered with regard to the beginning of the calculation of the term, which means that it continued to begin uniformly for all the powers of the TA.

4 The D. Leg. N°. 816 was published in the Peruvian on April 21, 1996, entered into force on April 22, 1996.

5 The D. Leg. N°. 981 was published in El Peruano on March 15, 2007, entering into force on April 01, 2007.

Figure 2

The limitation period according to Leg. D. N° 816: example tax year 1998



Source: Own elaboration

It is true that, with the Leg. D. N° 816, all the powers of the TA were triggered with the assessment and penalty resolutions, without creating any problem regarding the collection of the debt; however, with the enactment of the Leg. D. N° 981, the notification of any act of the TA related to the recognition of the tax obligation was established as a reason for interruption, while the notification of the assessment instruments continued interrupt the limitation period of the tax administration's power to collect the debt, as shown in the following comparative table:

Table 1

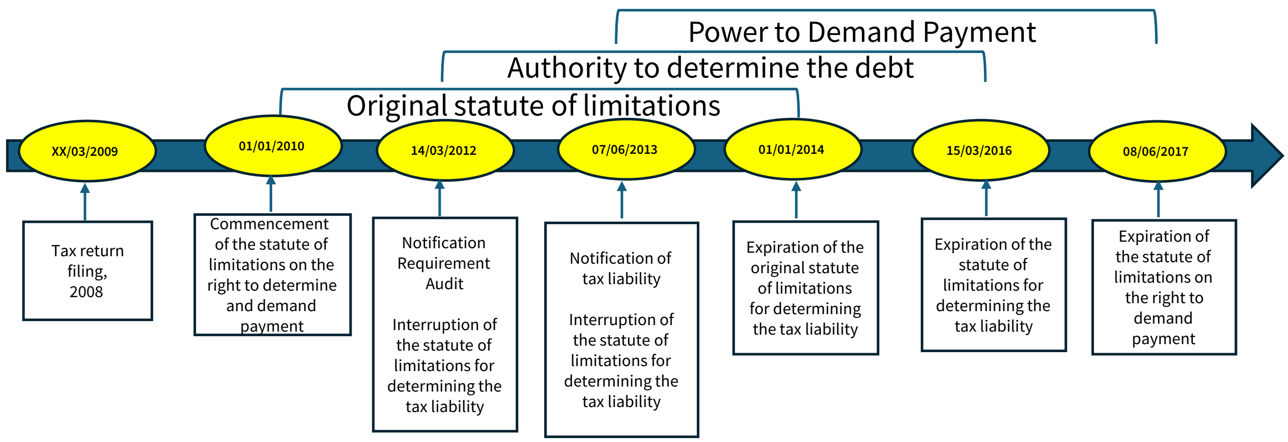
Comparative Articles 45° of the Leg. D. No. 816 and Leg. D. No 981

Leg. D. N°. 816. **Art. 45° INTERRUPTION OF THE STATUTE OF LIMITATIONS**	**Leg. D. N°. 981.** **Art. 45° INTERRUPTION OF THE PRESCRIPTION**
"...The statute of limitations is interrupted: (a) By the notification of the determination or fine decision. …"	"…1. The limitation period of the AT's power to determine the tax liability is interrupted: … **…(c)** By the notification of any act of the TA aimed at the recognition or regularization of the tax obligation or the exercise of the power of control of the TA, for the determination of the tax liability…
	…2. The limitation period for the action to demand the payment of the tax obligation is interrupted: **(a)** By the notification of the payment order, determination resolution or penalty resolution…

Considering the changes introduced in Article 45° by the Leg. D. N° 981, a problem arose when calculating the limitation periods, affecting both the determination of the tax debt and the demand for payment, generating a discrepancy regarding their interruption. The TA could determine the existence of a tax debt, while lacking the power to collect it. With this modification in the interruption of the limitation periods, the tax authority expanded its ability to assess tax liabilities, and this also gave rise to situations in which debts became difficult or impossible to collect, as illustrated in the following figure:

Figure 3

Statute of Limitations, according to Leg. D. N° 981: Example of debt collection for the 2008 tax year



Source: Own elaboration

With these new grounds for interruption, situations could arise in which the Tax Administration was able to establish the tax debt, but they could not collect it, since the statute of limitations to demand payment had already expired before the issuance of assessment resolutions or penalty resolutions.

According to Figure N° 3, the limitation periods applicable to the TA's power to determine the tax debt and the time to demand payment begin at the same time, however, subsequently, with the notification of the audit requirement of March 14, 2012, said period of power to determine the debt by the TA was interrupted (according to paragraph c of numeral 1 of Article 45° modified by the Leg. D. N° 981), which caused the limitation periods for determining and demanding payment to be different. In this way, the TA could establish and notify the determination resolutions until March 15, 2016. But the period for the TA to demand payment continued to count, which resulted in that, if the TA notified the relevant assessment after January 1, 2014, these debts could no longer be collected.

The changes introduced by the Leg. D. N° 981 generated considerable difficulties that impacted the relationship between taxpayers and the TA, giving rise to divergent opinions. Many experts have argued that, instead of simplifying the objectives related to the interruption and suspension of the statute of limitations, these amendments have complicated the tax system and affected the principle of legal certainty established in the constitution.

2.3. The statute of limitations according to the Leg. D. No. 1113

After several years of the implementation of the Leg. D. N° 981, the issue of uncollectible tax debts intensified. Therefore, Legislative Decree No. 1113, which entered into force on 28 September 2012, addressed the problems generated by Legislative Decree No. 981 by regulating the statute of limitations separately for each of the Tax Administration's powers and by establishing different starting points for the corresponding limitation periods. To that end, subsection 7 was incorporated into Article 44, establishing a specific rule for the commencement of the limitation period applicable to the Tax Administration's power to demand payment of debts contained in assessment resolutions and penalty resolutions.

> ***Article 44. – CALCULATION OF THE LIMITATION PERIODS***
>
> *The limitation period shall be calculated:*

(. . .)

7. From the day following the notification of the Assessment resolution or Penalty resolutions, in the case of the action of the Tax Administration's action to demand payment of the debt contained in them…"

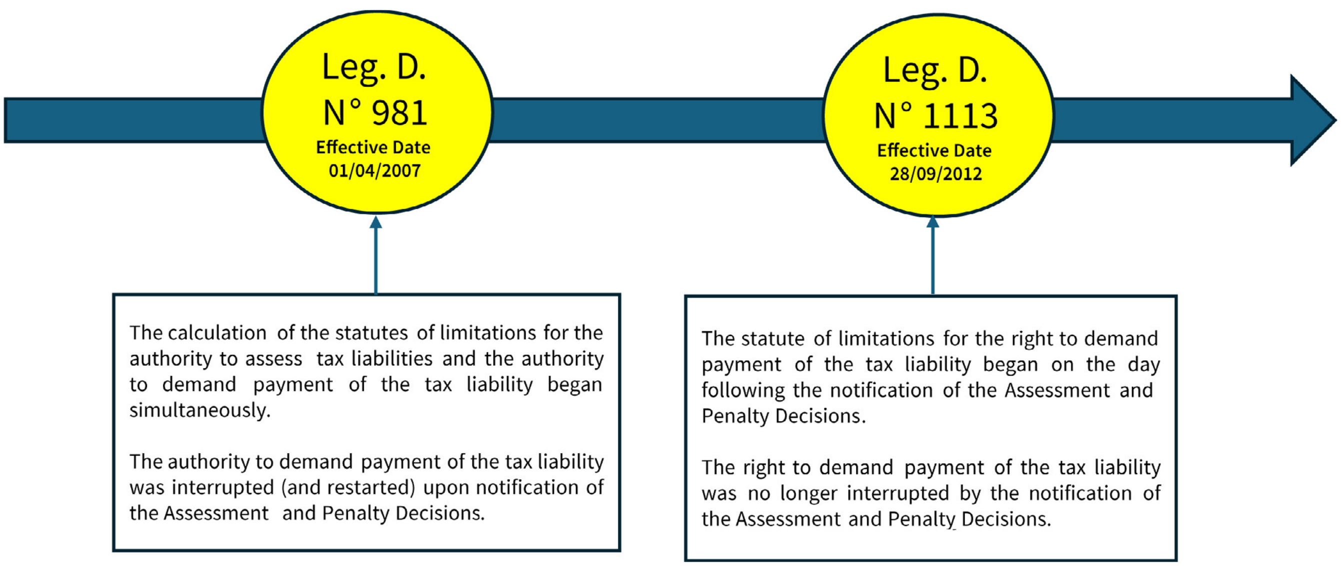
Congress of the Republic, (2012)

This power began with the notification of tax assessment and no longer simultaneously with the other powers, as provided under the previous regulations. According to Legislative Decrees No. 816 and 981, it was established that, in order to calculate the limitation period for demanding payment by the AT, it began at the same time as the other powers that had generated the debt situation, within a period in which collection could not be made. According to the articles nos. 103° and 109° of the Constitution, the D. Leg was given effect. N° 1113, incorporating paragraph 7 of Article 44°. This indicates that the power to demand payment began independently, as soon as the values derived from an inspection are notified. It was instituted that the start of the limitation period to demand the payment of the notified debts would begin from the day following their notification, as of December 2011, as a result of the new provision contained in the standard.

In the following figure, you can see the calculation of the limitation period and the right to demand payment according to the Leg. D. No. 981 and Leg. D. No. 1113, as well as the mandates of each rule regarding the initiation and its interruptions to determine and collect debts by the AT:

Figure 4

Comparative Art. 44° Leg. D. No. 981 and Leg. D. No. 1113, regarding the calculation of the limitation period and interruption

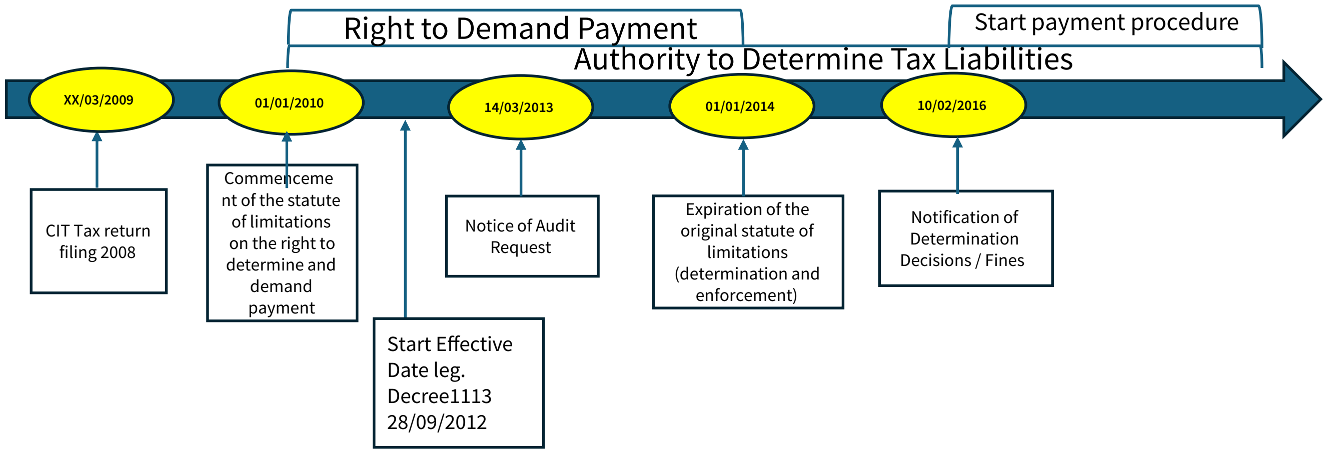


Source: Own elaboration

However, a new drawback arises with the entry into force of the Leg. D. N° 1113, where in certain situations the counting of the limitation period to collect the tax debt for those taxes generated until November 2011 began, which has produced a new dispute over whether it was pertinent to apply the grounds of numeral 7) of Article 44° to these taxes and periods. Through the following example, the repercussions of the application of the D. Leg can be appreciated. N° 1113 in relation to periods prior to December 2011:

Figure 5

Disadvantages due to the application of the Leg. D. N°. 1113



Source: Own elaboration

As shown in the example, there are two ways to understand the beginning of the limitation period for demanding payment of the tax debt. The first interpretation establishes that the period began on 01.01.2010, before the Leg. D. N° 1113 entered into force. The second option indicates that the period began on 10.02.2016 as a result of the application of the subsection 7 of Article 44° introduced by Leg. D. No. 1113. In connection with this issue, the Tax Court determined the application of the Leg. D. N° 1113 through the mandatory compliance precedent established in Tax Court Resolution N° 09789-4-2017.

> *"The beginning of the calculation of the limitation period of the action of the Administration to demand the payment of the tax debt contained in determination and penalty resolutions, issued for concepts originated before the entry into force of the Leg. D. N°. 1113 notified as of September 28, 2012, was governed by paragraphs 1) to 4) of Article 44° of the Tax Code, as applicable. Consequently, subsection 7 of said article is not applicable" MEF, (2017).*

It is concluded that for the tax debt that originated before the Leg. D. N° 1113, the calculation of the limitation period was governed by the provisions of numerals 1) to 4) of Article 44° of the Tax Code established in Legislative Decrees Nros. 816 and 981. Under those provisions, once the limitation period had commenced, its starting point could not subsequently be altered by a later legal provision.

2.4. The statute of limitations according to the First Transitional Supplementary Provision (PDCT) of the Leg. D. No. 1421

The Executive Branch, with the powers delegated by Law No. 30823, enacted the Legislative Decree No 1421[6]. Its First Transitional Supplementary Provision (PDCT) provides as follows:

> ***"TRANSITIONAL SUPPLEMENTARY PROVISIONS***
>
> ***First one. Calculation of the limitation period***
>
> *In the case of procedures in progress and/or pending resolution, the start of the statute of limitations period to demand the collection of the*

6 The D. Leg. N°. 1421 was published in El Peruano on September 13, 2018.

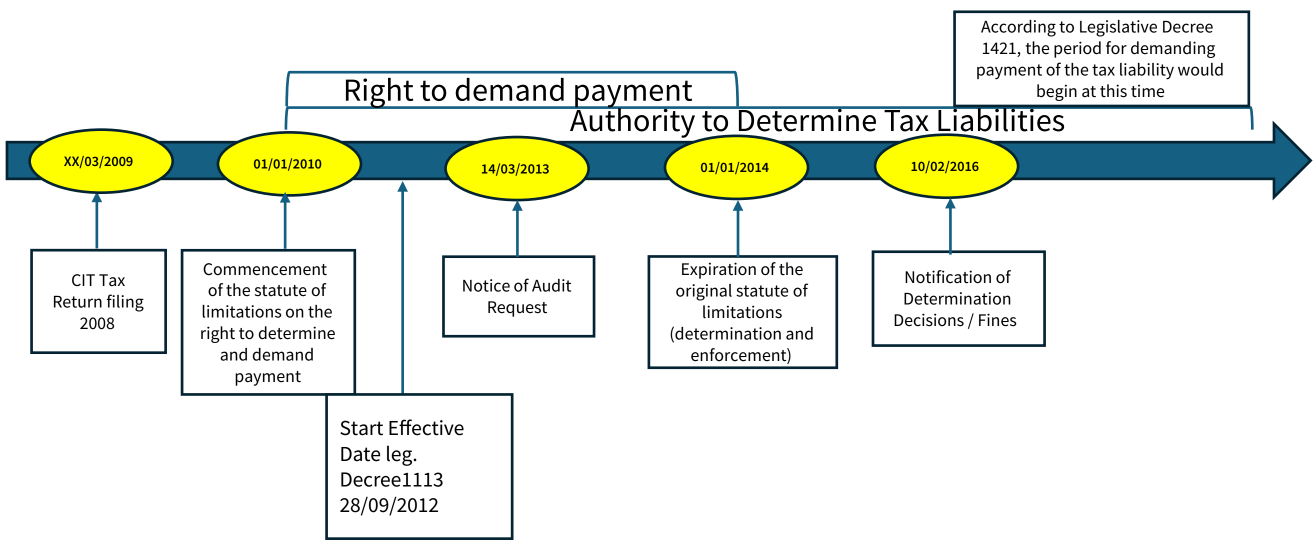
tax debt contained in determination or penalty resolutions, whose statute of limitations period for the action to determine the tax liability or to apply penalties was initiated until January 1, 2012, notified from September 28, 2012 within the statute of limitations period, is calculated from the day following the notification of such resolutions in accordance with subsection 7 of Article 44 of the Tax Code.

Congress of the Republic, (2018).

This provision, included in the Leg. D., indicates that, for the administrative appeals in process, where the limitation period to generate the debt began before 01.01.2012, the limitation period to demand the payment of the debt will begin after the notification of the determination resolutions and / or fines, in accordance with the provisions of the Leg. D. N° 1113 (subsection 7, Article 44° of the Tax Code).

Likewise, the PDCT of the Leg. D. N° 1421 establishes that for the cases in process whose term began before the validity of numeral 7 of Article 44°, the modification of the D. Leg. No. 1113 must be applied, resetting the statute of limitations calculation to demand payment of the tax liability, as shown in the following example:

Figure 6
Application of the PDCT of the Leg. D. No 1421



Source: Own elaboration

There are different points of view about the PDCT of the Leg. D. No. 1421. Some consider that this merely clarifies the legal regime governing the statute of limitations and therefore does not produce retroactive effects. On the other hand, others argue that this PDCT is retroactive and seeks to modify the commencement of the limitation period applicable to the collection of tax debts.

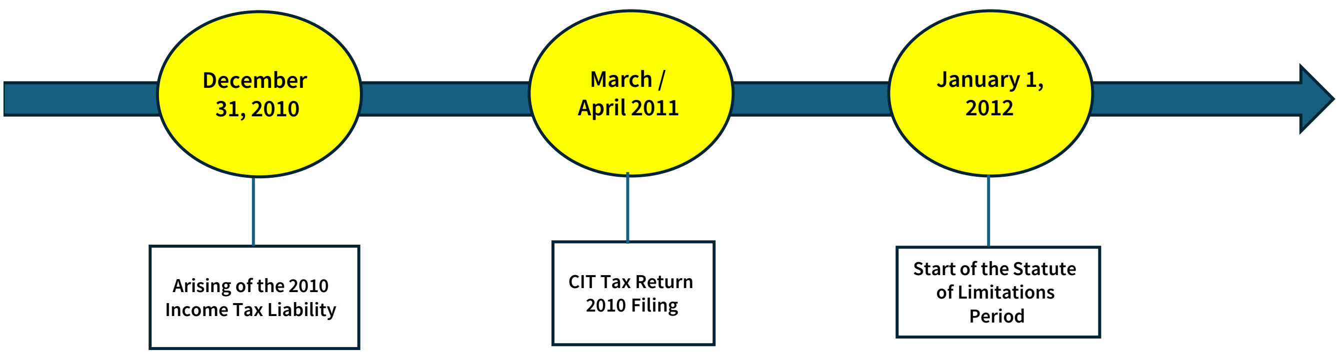
3. SEPARATION OF THE COLLECTION ACTION AND THE DETERMINATION OF THE TAX DEBT

According to the Leg. D. N° 816 and its amendments made to the Tax Code; the statute of limitations applied simultaneously to the determination of the tax debt and to the action of demanding its payment. This faculty was in force until the Leg. Decree N. 981 was implemented., which entered into force on 01.04.2007. Under this new legal framework, the statute of limitations was separated into the following categories: 1) Limitation period to determine the tax debt, 2) Limitation period request the payment of said debt, 3) Limitation period for imposing penalties 4) Limitation period for requesting or performing offsets and requesting refunds. Accordingly, independent limitation periods were established for the determination of the tax debt and for the collection of that debt. In both cases, the calculation of the limitation period initially commenced on 1 January of the year following the filing of the tax return.

Taking as a reference the Income Tax return for fiscal year 2010, which had to be filed between March and April 2011, the limitation period began on 1 January 2012, as illustrated below:

Figure 7

Example: Calculation of the statute of limitations of Income Tax for the 2010 financial year



Source: Own elaboration

4. LEGAL BACKGROUND REGARDING CONSTITUTIONALITY

With the enactment of Legislative Decree No. 1421, various interpretations arose as to whether this rule was constitutional, because the modification that was introduced in Legislative Decree No. 1113 seemed to be associated with tax obligations that had been established before its entry into force. To understand this issue, reference should be made to the Sole Transitional Provision of Law No. 28647, which had previously also given rise to different interpretations.

> ***"SOLE TRANSITIONAL***
>
> ***PROVISION – Scope of Subsection 2 of Article 18° of the Single Ordered Text of the Tax Code, as amended by this Law.***
>
> *It is hereby clarified that subsection 2 of Article 18 of the Single Ordered Text of the Tax Code, in force prior to the amendment introduced by Article 1 of this Law, was applicable only in cases where withholding or collection agents had failed to carry out the withholding or collection during the period in which the amendment introduced by Legislative Decree No. 953 was in force." Congress of the Republic (2005).*

With this rule, rules governing the joint and several liability of withholding and collection agents were modified, establishing that the amendment would apply only for situations arising before the amendment entered into force. Accordingly, the Constitutional Court issued its ruling in Case 002-2006-PI/TC, declaring the claim of unconstitutionality well-founded with respect to the Sole Transitional Provision of Law 28647.

When examining the two interpretations related to the application of these rules, it can be noted that there is an interpretative difficulty about the effectiveness of the rules governing expiration and limitation periods in tax matters.

5. OPINIONS ON THE COLLECTION OF DEBTS BY THE SUNAT

Certain judges of the Constitutional Court affirm that collection is constitutional, since the counting of the limitation period of the collection action cannot be initiated if there is no defined debt. Others disagree, arguing that the SUNAT did have a deadline to calculate the statute of limitations, although this was ineffective according to the regulations in force until 2012; it is important to note that the Tax Code does not make distinctions, and refers generally to debts subject to collection, as indicated in Article 115 of the Tax Code.

According to the regulations prior to 2012, SUNAT had the possibility to demand the collection of debts before four years had elapsed since the beginning of the audit. For example, in the case of Income Tax for fiscal year 2008, the limitation period applicable to collection would begin on 1 January 2010. If SUNAT initiated an audit in 2011 and subsequently determined a tax debt, the limitation period applicable to collection would already have begun running before the debt became enforceable. If the taxpayer challenged the debt, the running of the limitation period for collection would be interrupted.

6. ANALYSIS OF THE TAX COURT RESOLUTION (RTF) N° 9789-4-2017

Legislative Decree No. 1113 introduced amendments intended to resolve the discrepancies that had arisen between the limitation period applicable to the determination of tax debts and that applicable to their collection.The amendments sought to ensure that the limitation period for collection would begin upon notification of the assessment resolution or penalty resolution, rather than on 1 January of the year following the filing of the tax return. In addition, it has been argued that Legislative Decree No. 1113 is constitutionally valid because it sought to correct a legal defect introduced by Legislative Decree No. 981, pursuant to Article 103 of the Constitution, while recognizing that the amendment could not be applied retroactively.

Through RTF No. 9789-4-2017, the Tax Court resolved a dispute concerning the limitation period applicable to SUNAT's collection action in connection with an infringement arising from the failure to file the 2009 tax return, an infringement that resulted in a fine. In this case, the Tax Court analyzed whether Legislative Decree No. 1113 had introduced a new rule governing the commencement of the limitation period. However, it concluded that the new provision was applicable only when the limitation period had not yet begun to run under the previous legal framework.

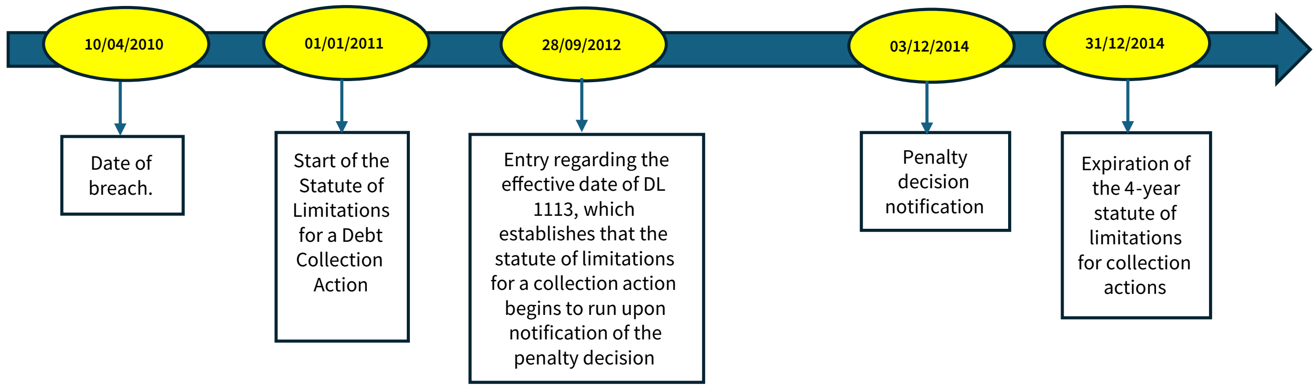
With respect to the infringement, it occurred on 10 April 2010, and the taxpayer argued that the four-year limitation period available to SUNAT for collecting the debt began on 1 January 2011 and expired on 31 December 2014. SUNAT, however, argued that pursuant to Legislative Decree No. 1113, the limitation period for collection began on 3 December 2014, the date on which the infringement resolution was notified, and would therefore expire on 2 December 2018. As provided in Article 45 of the Tax Code then in force, the limitation period applicable to collection was interrupted by the notification of the coercive collection payment demand issued within the enforcement proceeding.

Regarding the Tax Court RTF N° 09789-4-2017, it was determined that the modifications as introduced by the Leg. D. No. 1113 entered into force on 28.09.2012, and were not applicable to the case, since the limitation period had already begun on 01.01.2011.

An example of this can be seen below:

Figure 8

The statute of limitations applicable to collection of a fine arising from an infringement committed in 2010



Source: Own elaboration

Finally, following the principle governing the temporal application of legislation established in Article 103 of the Constitution, Legislative Decree No. 1113 can only have legal effects with respect to events occurring on or after 28 September 2012. In this way, this precedent is particularly significant, as it establishes the position of the Tax Court regarding the entry into force of Legislative Decree No. 1113, indicating that it cannot be applied to tax debts whose limitation periods had already begun to run. It also clarifies that any contrary interpretation would result in the retroactive application of that Legislative Decree.

7. ANALYSIS OF THE CONSTITUTIONALITY OF THE LEG. DECREE NO 1421

As expressed by Durán, L. & Arbieto, H. (2019), the validity of the Leg. D. 1113 arose in the context of a legal debate on the constitutionality of the limitation period applicable to the TA's power to demand payment, given that the calculation of that period had begun before the decree entered into force.

When examining Legislative Decree No. 1113, it can be observed that a new rule was introduced regarding the commencement of the limitation period applicable to the collection of tax debts, pursuant to Article 44. Under this amendment, the limitation period begins on the day following the notification of the Assessment Resolution (RD) or Penalty Resolution (RM). Before this amendment, the Tax Code considered the notification of an Assessment Resolution to be a sufficient ground for interrupting the limitation period, as provided in paragraph (a) of subsection 2 of Article 45. Through such notification, the limitation period would begin to run anew. However, when Legislative Decree No. 1113 entered into force, the notification of the RD or RM was eliminated as a ground for interrupting the limitation period. Based on these provisions, it was interpreted that this new case was included in Article 44° as a new starting point for the calculation of the limitation period. By including this new rule governing the calculation of the limitation period, uncertainty arose regarding its application over time. In particular, where the limitation period had begun at some point before 1 January 2012, and an RD or RM was issued after 28 September 2012, it became necessary to determine whether subsection 7 of Article 44 of the Tax Code was applicable.

The Tax Court, through mandatory compliance Resolution No. 9789-4-2017, established the binding administrative precedent applicable to this issue. It held that the calculation of the limitation period applicable to the Tax Administration's action to demand payment of tax debts contained in Assessment Resolutions (RDs) and Penalty Resolutions (RMs), issued in connection with tax obligations arising before the entry into force of Legislative Decree No. 1113 and notified on or after 28 September 2012, remained governed by subsections 1 to 4 of Article 44 of the Tax Code. Consequently, subsection 7 of that article could not be applied to debts whose limitation period had begun before 1 January 2012. According to the Tax Court, applying subsection 7 in such cases would alter the commencement date of the limitation period and would therefore result in the retroactive application of Legislative Decree No. 1113, which would be inconsistent with the theory of vested legal situations embodied in Article 103 of the Constitution.

Thus, in this context, the D. Leg. N° 1421 was enacted. Its first transitional provision PDCT establishes that the beginning of the limitation period for the collection of tax debt, as well as for determining tax obligations or imposing penalties, commenced on or before 01 January 2012, and where the corresponding resolutions were notified on or after September 28, 2012 within the limitation period will be calculated from the day following the notification of those resolutions, in accordance with paragraph 7 of Article 44° of the Tax Code.

8. ANALYSIS OF THE PDCT OF THE LEG. D. N° 1421, ABOUT THE RETROACTIVE CHARACTER

According to the RTF N° 09789-4-2017subsection 7 of Article 44 of the Tax Code cannot be applied to debts whose limitation periods began on or before 1 January 2012, and for which SUNAT notified the Assessment Resolution (RD) or Penalty Resolution (RM) on or after 28 September 2012. Therefore, any modification to the commencement of the calculation of the limitation period would constitute a retroactive application of the rule.

Likewise, article 103 of the Constitution establishes that "the law, from its entry into force, applies to the consequences of relationships and legal situations that already existed and has no force or retroactive effects; except in criminal matters when it favors the accused." This article establishes that all the rules are applicable to the facts that occur while they are in force. Therefore, the retroactive application of a legal rule may generate legal consequences with respect to actions or situations that arose before the rule entered into force.

9. CONTEXT OF THE DISCREPANCIES BETWEEN THE TAX COURT AND THE CONSTITUTIONAL COURT

As reported in the Journal Gestión on 27.02.2024 by Rosales, G. (2024), this discrepancy originated from of an appeal to the Tax Court related to a SUNAT resolution recognizing a tax debt. The Tax Court clarified the rules governing the statute of limitations in relation to coercive collection, stating that the limitation period would operate only if the administrative acts challenged by the taxpayer were declared null and void at some stage of the proceedings, whether before SUNAT or before the Tax Court. Otherwise, despite the passage of time, the debt would be confirmed and would not become time barred.

For its part, the Constitutional Court issued a ruling establishing that the limitation period cannot be suspended solely as a consequence of the absence of a declaration of nullity. This gave rise to a discrepancy between the positions adopted by the Constitutional Court and the Tax Court. The central issue in dispute is whether the suspension of the limitation period applies to all cases during the challenge proceedings or only in cases where the disputed debt is ultimately declared null and void.

Faced with this contradiction, SUNAT decided to follow the binding precedent of the Tax Court. This has resulted in divergent interpretations between the Tax Court and the Constitutional Court, creating regulatory uncertainty that affects taxpayers. As a consequence, taxpayers are often compelled to resort to judicial remedies to defend their rights. The lack of clarity caused by these conflicting resolutions undermine the predictability and uniformity in the application of tax laws, thus contributing to the prolongation of tax litigation.

10. ANALYSIS OF THE CONSTITUTIONAL COURT JUDGMENT NO 556/2020[7], WHICH GENERATED THE CONTROVERSY SURROUNDING THE ACTION OF UNCONSTITUTIONALITY AGAINST THE LEG. D. NO 1421

10.1. Background

On 01.02.2019, the dean of the Liberty Bar Association filed an unconstitutionality lawsuit against the PDCT of the Leg. D. N° 1421, arguing that it violated the constitutional regulation on the delegation of legislative powers, as well as the principle of non-retroactivity and legal security. The lawsuit is based on arguments of both form and substance.

On 18.09.2019, Luis Alberto Huerta Guerrero, public prosecutor specializing in Constitutional Matters, responded to the lawsuit on behalf of the Executive Branch, rejecting and contradicting all the points raised.

10.2. Arguments of the lawsuit

The Liberty Bar Association presents its argument in the following points:

- It emphasizes that Article 43° of the CT identifies three different situations where the statute of limitations of the action of the Tax Administration (TA) before the tax debtor applies: 1) to establish the tax obligation; 2) to require payment and 3) to impose penalties.

- It is mentioned that until 27.09.2012 there were no specific regulations in Article 44° of the CT to determine the beginning of the limitation period of the faculty of the TA to request payment, applying general rules.

- It argues that with the enactment of the Leg. D. N° 1113 (adding subsection 7 to Article 44° of the CT), a new guideline is introduced, which establishes that the limitation period will begin to be counted from the day after the notification of the RD or RM, to demand the payment of the debt; in this way, the beginning of the statute of limitations count could only be regulated from its entry into force, which was on 28.09.2012.

- It points out that the Tax Court Resolution N° 09789-4-2017, establishes a precedent that must be followed, confirming that this new rule established in the Leg. D. N° 1113 cannot be applied to cases in which the limitation period had already begun before the decree entered into force.

- It argues that, through the PDCT of the Leg. D. N° 1421, the Executive Branch seeks to change the start date of the calculation of the limitation period to require the collection of tax debts generated on or before 01.01.2012.

- It further argues that, under this approach, although the limitation period has already begun to run, the elapsed period would effectively be disregarded and a new period would commence upon notification of the RD or RM.

- According to this reasoning, it is indicated that the norm has exceeded what is allowed by the

7 https://tc.gob.pe/jurisprudencia/2020/00004-2019-AI.pdf

delegation of legislative powers established in Article 104° of the Constitution and in Law N° 30823, pointing out that there is no connection between the authorized topics and those dealt with in the Leg. D. N° 1421; in addition, it is argued that Law N° 30823 does not mention the tax statute of limitations at all.

- Finally, it argues that the contested provision violates the principle of non-retroactivity established in Article 103° of the Constitution, if a legal situation arose before the validity of the Leg. D. N° 1113, that decree cannot subsequently be applied through later legislation, such as the Leg. D. No. 1421. Constitutional Court, (2020).

10.3. Response to the Action

The response was based on the following arguments:

- With respect to the alleged procedural unconstitutionality, the Public Prosecutor argued that **Bill No. 2791/2017-PE** was intended to improve tax administration procedures in order to increase efficiency, strengthen the capacities of the Tax Administration, and eliminate distortions affecting or complicating tax collection. Consequently, measures to facilitate the recovery of tax debts were necessary.

- The Public Prosecutor argued that **Legislative Decree No. 1421** effectively overturned the binding precedent established by the Tax Court in **RTF No. 09789-4-2017** with respect to the statute of limitations applicable to supervisory, sanctioning, and collection actions carried out by the Tax Administration.

- Regarding the alleged substantive unconstitutionality, it was argued that a distinction must be drawn between the commencement of the limitation period applicable to the determination of a tax debt or penalty and the commencement of the limitation period applicable to its collection.

  According to this position, **RTF No. 09789-4-2017** incorrectly interpreted the starting point of the limitation periods governing the different powers of the Tax Administration.

- It was further argued that subsection 7 of Article 44 of the Tax Code introduced a new legal rule that must be applied immediately to all ongoing legal situations, including cases in which notification of the corresponding assessment or penalty resolution was still pending. According to this interpretation, the contested provision does not seek to apply **Legislative Decree No. 1113** retroactively; rather, it seeks to overturn the Tax Court's interpretation that prevented the application of that decree.

- Finally, it was argued that **Legislative Decrees Nos. 1113 and 1421** must be interpreted in accordance with the **theory of vested legal situations** embodied in Article 103 of the Constitution. Accordingly, subsection 7 of Article 44 of the Tax Code does not violate the principle of non-retroactivity. The Public Prosecutor also maintained that the provision preserves predictability in the application of the law and does not undermine legal certainty. Constitutional Court (2020).

10.4. Applicability of the Constitutional Court's Decision

The PDCT establishes that the beginning of the limitation period to demand the collection of the tax debt indicated in the RD or RM notified since 28.09.2012, whose limitation period to determine the tax obligation or impose penalties began until 01.01.2012, shall be calculated from the day following the notification of those resolutions. The constitutional challenge argued that, through the PDCT, the commencement of that limitation period was being altered retroactively. According to the rules previously in force, that period should begin on 1 January of the year following the year in which the tax obligation arose, rather than on the date of notification of the RD or RM.

Accordingly, it was argued that tax debts that had already become time-barred under the limitation periods established by the Tax Code would no longer be regarded as such under the PDCT. This issue is particularly important because, once the statute of limitations has taken effect, the Tax Administration loses the legal authority to undertake actions aimed at recovering the debt, as expressly recognized by the Constitutional Court.

Thus, the Constitutional Court's judgment settled, for constitutional purposes, the debate regarding the application of the limitation period, confirming SUNAT's authority to proceed with the collection of the debt.

10.5. Controversy of the action of unconstitutionality against the Leg. D. 1421

According to Hernandez, R. (2020), indicates that the National Tax Legal Intendant of SUNAT, Enrique Pintado Espinoza, stated that, if the Constitutional Court upheld the unconstitutionality claim, it would be leaving the State "without the ability to collect billions of soles in tax debts." Likewise, they would be "compromising constitutional principles of reasonableness, justice and equality"; therefore, the SUNAT presented the (Report N° 000015-2020-SUNAT/7D0000)[8] to the Congress of the Republic, where he detailed the amount and the amount of companies that would have prescribed debts. This amount exceeded 9 billion soles and would benefit 158 companies.

The conflict revolves around that, first of all, the Leg. D. N° 1113, in its article 4°, adds number 7 of article 44° of the CT, establishing that the limitation period for the recovery of the debt will begin to be counted from the moment the SUNAT determines the debt. Secondly, the RTF N° 09789-4-2017 establishes as a precedent of mandatory compliance the interpretation of the limitation periods, indicating that what is established in the Leg. D. No. 1113 applies only to inspection procedures that have been initiated after its entry into force. This implies that the right to collect prescribes before the right to audit for all cases that have happened before 27.09.2012, the date before the entry into force of the Leg. D. No. 1113.

On the other hand, the defendant's position points out that the regulation in question does not seek to extend or reactivate the limitation period established in the Leg. D. N° 1113, but, on the contrary, it aims to correct an incorrect interpretation made by the TF regarding the calculation of the limitation periods; as well as annul a precedent that would be inapplicating number 7 of Article 44° of the Tax Code.

This controversy contains two opposing positions, on the one hand, the debate on the constitutionality of the application of the norm over time is raised and, on the other, the duration of the limitation period in the tax field is discussed.

Positions against unconstitutionality

Some experts argue that the decree would improve the interpretation of the calculation of the limitation periods, while others point out that this implies an unconstitutional retroactive application of the rule.

According to the statute of limitations theory, the collection process can only begin when there is a collection action available, that is, from the moment the Determination Resolution or the Penalty resolution is notified, and not before. This is because before that notification there was no knowledge of the debt, much less the amount. This perspective is supported by Enrique Pintado Espinoza, National Tax Legal Intendant of SUNAT, who argues that the payment of a debt that

8 https://consede.lab.org.pe/wp-content/uploads/2020/09/Informe-15-2020-SUNAT-7D0000.pdf

has not yet been recognized cannot be demanded, arguing that the law establishes separate deadlines for inspection and collection. These periods are sequential; you cannot charge something that has not been determined. He also mentions the principle of immediate applicability, pointing out that a new norm cannot be applied to events that have already occurred previously.

When examining the previous context, it can be observed that before 2008, the deadline for auditing and judicializing debts was four years, and these processes were carried out simultaneously. If SUNAT took 3 years and 11 months to define the debt, he only had one month to make the collection. In 2012, the Tax Court established a new deadline by means of the Leg. D. N° 1113, allowing the audit to last up to four years, and then extending up to four more years for collection. Later, in 2017, the same court issued a mandatory decision, stating that this new deadline did not apply to companies that had already started the procedure of prescription of their debt in 2012. This led to the conclusion that the debts originated in 2008, which had already fulfilled the four-year statute of limitations in 2012, could not receive the Leg. D. No. 1113 due to its retroactive nature. However, the initiation of the procedure was not considered as constituting a statute of limitations. For this reason, the Legislative branch enacted in 2018 the Leg. D. No. 1421, which attempted to clarify the Tax Court's dissent, specifying that the eight-year term would apply even to those already in the statute of limitations process.

10.6. The ruling of the Constitutional Court N° 556/2020 declares unfounded the claim of unconstitutionality on the statute of limitations of tax debts in reference to file 0004-2019-PI

In examining 0004-2019-PI/TC, concerning the unconstitutionality action filed against the PDCT of the Leg. D. No. 1421, it was necessary to review the arguments set forth in Judgment No. 0002-2006-PI/TC[9], by which the Constitutional Court declared unconstitutional the Sole Transitional Provision of Law 28647. Similarly, it is important to consider the jurisprudence of the RTF No. 9789-4-2017 of the Tax Court, which is mandatory, which determined that:

> *"...the beginning of the calculation of the limitation period of the administrative action to demand the payment of the tax debt contained in determination and penalty resolutions, issued for concepts originated before the entry into force of the Leg. D. N° 1113, notified as of September 28, 2012, was governed by numbers 1) to 4) of Article 44° of the Tax Code, as appropriate, so number 7) of the noted article is not applicable ...". MEF, (2017).*

Based on this reasoning, the Tax Court concludes that, under the theory of vested legal situation and the principle of immediate execution stipulated in Article 103 of the Constitution, the Leg. D. N° 1113 can only apply to events that occurred on or after 28.09.2012. The TF develops the topic in question, establishing an independent position that has been altered since the implementation of the Leg. D. No. 1421, since its use is mandatory. Constitutional Court, (2020).

On 22.09.2020, the Plenum of the Constitutional Court met and on October 02, 2020 the Constitutional Court published Judgment N° 556/2020, declaring unfounded the claim for not achieving five votes in favor of the unconstitutionality raised against the PDCT of the Leg. D. No. 1421. The aforementioned regulation established that the Leg. D. N° 1113 (which determined that the limitation period for the collection of tax debt begins the day after notifying the securities) and which has been in force since 28.09.2012, applies to those cases in which the calculation of the limitation period began before said

9 https://www.studocu.com/pe/document/universidad-tecnologica-del-peru/instituciones-del-derecho-civil/exp-0002-2006-pi-tc-lpderecho-watermark/76432461

regulation came into force and that were notified with securities after that date. Constitutional Court, (2020).

10.6.1. Analysis of Judgment 556-2020, regarding the Enactment of Legislative Decree No. 1421

The judgment upholds the constitutionality of the decree from a procedural standpoint, based on Law No. 30823[10], which gives the Executive Branch the authority to legislate on matters of economic management. For this reason, the enactment of the Leg. Decree N° 1421 was authorized. The purpose of this decree was to modify the Tax Code to achieve more effective tax procedures and strengthen the functioning of the Tax Court, establishing the following:

> *"**Article 2. Matters of delegation of legislative powers***
>
> *Within the framework of the delegation of powers referred to in Article 1 of this Law, the Executive Branch is empowered to legislate on the following matters: (...)*
>
> *g) To modify the Single Ordered Text of the Tax Code, approved by Supreme Decree 133-2013-EF, in order to provide greater guarantees to taxpayers in the application of Rule XVI of the Preliminary Title, to establish the configuration of infractions and penalties related to that provision; to establish parameters for its non-application to micro and small enterprises (MSEs); and to expand the circumstances giving rise to joint and several liability of legal representatives through application of the general anti-avoidance rule, while guaranteeing taxpayers' right to due process..." Congress of the Republic (2018).*

Critics argue that an examination of the legislative debates concerning Law No. 30823 reveals that there was no discussion, observation, or disagreement regarding the delegation of powers to modify the rules governing the statute of limitations applicable to the collection of outstanding tax debts. Since no express authorization was granted for this purpose, they disagree with the Constitutional Court's decision.

10.6.2. Analysis of the judgment 556-2020, regarding the merits that confirmed the Constitutionality of the PDCT Leg. Decree No 1421

As regards the merits of the case, the Constitutional Court upheld the constitutionality of the PDCT on the grounds that the commencement of the limitation period cannot be separated from the limitation period itself, a position supported by the majority of the Court, as expressed by Judge Eloy Espinoza-Saldaña.

In other words, before the expiration of the four-year limitation period, the legislature may modify the rules governing the commencement of that period. Likewise, the Constitutional Court held that the limitation period applicable to collection cannot begin unless the Tax Administration has first acquired the legal power to collect the debt (Constitutional Court, 2020).

Some commentators do not share this position because they argue that, once the limitation period has begun to run, its commencement date has already become part of the legal situation and cannot subsequently be altered. According to this view, the statute of limitations must be considered as an indivisible legal institution.

In this regard, the Tax Court expressed its position in the binding precedent established by RTF No. 9789-4-2017, emphasizing the relationship between the origin of the tax obligation and the commencement of the limitation period. Under this interpretation, the PDCT of Legislative Decree No. 1421 would constitute a retroactive provision, contrary to Article 103 of the Constitution (Constitutional Court, 2020).

10 https://cdn.www.gob.pe/uploads/document/file/154448/Ley_30823.pdf?v=1591304726

10.7. Positions Regarding the Constitutionality of Legislative Decree No. 1421

The implementation of Legislative Decree No. 1421 has generated differing opinions regarding its constitutionality.

10.7.1. Position supporting its constitutionality

The first position is defended by Durán, L. and Arbieto, H. (2019). In their analysis, they argue that the PDCT of Legislative Decree No. 1421 is constitutional because the regulations distinguish between the determination of the tax debt by the Tax Administration and the subsequent collection of that debt.

They maintain that the provision merely clarifies the legal framework and strengthens legal certainty. They also apply a proportionality analysis, arguing that the limitation period applicable to collection should begin only after the debt has been determined at the conclusion of the audit procedure. According to these authors, such an interpretation protects legal certainty and is reasonable given the nature of tax collection, since payment cannot be demanded before the debt has been formally established.

Similarly, Serrano, F. (2020) argues that the PDCT of Legislative Decree No. 1421 is constitutional. He contends that the limitation period cannot begin unless there is a legal possibility of enforcing the obligation.

This author further states that the commencement of the limitation period does not enjoy autonomy from the limitation period itself. Consequently, until the limitation period has fully elapsed, its rules may be modified in accordance with Article 103 of the Political Constitution of Peru.

10.7.2. Position supporting unconstitutionality

According to Hernández, L. (2020), the provision is inapplicable because it violates the principle of non-retroactivity established in Article 103 of the Political Constitution of Peru. Hernández Berenguel bases his position primarily on a historical analysis of Legislative Decree No. 1113, arguing that Legislative Decree No. 1421 is unconstitutional because Law No. 30823 did not delegate legislative powers to regulate this matter. His argument is also supported by the reasoning set forth in RTF No. 9789-4-2017.

Likewise, García, C. (2020) defends the position that Legislative Decree No. 1421 is unconstitutional. His argument is based on the theory of vested legal situations, according to which Legislative Decree No. 1113 can produce legal effects only with respect to obligations arising after its entry into force. He further argues that any contrary interpretation would not only violate Article 103 of the Political Constitution of Peru but would also result in the revival of time-barred tax debts.

In addition, García (2020) argues that a tax debt that has already become time-barred cannot be affected by a subsequent legislative amendment, not because it constitutes a completed fact under the theory of vested legal situations, but because it has already become an extinguished obligation and therefore cannot be revived by any subsequent legal provision.

11. ANALYSIS OF CONSTITUTIONAL COURT JUDGMENT N° 998/2020, WHICH DOES NOT CONSIDER THE SUSPENSION OF THE LIMITATION PERIOD WHEN THE DEADLINE FOR RESOLVING APPEALS IS EXCEEDED

On November 12.2020, the Constitutional Court issued Judgment N° 998/2020, in response to Case 02051-2016-PA/TC regarding the amparo action filed by the industrial company Paramonga SAC against the SUNAT and the Ministry of Economy and Finance (MEF). The ruling partially favored Paramonga and allowed the possibility for taxpayers to invoke the statute of limitation and seek the exclusion of interest accrued during periods attributable to excessive administrative delay. (Constitutional Court, 2020).

This case began on 13 December 2013, when Paramonga filed an amparo action against SUNAT and the MEF, seeking the annulment of tax debt assessments relating to VAT (IGV) for the periods from January to March and from May to December 2000, as well as from January to May and October 2001. The company argued that the principal tax debt amounted to S/ 29.8 million, while the accumulated default interest increased the total amount to approximately S/ 161.8 million. To support its claim, it requested the non-application of the penultimate paragraph of Article 46 of the Tax Code, which regulates the suspension of the limitation period during tax dispute proceedings. The company argued that it had filed three administrative challenges and that, in resolving those challenges, the Tax Court exceeded the legally established deadline by more than four years.

For this reason, the Constitutional Court considered it unreasonable and disproportionate to maintain the suspension of the limitation period when the administrative authority takes an excessive amount of time to issue its decision. According to the Court, it is unfair for taxpayers to bear the consequences of delays attributable to the administration itself (Constitutional Court, 2020).

Consequently, the Constitutional Court affirmed that the penultimate paragraph of Article 46° of the Single Ordered Text of the Tax Code is valid and is constitutional since it allows the suspension of the calculation of the limitation period during the processing of the tax litigation procedure, even when administrative acts are annulled, provided that the deadlines for resolving the appeals filed by the debtor are respected. However, the Court held that the suspension of the limitation period does not apply during periods of excessive delay attributable to the Tax Administration or the Tax Court. Accordingly, the Constitutional Court partially upheld the claim concerning the non-application of the aforementioned provision. This interpretation could potentially benefit companies such as Telefónica, Scotiabank, the oil company Savia, the Mining company Cerro Verde and others that register more than S/2 billion in disputed taxes, particularly where the corresponding debts are close to becoming time-barred (Constitutional Court, 2020).

Thus, in Judgment No. 998/2020, the Constitutional Court declared the claim partially founded because it found violations of the principle of reasonableness and of the right to a decision within a reasonable time. The Court ordered the Tax Court to issue a decision on the pending appeal and instructed SUNAT to recalculate default interest without including interest accrued during periods of excessive delay. In addition, the Court ordered SUNAT to recalculate the applicable limitation period, considering only the period during which the Tax Administration acted within the legal deadlines established by the Tax Code. This amparo judgment may have implications for similar cases pending before the Tax Administration or the Judiciary where no final decision has yet been issued (Constitutional Court, 2020).

In this decision, the Constitutional Court also addressed the statute of limitations applicable to tax debts, establishing new conditions under which such debts may become time-barred while proceedings remain pending before SUNAT or the Tax Court. According to the Court, where the resolution of a tax claim or appeal is subject to excessive delay attributable to the administration, the limitation period should continue to run during the period of unjustified delay, potentially affecting the State's ability to collect the debt (Constitutional Court, 2020).

Finally, the Paramonga judgment contains certain aspects that remain controversial in practice. In particular, it does not clearly explain how default interest accrued before the expiration of the relevant administrative deadlines should be treated.

Both SUNAT and the Ministry of Economy and Finance expressed disagreement with the ruling, arguing that it could result in substantial losses of tax revenue for the State. For that reason, on 16 February 2023, SUNAT filed an action seeking the annulment of the Constitutional Court's decision. SUNAT argued that the ruling established a new precedent limiting the accrual of default interest in cases where the delay was attributable to the administration itself. SUNAT based its challenge on alleged violations of due process and of its right of defense, while also expressing broader concerns regarding the fiscal consequences of the ruling. According to SUNAT, the judgment could benefit taxpayers that prolong disputes through extensive appeals, potentially affecting the collection of tax debts estimated at approximately S/ 12 billion, thereby reducing public revenue available to the State.

Under this interpretation, taxpayers may invoke both the statute of limitations and the termination of proceedings even in cases where the State has ultimately prevailed on the merits and confirmed the tax debt. The Constitutional Court's reasoning also departs from the limits established by Legislative Decree No. 1311 of 2016, under which the continued running of limitation periods during excessive administrative delay applies only to proceedings initiated before SUNAT from January 2017 onward, thereby avoiding retroactive application. In the specific case of Paramonga, the Constitutional Court concluded that the excessive delay in the proceedings was attributable to the State rather than to the taxpayer.

CONCLUSIONS

1. Throughout the period examined, ranging from Legislative Decree No. 816 of 1996 to Legislative Decree No. 1421 of 2018, several modifications were introduced to the rules governing the calculation of the limitation period applicable to the collection of tax debts.

2. During the period in which Legislative Decree No. 816 was in force, the statute of limitations applied simultaneously to the determination of the tax debt and to the action for demanding its payment. Subsequently, with the entry into force of Legislative Decree No. 981, separate limitation periods were established for: (1) determining the tax debt; (2) demanding payment of the debt; (3) imposing penalties; and (4) requesting offsets and refunds. Later, Legislative Decree No. 1113 sought to address the problems generated by Legislative Decree No. 981 through the incorporation of subsection 7 into Article 44 of the Tax Code, introducing a new rule under which the limitation period applicable to collection would begin on the day following the notification of the Assessment Resolution (RD) or Penalty Resolution (RM). This amendment generated disputes regarding the commencement of the limitation period. Consequently, through the PDCT of Legislative Decree No. 1421, an attempt was made to modify the commencement of the limitation period, which, according to some authors, contravenes the principle of non-retroactivity established in Article 103 of the Constitution. The PDCT of Legislative Decree No. 1421 has therefore generated controversy, uncertainty regarding its application, and discrepancies concerning the calculation of the commencement of the limitation period applicable to collection actions.

3. On 2 October 2020, the Constitutional Court, through Judgment No. 556/2020, declared unfounded the action of unconstitutionality filed by the La Libertad Bar Association against the PDCT of Legislative Decree No. 1421. The claim alleged violations of the constitutional rules governing the delegation of legislative powers, as well as the principles of non-retroactivity and legal certainty, and was based on both procedural and substantive grounds.

4. On 12 November 2020, the Constitutional Court, through Judgment No. 998/2020, declared partially founded the amparo action filed by Empresa Industrial Paramonga S.A.C. against SUNAT and the Ministry of Economy and Finance (MEF). The ruling favored the company by ordering the Tax Court to resolve the appeal within the applicable time frame and directing SUNAT to recalculate default interest without including interest accrued as a result of excessive delays in resolving the dispute. The Court also required SUNAT to recalculate the applicable limitation period under the conditions established in the judgment.

5. These conflicting interpretations of the applicable legal provisions have prolonged the resolution of tax disputes and, in certain cases, have benefited companies with significant tax debts by allowing them to challenge collection actions and delay payment. This situation has affected the State's ability to collect revenue and has generated legal uncertainty. Furthermore, these precedents may encourage other taxpayers to invoke similar arguments in seeking recognition of the statute of limitations with respect to their own tax debts and the exclusion of interest accrued during prolonged administrative or judicial proceedings.

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The Role of Information Technology in Strengthening Tax Administration: Machine Learning Applications in Detecting VAT Fraud in Kenya

Esther Muthoni Rugendo

SYNOPSIS

The article investigates how information technology improves VAT fraud detection by using machine learning. Moreover, it improves institutional performance in tax administrations. It assesses the effectiveness of Machine Learning techniques such as logistic regression, neural networks, and graph neural networks in identifying fraudulent cases in Kenya's VAT system. The main contribution is to show how combining tabular models with graph-based relational analysis increases fraud detection accuracy. KRA data was used to test feature engineering, imbalance correction, and hybrid modeling methodologies. The results show great precision and recall rates, indicating fraud clusters, sector-specific dangers, and systemic collaboration.

KEYWORDS: VAT Fraud Detection, Machine Learning, Tax Administration, Graph Neural Networks, Institutional Performance

CONTENIDO

AUTHOR

Data Analyst at the Kenya Revenue Authority (KRA), where she has worked for almost ten years across different divisions. The experience has given her a strong business understanding of Kenya's tax system and the behavior of taxpayers. She has led major projects, including the identification of missing traders, which contributed to a 28% growth in VAT in May 2025. She was also overseeing the migration of legacy balances from the old system to the current system, a role that requires data cleaning.

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1. INTRODUCTION

1.1. Tax fraud and digitization

Tax fraud refers to the purposeful fabrication of facts on a tax return to decrease an individual's tax liability. This can be done by either reducing or increasing purchases. Tax fraud is one of the significant issues affecting government revenue around the world. Tax authorities are increasingly resorting to Machine Learning (ML) models to address these difficulties. The primary goal of fraud detection strategies is to limit the number of false positives in tax returns that are reported as fraudulent. Moreover, wasting the auditor's limited time is avoided.

The digitization of tax systems around the world has revolutionized how governments administer and collect revenue. Effective tax administration is dependent on reliable data collection, analysis, and enforcement systems that increase compliance while reducing costs (Bal, 2022). Traditional techniques of fraud detection, such as manual audits and rule-based systems, have proven unable to combat more sophisticated tax fraud strategies. The tax authorities have been seen to be implementing modern IT technologies such as artificial intelligence (AI) and machine learning (ML) to boost operational efficiency (Siarka & Chojnacka-Komorowska, 2022).

In Kenya, the Kenya Revenue Authority (KRA), which is a revenue collection corporation, has been at the forefront of digital tax collection. This includes the use of information technology to detect fraudulent trading in the VAT system. The use of ML-based models in the VAT return system enables early detection of anomalies. Moreover, it helps in predictive fraud detection and risk-based audits, which all improve institutional performance and compliance results. Traditional tactics struggle to gain insights from large datasets, whereas it's easy for ML models. They enable the detection of emerging fraud patterns with minimal manual involvement, maximizing the use of tax authorities' resources.

The Kenya Revenue Authority stated in the Tax Matters report 2022 that financial fraud and tax investigations in recent years have shown elaborate techniques used by supply chain thieves to avoid paying taxes. These complicated tax evasion tactics leave the taxpayer with the entire expense of development funding. For example, KRA's 2022 report showed that tax evasion methods continue to cost Kenya billions of dollars each year. The authority was able to successfully intercept illegal products intended for local use in the previous fiscal year, resulting in an anticipated tax loss of Kshs. 1.2 billion. By June 2021, KRA had profiled 1,309 individuals and enterprises whose combined tax losses were estimated to be around KShs. 259 billion.

1.2. Information Technology and Tax Administration

Tax institutions benefit from information technology by automating, integrating data, and providing decision support tools that improve transparency and accuracy. Modern IT infrastructures allow for real-time monitoring of tax filings, analysis of taxpayer behavior, and digital audit trails. The Kenya Revenue Authority's iTax technology has digitized VAT return processing, data storage, and reporting, making large-scale analytics more efficient (KRA, 2022).

Machine Learning algorithms can process large datasets, detect patterns of noncompliance, and adapt to changing fraud schemes (Nayak, Pati, & Das, 2021). The combination of structured data analytics and relational network analysis enables tax authorities to discover systemic fraud that manual methods cannot capture.

As Melville et al. pointed out, information systems combine human resources with technology and software. Globally, mobile payment systems have developed as critical digital technologies that improve tax administration. Mobile payments, defined as the use of mobile devices to start, authorize, and validate financial transactions, are a flexible and efficient means of revenue collection. Despite their potential, their effectiveness is contingent on coverage, adoption rates, and perceived security.

In Nigeria, Saidu et al. discovered that perceived usefulness and simplicity of use were key influences on mobile payment adoption, but perceived risk had no effect. Kenya's M-PESA system exemplifies mobile financial innovation. M-PESA, which is widely used throughout East Africa, has improved financial inclusion and allowed low-income people to manage risks better through income smoothing. This can be used to monitor transactions for low-income people.

1.3. Objective

To investigate the role of information technology, particularly machine learning, in VAT fraud detection and how it affects institutional performance within tax administrations.

1.4. Main Contribution

The research shows how incorporating ML models into tax systems improves accuracy, facilitates risk-based audits, reveals fraud networks, and provides reproducible frameworks for other national administrations. It also demonstrates how GNNs reveal relational fraud patterns that standard approaches cannot identify.

2. MATERIALS AND METHODS

2.1. Introduction

This chapter describes the approach and structure for the study on machine learning-based detection of fraudulent traders in VAT systems. It shows the research design, data collection procedures, model development, and evaluation measures.

2.2. Research Design

Research design is a framework that provides researchers with an organized collection of methodologies and approaches for addressing research challenges (Kothari, 2014). It helps to plan the data collection, analysis, and evaluation. It also provides guidelines for addressing research questions and objectives and tracking the progress of the research phases. The current study used a descriptive study methodology and the Cross Industry Standard Process for Data Mining to determine the most accurate fraud detection algorithms.

2.3. Target population

The survey was intended to use data from the Kenya Revenue Authority. The data will be used for the trader's records from 2021 to 2023. This analysis was confined to revenue collections from the prior five fiscal years. This era ran from the fiscal year 2020/2021 until 2022/2023. Because VAT revenue is collected monthly, this resulted in a total of 10,000 observations, which were adequate to detect fraudulent traders in Kenya's VAT systems using machine learning techniques.

2.4. Sample Frame

Because the study's population consists of fraudulent traders in Kenya's VAT systems, between 2021 and 2023.

2.5. Research Instruments

The study's research instrument was the KRA records of all Kenyan VAT dealers from 2021 to 2023.

2.6. Data Collection Procedure

Secondary data was used in the survey. There was no personal information taken from taxpayers, and the data was collected in comma-separated value format with anonymized taxpayer identification numbers. The data was organized into three databases, each with its own identifier: audit cases, disclosures and payments, and registration and deregistration. Missing data and outliers were removed, and categorical variables were encoded.

Dummy variables were created to make it easier to incorporate these features into the model. Correlation was tested between independent variables. It was essential to merge techniques that employed the common identifier to include all relevant variables and meet the study's goals. The dataset showed an imbalance between fraudulent and non-fraudulent traders. To rectify the imbalanced data, random under-sampling (RUS) and synthetic minority over-sampling (SMOTE) were used.

2.7. Data Analysis Models

The study used methods such as logistic regression and neural networks in fraud detection.

2.7.1. Logistic Regression

Logistic regression is a widely used machine learning technique for binary classification problems, such as fraud detection. It evaluated the likelihood that a given input belongs to a specific class based on one or more different characteristics (for example, fraudulent versus non-fraudulent).

During the training phase, the parameters are learned by minimizing a cost function, often the logistic loss function or cross-entropy loss. This function assesses the difference between predicted probability and actual labels.

2.7.2. Neural Networks

Neural networks are a type of machine learning technology inspired by the human brain's structure and operation (Choi et al., 2020). Neural networks are commonly employed in fraud detection because they can interpret complex patterns and correlations in data. The study combined contemporary Machine Learning techniques with clustering methods to find anomalies in networks containing several traders. It sought to determine the possibility of fraudulent transactions by VAT-registered traders. These estimated probabilities were then used as input for clustering algorithms designed to find tightly related communities in massive graphs. This approach was used to identify small groups of traders involved in illegal VAT transactions.

Neural networks have one or more hidden layers where computations are performed. Each layer has a collection of neurons (also known as nodes).

3. RESULTS

3.1. Introduction

The chapter discusses the results of machine learning-based detection of fraudulent traders in Kenya's VAT systems. The hybrid modeling methodology analyzes VAT compliance and fraud tendencies by combining tabular machine learning approaches (e.g., XGBoost, Random Forest) with graph-based learning techniques (e.g., Graph Neural Networks). The study covers in-depth data preparation, feature engineering, model training, and the output of both tabular and graph-based models.

3.2. Data Preparation and Feature Engineering

3.2.1. Preprocessed Datasets

The datasets utilized in this work were carefully selected and preprocessed to provide accurate feature representation. The datasets contain:

1. Tabular features:

- **VAT Obligations Dataset:** Provides important indicators for spotting irregularities in VAT responsibilities by recording filing trends, the input-to-output VAT ratio, the gross tax-to-sales ratio, and sector-specific thresholds.

- **Annual Aggregates Dataset:** provides a broad overview of trading trends over time by summarizing annual sales behavior and proportions.

- **Sales-Purchase Matching Dataset:** detects discrepancies between purchases and claimed sales during particular periods, raising the possibility of fraud.

2. Graph Features:

Relationship Dataset: This tool analyzes networks of directors, businesses, tax agents, and taxpayers. These connections are depicted as nodes and edges to help identify clusters of potentially fraudulent behavior.

3.2.2. Feature Engineering

3.2.2.1. Tabled Data Features

- **Filing Indicators:** Metrics that emphasize taxpayers who continuously record no VAT liabilities despite sectoral norms, such as an eternal zero filer status.

- **Mismatch Flags:** Designed to identify differences between reported sales and purchases, it is based on transaction mismatches that surpass a threshold of ±100.

- **Sector-Adjusted Ratios:** Outliers within particular industries are identified using gross tax-to-sales ratios adjusted for sector-specific benchmarks.

- **Input-to-Output VAT Ratio:** Adjusted for zero-rated and exempt supplies, enabling anomaly detection in VAT claims.

3.2.2.2. Graph features:

- Director Connectivity: Counts the number of ties between directors and highlighted organizations to identify high-risk connections.

- Tax Agent Connectedness: Identifies agents who work with multiple highlighted taxpayers, potentially indicating fraudulent activity.

- Node attributes: Are generated from tabular features such as filing status and VAT ratios, and are used in graph-based algorithms to identify fraud more effectively.

3.3.1. Tabular Model: XGBoost / Random Forest

Purpose:

The primary goal of this hybrid modeling approach was to identify high-risk taxpayers by extracting structured features from tabular information.

Training dataset

The system was trained using a collection of labeled records from the Kenya Revenue Authority (KRA). This dataset comprised both compliant merchants (negative cases) and known fraudulent traders (positive cases). The training data includes key characteristics intended to call attention to potential fraud signs:

- **Filing Patterns**: Identifies repeated patterns, such as late submissions or indefinite zero filings. These frequently served as warning signals for fraud detection.

- **The Gross Tax-to-Sales Ratio**: identifies anomalies where declared taxes depart from sector averages. This feature is crucial for identifying understated tax liabilities.

- **Sales-to-Purchase Mismatch:** Identifies disparities between reported sales and purchases that exceed permissible levels (e.g., ±100%).

- **Sector information:** Provides context for transactions, ensuring the model reflects industry-specific norms and VAT compliance differences.

Results:

The tabular models were successful in detecting dishonest traders since they demonstrated strong performance metrics:

- The model had a precision of 89% which demonstrates its ability to reduce false positives and effectively identify dishonest traders.
- The model identified an 85% recall, which is dishonest traders, resulting in fewer cases being neglected.
- The F1-Score was 87% which indicates a respectable assessment of the model's recall and precision, indicating its robustness in identifying fraud.

Feature Importance Analysis:

This analysis demonstrates how various predictors contribute to the identification of fraudulent traders.

Filing Status (45% importance):

Dishonest traders may exhibit unusual filing patterns, such as constant zero files during hectic trading periods, prolonged filing delays, and consistent changes to previous filings, which may imply post-factum record alteration. These patterns were frequently associated with fraudulent behavior, the model's most important predictor was filing status.

Gross Tax-to-Sales Ratio (30% importance):

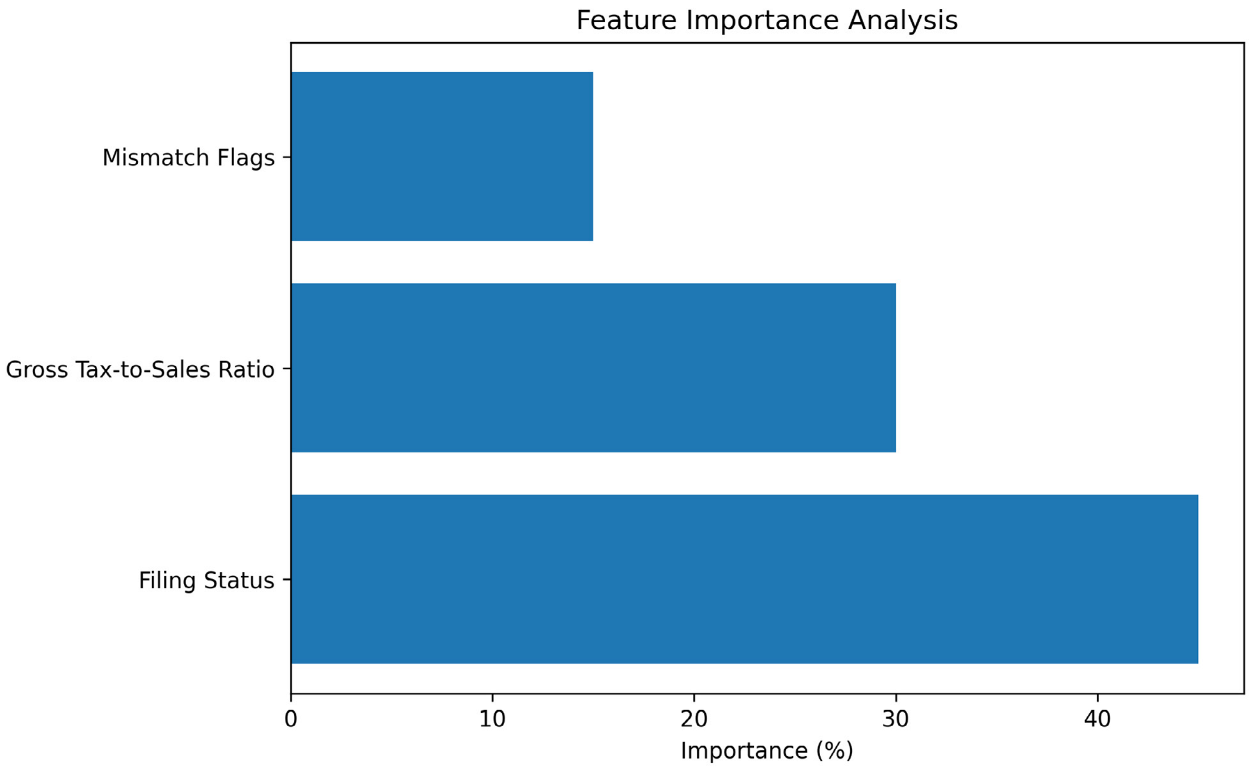
This metric measures the discrepancy between sales numbers and claimed VAT. Dishonest traders typically inflate their input tax claims or understate their sales to decrease their VAT liability.

Using sector-specific thresholds increased the feature's dependability by comparing trader conduct to industry standards. The model improves accuracy by recognizing high-risk scenarios with low tax-to-sales ratios.

Mismatch Flags (15% Importance)

These flags revealed disparities between reported sales and purchases, suggesting tactics to avoid paying VAT. Transactions likely to include misreporting were isolated using threshold-based alerts (such as ±100% mismatches). Given their lower relative value in relation to other features, mismatches appear to be useful secondary indicators when paired with other measures, rather than enough to detect fraud. The XGBoost/Random Forest algorithms successfully used structured tabular data to detect dishonest traders in VAT systems. The outcomes demonstrated the relevance of customizing predictors to the domain context and the worth of rigorous feature engineering. The models emphasized filing patterns and gross tax-to-sales ratios, which were highly connected with real fraud tendencies in VAT systems.

Graph of feature importance 1.0



3.3.2. Graph Model: GNN

Purpose:

The graph neural network (GNN) model attempted to identify high-risk groups of dishonest traders by leveraging network linkages among taxpayers, corporations, directors, and tax agents. In contrast to the tabular model, which focuses on individual-level predictions, the GNN used connections to detect cooperative or systemic fraud patterns in the VAT system.

3.3.2.1. Graph Creation:

1. Nodes:
The graph nodes represented the VAT system's entities, such as Taxpayers (individuals or corporations registered for VAT), Directors are decision-makers who oversee multiple businesses, Companies are liable for paying VAT, and Tax Agents are professionals who handle tax filings for taxpayers.

2. Edges:
Relationships between nodes form edges, which represent various linkages, such as

- Directors and the companies they govern.
- Taxpayers are connected to tax agents who handle their VAT filings.
- Transactions between companies within the supply chain.

3. Node Attributes:
Each node was supplemented with information taken from tabular data, such as

- filing habits and

- industry-specific tax-to-sales ratios.

- Transaction mismatch flags indicate inconsistencies.

Because of this structure, the model was able to assess individual behaviors and how they influenced and interacted with other network components.

3.3.2.2. Training Approach:

The GNN utilized a semi-supervised learning architecture with both identified and unlabeled nodes.

Labeled Nodes: The training data included both compliant and fraudulent traders, which served as learning anchors.

Label Propagation: The GNN distributes fraud risk labels across graph edges by relying on the assumption that related entities with similar behaviors are likely to exchange labels.

For example, a company with connections to multiple dishonest tax collectors or traders is more likely to be fraudulent.

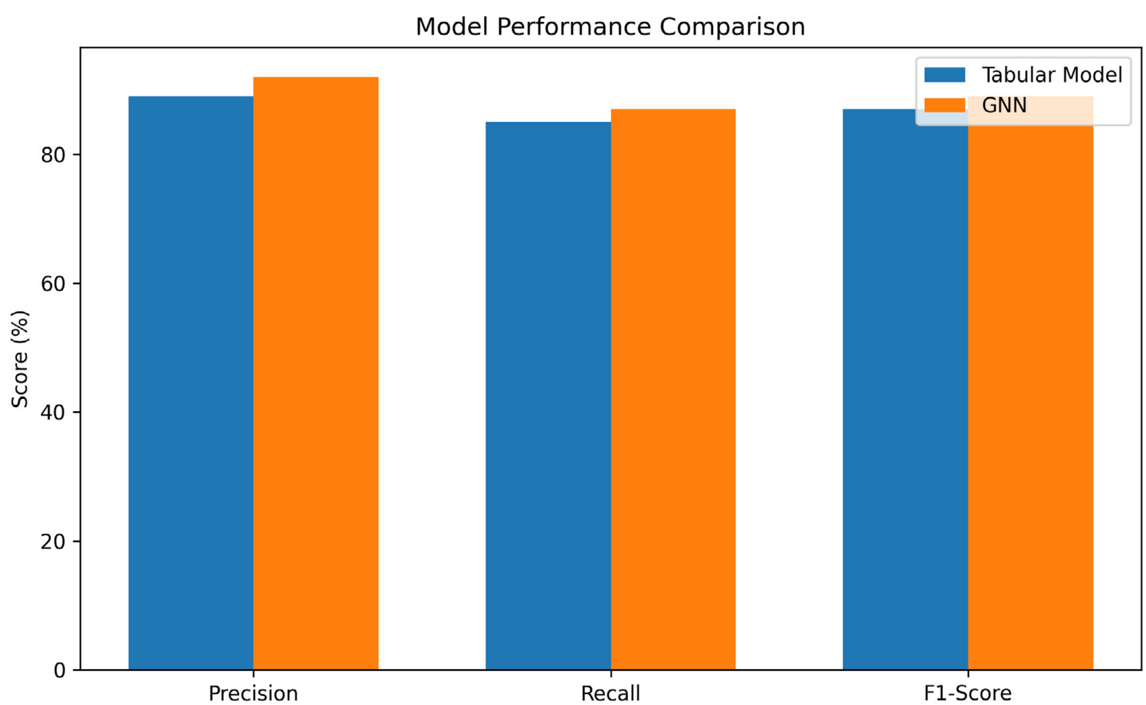
Results:
The GNN's ability to discover hidden correlations and patterns enabled it to outperform the tabular model in key dimensions, most notably precision.

- The GNN outperformed the tabular model with a precision of 92%, indicating its ability to reduce false positives and effectively identify fraudulent entities and clusters.

- Recall rate: 87%, demonstrating accurate detection of fake clusters in complex network configurations.

- The F1-Score of 89% indicates a reliable model for detecting fraud in VAT networks, with a solid balance of recall and precision.

Graph of model performance 1.1



3.3.2.4. Graph Insights:

1. High-Risk Clusters: The GNN identified clusters with high fraud risk, particularly in wholesale trade and construction.

- The construction industry's interconnectedness, including suppliers and subcontractors, led to underreporting and invoice trading.
- Fraudulent traders used the flow of products and services, including tax-exempt commodities, to mask their operations in wholesale trade.

2. Tax agents with excellent connectivity.

Significant risk indicators were discovered in tax agents representing more than five warned taxpayers.

- By managing filings for multiple organisations involved in collusive schemes, these agents often enabled systemic fraud.
- Middlemen could manipulate filings among related businesses, such as creating fake invoices to claim VAT inputs.

4. DISCUSSIONS

4.1. GNN model

The success of the GNN underscores the importance of using relational data to detect VAT fraud. Although the tabular model was effective in detecting specific fraudulent activities, the graph-based strategy provided additional information by

- Identifying cooperative fraud schemes involving networks of directors, agents, and corporations.
- Identifying industry-specific risks, such as those in wholesale commerce and construction, where complex networks might disguise fraudulent conduct.
- Identifying high-risk intermediaries, such as tax agents with significant ties to identified organisations.

Furthermore, visualising fraud clusters provides valuable data for enforcement and prevention efforts. By incorporating graph-based learning into its detection strategies, the Kenya Revenue Authority can improve its ability to combat VAT fraud, increase revenue collection, and ensure higher VAT compliance.

4.1.1. Ensemble Insights

The ensemble technique used in this study combined the results of the Graph Neural Network (GNN) and the XGBoost/Random Forest (tabular model) to improve the accuracy and reliability of VAT fraud detection.

Combined outputs:

- **Both models flagged taxpayers.**

The tabular and graph-based models prioritised extensive auditing and investigation of taxpayers identified as dishonest. This method guaranteed that resources were dispersed efficiently by focusing on scenarios with significant signs of fraud across both feature types (tabular and relational). Both transactional behaviour patterns (such as filing patterns and VAT ratios) and network links (including ties to high-risk enterprises or tax agents) suggested that these taxpayers were likely involved in systemic fraud.

- **Only one model flagged taxpayers.**

Taxpayers were classified as borderline cases if they were detected by only one of the models. Further analysis was required to determine whether the highlighted status of these organisations was due to noise or potential fraud that the other model had overlooked. More detailed audits, interviews, and verification of transaction data were typically employed to investigate these incidents in greater depth. This technique addressed potential threats while minimising the occurrence of false positives.

4.1.2. Graph Neural Networks and Relational Data Analysis

The study discovered that the hybrid model increased detection accuracy by 6% compared to standalone models by merging the output from the tabular (XGBoost/Random Forest) and graph (GNN) models. This accuracy boost is crucial for tax authorities to prioritise and identify fraud while minimising false positives effectively.

A notable innovation emphasised in the report was the use of Graph Neural Networks (GNNs) to map links between taxpayers, firms, directors, and tax agents. This relational analysis revealed networks of collusive behaviour and widespread deception. For example, directors associated with numerous flagged organisations were identified as key players in coordinated VAT fraud schemes.

Beyond these tabular models, the emergence of Graph Neural Networks (GNNs) marked a substantial technological advance. By mapping relationships between directors, corporations, and tax agents, the GNN discovered interconnected clusters of fraudulent entities, networks of enterprises and individuals engaged in collusive VAT fraud (Baghdasaryan et al., 2022).

As attackers adapt their methods across accounts, devices, merchants, and networks, real-time fraud detection must strike a compromise between accuracy and millisecond-level latency.

4.2. Sectorial Analysis

Understanding how different industries demonstrated distinct patterns of VAT compliance and fraud was an essential aspect of the research. This analysis enabled the implementation of more targeted controls by identifying the sectors of the economy with the highest fraud risk.

4.2.1. Gross Tax-to-Sales Ratio:

Median sectoral thresholds

The study used statistical analysis to get the median gross tax-to-sales ratios in each sector. These limits detected outliers, or taxpayers with ratios significantly below the sector median.

Low gross tax-to-sales ratios were particularly prevalent among taxpayers in businesses such as manufacturing and retailing. Due to the nature of their transactions and high turnover, many businesses are susceptible to VAT fraud.

Taxpayers with low gross tax-to-sales ratios deviated significantly from industry standards

Given that enterprises that underreport sales or inflate their input VAT claims commonly show differences between their sales and tax obligations, this pattern was a significant indicator of potential fraud. To avoid leaving an audit trail, retail businesses, for example, may undertake cash transactions, lowering the apparent tax burden on sales.

4.2.2. Input-to-Output VAT Ratio:

Includes zero-rated and exempt supplies. It was observed that several industries had excessively high input-to-output VAT ratios, which compare the VAT paid on purchases (input VAT) to the VAT received on sales. Some businesses overstated their input VAT by taking advantage of the zero-rated and exempt supplier provisions. As a result, they could receive disproportionate VAT refunds without engaging in a taxable transaction. According to the study, taxpayers caught in fraud usually had abnormal input-to-output ratios compared to industry standards and higher-than-expected refund claims for sales.

Taxpayers in industries with complex VAT statuses and high transaction volumes, such as wholesale trade or construction, often inflate their input-to-output VAT ratios. These industries were especially vulnerable to VAT fraud because they had the potential to overstate inputs or incorrectly designate exempt suppliers, which could be used to receive larger refunds than justified.

4.3. Replicability and Policy Implications

The effectiveness of Kenya's IT-based fraud detection strategy teaches vital lessons to other tax administrations, particularly those in developing economies. The hybrid machine learning system can be applied to other jurisdictions with digital tax infrastructures. Tax authorities can utilise graph databases, such as Neo4j, to monitor taxpayer, director, and agent relationships in real-time.

From a policy perspective, integrating IT systems promotes institutional development by enhancing accountability, improving data governance, and fostering interdepartmental collaboration. The use of IT technologies reduces human bias in audits, promotes uniformity in enforcement, and facilitates increased revenue mobilisation. Alsadhan (2023) notes that risk-based audit procedures based on machine learning are cost-effective and can significantly enhance overall tax compliance.

Intelligent systems use self-adjusting and self-learning characteristics to automate a wide range of applications. Such systems have recently been extensively investigated across various disciplines and have been shown to accomplish a given task more reliably and efficiently than conventional ones, while also adhering to legal and normative constraints. Intelligent systems, which have the potential to win a limited method eventually, have already transformed various sectors, including facial recognition, automotive driving, and gaming (Pamisetty, 2020).

In a nutshell, effective machine learning (ML) implementation requires a strong technical foundation based on fundamental data structures like tensors and DataFrames, supported by a minimal digital infrastructure consisting of scalable compute (GPUs/TPUs), storage, and MLOps platforms for deployment and monitoring. At the same time, these technical requirements must be governed by crucial institutional reforms, such as clear legal frameworks, data governance policies, cross-functional collaboration, and ethical review procedures to ensure responsible and efficient integration.

4.4. Institutional Impact and IT-Driven Efficiency

A hybrid ensemble model incorporating GNN and XGBoost/Random Forest algorithms had higher precision (92%) and recall (87%), resulting in better audit outcomes. We also found that fraudulent traders frequently demonstrate common characteristics, such as repeated zero files, low gross tax-to-sales ratios, and excessive refund claims, all of which can be recognised automatically by IT-based systems.

Modernising tax administration through the use of information technology (IT) has become crucial for enhancing the operational performance of tax authorities worldwide. Many states' Internal Revenue Services have faced challenges in adopting and implementing information technologies in tax processes, collections, and compliance due to the complexities of these systems, weak tax legislation, and inadequate enforcement, resulting in lower operational performance for state revenue agencies.

The implementation of new IT systems is crucial to the efficiency of tax administration. It illustrates that technological expenditures not only improve internal operations but also increase taxpayer trust and compliance. Improved operational performance and ensured long-term revenue growth by investing in robust digital infrastructure and cybersecurity frameworks to protect taxpayer data, promoting taxpayer education to increase digital literacy and engagement, and strengthening strategic partnerships with technology providers, in addition to regular staff capacity-building initiatives (Olumoh & Sanni, 2025).

The deployment of IT-driven machine learning techniques has resulted in numerous institutional benefits. First, it enables risk-based auditing, in which taxpayers identified as high-risk by machine learning models are prioritised for audits. This improves resource allocation and lowers the compliance burden for honest taxpayers. Second, it promotes data-driven policy formulation by enabling tax authorities to utilise insights from machine learning models to adjust VAT thresholds, refund systems, and compliance methods.

These technological innovations enhance institutional integrity and transparency, as decisions are made based on empirical evidence rather than subjective discretion. Furthermore, IT systems enable continual learning and feedback mechanisms, allowing KRA to remain adaptive in a changing tax environment.

CONCLUSION

The study's findings indicate that integrating information technology, particularly advanced machine learning and graph-based analytics, is beneficial in enhancing VAT fraud detection and improving the performance of tax administration institutions. The use of a hybrid modelling method that combines tabular machine learning algorithms, such as XGBoost and Random Forest, with Graph Neural Networks (GNNs) enhances fraud detection depth, accuracy, and operational efficiency. They are also able to find hidden networks of collusion involving directors, tax agents, and affiliated firms. This is particularly essential in industries such as wholesale trade and construction, where complex supply chains can sometimes conceal fraudulent activity.

Traditional rule-based systems and manual audits are insufficient to deal with the increasingly sophisticated nature of VAT fraud. Machine learning models trained on large datasets from the KRA help detect data fraud. It provides increased prediction capacity by detecting anomalous filing patterns, mismatched transactions, irregular tax-to-sales ratios, and coordinated fraud clusters. The GNN, in particular, is crucial for evaluating relational data, enabling tax authorities to transition from reactive enforcement to intelligence-driven investigations.

In terms of institutional performance, implementing IT fraud detection systems promotes transparency, consistency, and responsibility in tax administration. These solutions facilitate risk-based audits, ensuring that limited enforcement resources are used effectively. These resources can be directed toward legitimately high-risk companies while easing the compliance burden on honest taxpayers. Furthermore, the results of machine learning models can be used to guide policy changes directly. For example, refining VAT refund processes, boosting digital oversight of tax agents, and improving sector-specific compliance tactics.

To integrate ML in fraud detection, it's essential to have a solid digital infrastructure, staff training, and strong data governance frameworks for sustaining technological adoption. As fraudsters continue to adapt and exploit systemic flaws, tax authorities must adopt dynamic, self-learning systems to stay ahead of the curve. This will address emerging patterns of noncompliance and keep the tax authorities ahead with new skills. The successful integration of IT and machine learning into Kenya's VAT administration reflects a broader global trend toward data-driven governance. If adopted regularly, these innovations have the potential to boost tax collection. Moreover, it will strengthen institutional trust and promote long-term economic growth.

Challenges and limitations

There are several challenges experienced, such as Data quality issues that limited the accuracy of the study, including missing values, inconsistent reporting, and incomplete audit records. The inquiry was the imbalance in labeled data fraudulent occurrences, which made up a very minor fraction of the entire dataset. This mismatch necessitated the employment of strict sampling techniques, such as oversampling fraudulent cases or employing specific algorithms like the Synthetic Minority Oversampling Technique (SMOTE).

Inadequate computing resources and a limited ability to support complex models like GNNs were among the other issues caused by infrastructure gaps. It is also necessary to address ethical and legal issues like automated decision-making, taxpayer profiling, and data privacy. Lastly, the integration of cutting-edge fraud detection technologies in tax administration may be slowed by resistance to IT adoption, which is motivated by operational and cultural reluctance.

RECOMMENDATIONS

Fraud detection capabilities can be significantly improved by incorporating the XGBoost/Random Forest and GNN ensemble into regular compliance monitoring. This hybrid technique utilizes relational and structured data to capture systemic hazards and individual anomalies. To support proactive interventions, the Kenya Revenue Authority (KRA) might incorporate this model into its current compliance systems and flag questionable taxpayers in real time.

The model's performance can be improved by adding more features like cash flow trends, seasonal patterns, and inventory turnover rates. These factors could offer more information about taxpayers' behavior, especially when spotting minute irregularities in financial reporting. Furthermore, the hybrid model's applicability would be expanded by extending it to additional geographies and compliance areas, like income tax and customs taxes. This expansion would determine possible enhancements for cross-jurisdictional fraud detection and evaluate the model's flexibility in various regulatory contexts.

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Context Awareness in Tax Administration: Empirical Evidence from the Official Gazette of the Federation (DOF) 2000–2025 and a Proposal for Contextual Management

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SYNOPSIS

This article examines the need to incorporate context-aware mechanisms into tax administration systems, supported by an empirical study of the Official Gazette of the Federation (DOF) between 2000 and 2025 that quantifies the frequency of regulatory changes. It argues that the highly dynamics regulatory change compromises the accuracy of static machine learning models and jeopardizes tax operations. Based on the findings, a contextual management framework (comprising minimum table modeling, operational workflow, and traceability policies) is proposed, and the organizational implications, benefits, and limitations of its adoption are discussed.

KEYWORDS: Context Awareness, Tax Administration, Regulatory Dynamics, Contextual Management, Digital Transformation

CONTENTS

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INTRODUCTION

The rapid deployment of artificial intelligence-based tools (AI) has highlighted the inadequacy of rigid systems when operating in highly dynamic regulatory environments. In tax administration, frequent legislative reforms, repeals, and additions can undermine the validity of processes, business rules, and predictive models built on historical data.

Furthermore, as part of ongoing digital transformation efforts in the public sector, tax authorities are continuously adopting digital technologies to increase internal efficiency. These technologies create opportunities that reduce administrative burdens and improve institutional performance.

According to Cerda (2020), the challenges posed by the use of disruptive technologies such as artificial intelligence are not limited to tax administration but extend to society. In this regard, countries, international organizations, companies, and governments are implementing policies and/or strategies aimed at evaluating the integration of these technologies into everyday activities, with the primary objective of establishing rules or principles that ensure their safe and beneficial use.

This article argues for the implementation of a context-aware approach as a necessary condition for increasing the adaptability of tax administration systems. Such systems must be capable of recognizing and using contextual information in order to maintain operational accuracy, regulatory consistency, and historical traceability in evolving regulatory environments. To support this argument, empirical evidence drawn from the Official Gazette of the Federation (DOF) for the period 2000–2025 is presented. In addition, a simplified data model and operational workflow are proposed to illustrate how contextual information can be incorporated into tax administration systems.

1. ORIGIN AND DEFINITION OF CONTEXT AWARENESS

Context-aware systems aim to provide relevant contextual information to the right user at the right time. These systems follow a context management lifecycle, beginning with context acquisition triggered by an event, followed by analysis and interpretation. Contextual models and reasoning mechanisms are then employed to support appropriate decisions-making, thereby modifying the system's behavior according to the user's situation.

Context-aware systems constitute an approach to application development that provide relevant services to users according to their needs at the appropriate time and place. These types of systems are known for their flexibility, adaptability, and ability to operate automatically in response to users. The concept of "context," as a parameter of context-aware systems, is fundamental, as it provides information about an entity. An entity is a person, a place, or an object considered relevant to the interaction between a user and an application.

The term "context awareness" emerged with the advent of ubiquitous computing and mobility; the central idea lies in the fact that computer systems perform better when they understand the situation in which they are used, rather than behaving identically in response to any input; a context-aware system incorporates information from the environment—such as the date, location, user profile, status of a process, or applicable legal provision—and adjusts its behavior to deliver more relevant and timely results. This adaptation is not a superficial adjustment, but rather a paradigm shift in which the value of an automated action depends as much on the logic that generates it as on the context that triggers it.

In practical terms, the process can be understood as a chain of interconnected activities. First comes capture: the system collects signals and data from various sources, which may include official publications, file metadata, sensor inputs, activity logs, or relevant dates. This stage requires robust ingestion mechanisms that not only download documents but also record essential metadata (publication date, issuer, official identifier) and ensure the integrity of the captured data through simple techniques such as document hashing or references to the official source. Next comes organization: the captured information is structured and stored to enable reliable queries over time; this includes versioning (which version of the regulation corresponds to each period), grouping by articles or sections, and linking to operational entities (regional administrations, taxpayer types, economic sectors). Organizing the context is not just about sorting files, but about building a representation that allows us to answer practical questions such as "Which regulation applied to 'x' taxpayer on March 30, 2024?"

The next step is decision-making: based on the organized information, the system applies criteria or rules that translate data into actions. These rules can be simple, for example, issuing an alert when a regulation's effective date changes—or more complex, such as combining sector-specific criteria and economic thresholds to estimate an operational impact. The decision-making process also incorporates governance requirements: not all signals trigger automatic actions; many situations require a confidence threshold or validation by a legal expert before implementation.

Finally, the action phase executes the selected response: This may involve sending notifications to the responsible units, generating information packages for affected taxpayers, updating parameters in calculation systems, or identifying predictive models that require retraining. Every action should record the contextual information used and the identity of the person who validated the decision, thereby ensuring complete traceability.

In summary: Capture → Organization → Decision-Making → Action → Traceability

2. WHY IS CONTEXT AWARENESS IMPORTANT IN TAX ADMINISTRATION?

In the tax sphere, the importance of context-aware systems manifests itself on various fronts that impact operational accuracy, risk management, and administrative legitimacy. First, regulatory dynamics pose an ongoing challenge: laws, decrees, agreements, and resolutions are frequently issued, amended, and repealed; this regulatory volatility causes automated procedures to become quickly misaligned with the applicable legal framework. When a system fails to distinguish between a provision that is currently in force and one that has been superseded, the likelihood of calculation errors in tax returns and assessments increases, as does the risk of erroneous communications to taxpayers and administrative processes requiring retroactive correction; such errors not only generate operational costs but can also give rise to penalties, disputes, claims, and diminished public trust.

Second, automated processes, as well as analytical models, suffer from a specific vulnerability: conceptual drift. Models for risk detection, classification of tax obligations, or compliance estimation are trained using historical data in which the relationship between variables and outcomes reflects a specific regulatory framework. If the semantics of key variables change, for example, through changes in tax rates, the introduction or elimination of exemptions, or the modification of statutory deadlines—the relationship learned by the models ceases to be representative, and their performance declines. Integrating the regulatory version as an operational signal helps mitigate this phenomenon, allowing inferences to be conditioned according to the applicable regulation, triggering automatic retraining processes, or suspending automated decisions until human validation is obtained. In this way, the system not only detects technical anomalies but also contextualizes the reason for the change in prediction and facilitates timely and targeted interventions.

A third dimension relates to operational prioritization. Not all regulatory changes have the same scope or the same compliance costs; some affect a small number of cases, while others affect entire sectors or operations with a high economic impact. A context-aware approach that evaluates the scope and criticality of regulatory changes, considering variables such as the number of affected taxpayers, economic significance, and interpretative complexity—allows the administration to focus human and technical resources on what truly requires immediate attention. This reduces response times, optimizes the allocation of legal and customer service teams, and transforms regulatory updates into a phased process where low-risk changes are automated with minimal controls, while high-risk changes undergo specialized review.

Traceability is another central and particularly valuable aspect in tax matters. Explicitly recording the regulation consulted, the version applied, the input data in the automated decision-making process, and the individuals or processes responsible for validating the action is essential for substantiating administrative decisions, addressing audits, and defending actions against taxpayers or in court. This ability to reconstruct the historical record reduces litigation because it allows for the presentation of a chain of evidence (publication dates, effective dates, hash or official reference of the text, decision log) that explains why an action was taken at a specific time. Traceability not only protects the administration but also provides legal certainty to taxpayers by making the applied criteria transparent.

Finally, it is crucial to emphasize that context awareness does not replace legal interpretation or the professional responsibility of legal staff. Its value lies in serving as a structured framework that improves the speed, consistency, and defensibility of tax-related decisions. By combining reliable rule ingestion, version control, prioritization criteria, and document traceability, context-aware systems transform scattered data into operational knowledge that supports administrative decision-making, reduce compliance risks, and strengthen institutional transparency.

3. EMPIRICAL STUDY: DOF 2000–2025

3.1. Data Collection Methodology and Counting Criteria

The methodological strategy consisted of systematically extracting records published in the Official Gazette of the Federation (DOF) during the period from 2000 to 2025, limiting the search exclusively to regulatory acts issued by the Ministry of Finance and Public Credit (SHCP). The inclusion criterion focused on tax provisions involving amendments, repeals, additions, or corrections.

To ensure the statistical consistency of the analysis, a distinction was made between amendments and those involving repeals, additions, or corrections. However, it was observed that the latter tend to appear together in official records, which justified grouping them into a single search category. This methodological decision reduces data dispersion and facilitates the construction of comparable time-series of data comparable over time, ensuring greater robustness in trend estimation.

The application of these counting criteria enables a longitudinal analysis of legislative activity, allowing the calculation of indicators such as the annual frequency of changes, year-over-year variability, and the relative proportion of each type of legislative act. In this way, a solid statistical foundation is established for evaluating the evolution of tax legislation and its degree of regulatory stability over the course of a quarter-century.

3.2. Key Findings

- The statistical analysis conducted identified significant differences between the datasets obtained from the defined searches. Search “A,” focused exclusively on regulatory amendments, yielded a total of 1,212 records, while search “B,” which included repeals, additions, or corrections, yielded 953 records. This initial analysis shows that amendments constitute a slightly larger proportion of the regulatory universe analyzed.

- When refining search “A,” it becomes apparent that the most significant changes are concentrated in provisions related to the Miscellaneous Tax Resolution, which reduces the initial set to 534 records. This finding suggests that tax regulations represent a particularly significant component in the amendment process (see Figure 3.2.1). In contrast, search “B” is narrowed to 393 records by retaining only those that contain an explicit reference to “Law” (Figure 3.2.2).

- The consistency analysis revealed that, within search “A,” only one record fell outside the expected limits, as shown in Figure 3.2.3. Although this represents a marginal anomaly, this finding is relevant for validating data quality and the reliability of the analysis. Subsequently, upon restructuring the data (Figure 3.2.4), the annual average number of regulatory changes was estimated at 33.6 ± 15.2, reflecting considerable variability in the frequency of changes.

- The variation observed in the annual figures indicates that, while there are periods of greater regulatory activity, the overall trend shows a gradual decline in recent years. This pattern can be interpreted as a process of regulatory stabilization, in which the number of amendments tends to decrease, possibly due to the consolidation of more robust legal frameworks or a reduced need for recurring adjustments. From a statistical perspective, the relatively wide standard deviation shows that regulatory activity is not uniform and that there are peaks in amendments that correspond to specific circumstances.

- In summary, the results obtained lead to the conclusion that regulatory activity exhibits different patterns depending on the type of search, with a greater emphasis on tax amendments and a downward trend in the total volume of changes. This analysis not only provides quantitative evidence on regulatory developments but also creates opportunities for further research into external factors that may explain the observed variability, such as changes in public policy, economic adjustments, or structural reform processes.

Chart 3.2.1.
DOF records for the 2000–2025 period, searching for miscellaneous tax provisions

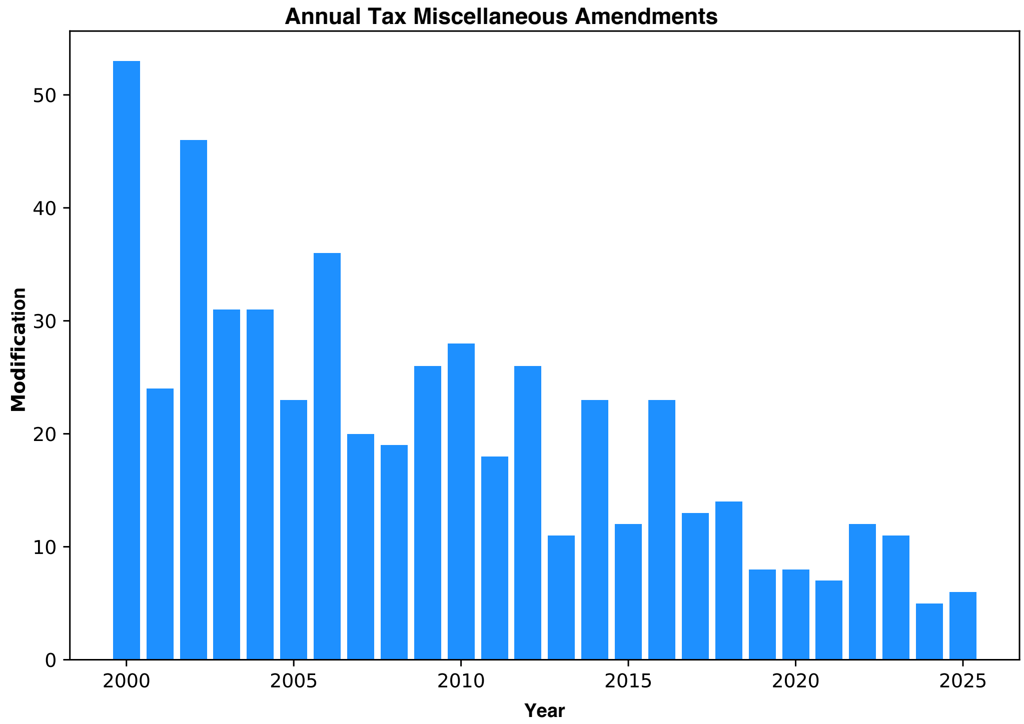


Chart 3.2.2.
DOF records from 2000–2025, searching for laws that are added, amended, or repealed

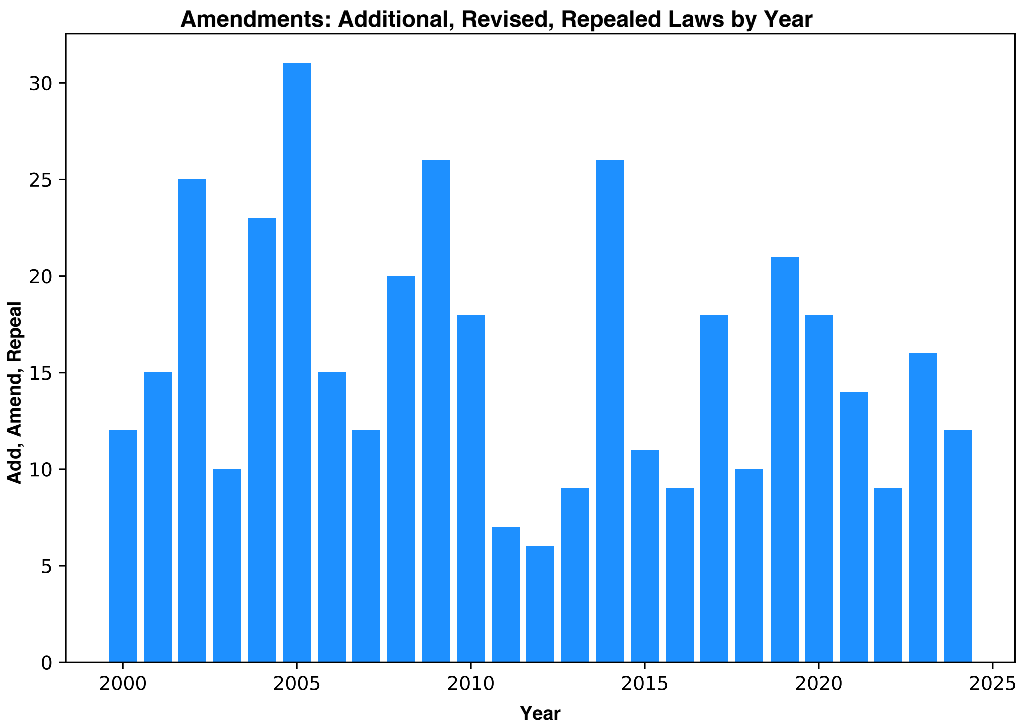


Chart 3.2.3.
Box plot of annual DOF records from 2000 to 2025 by search type

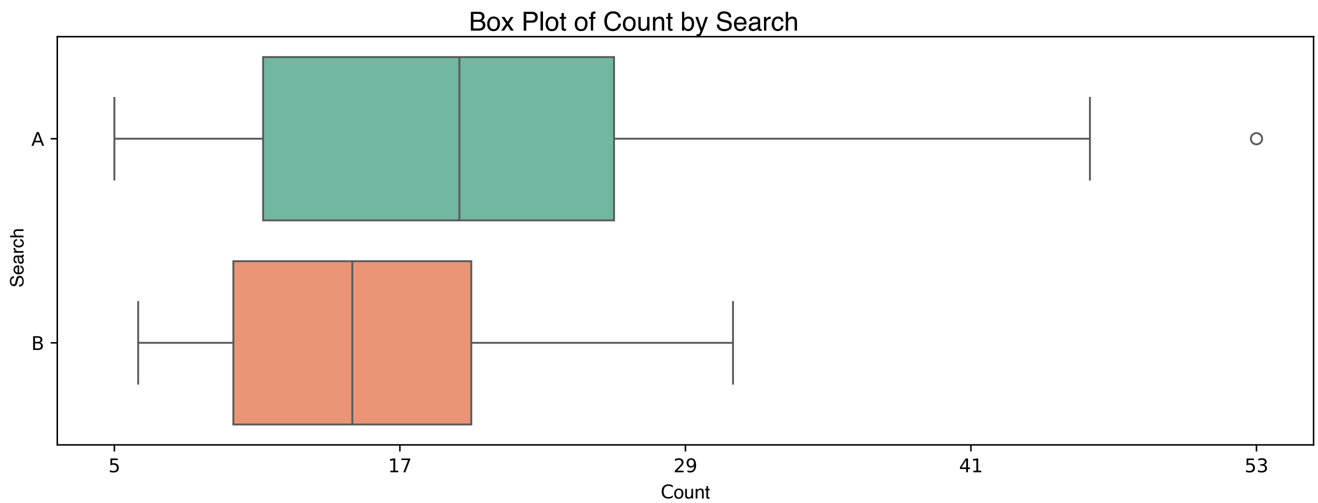
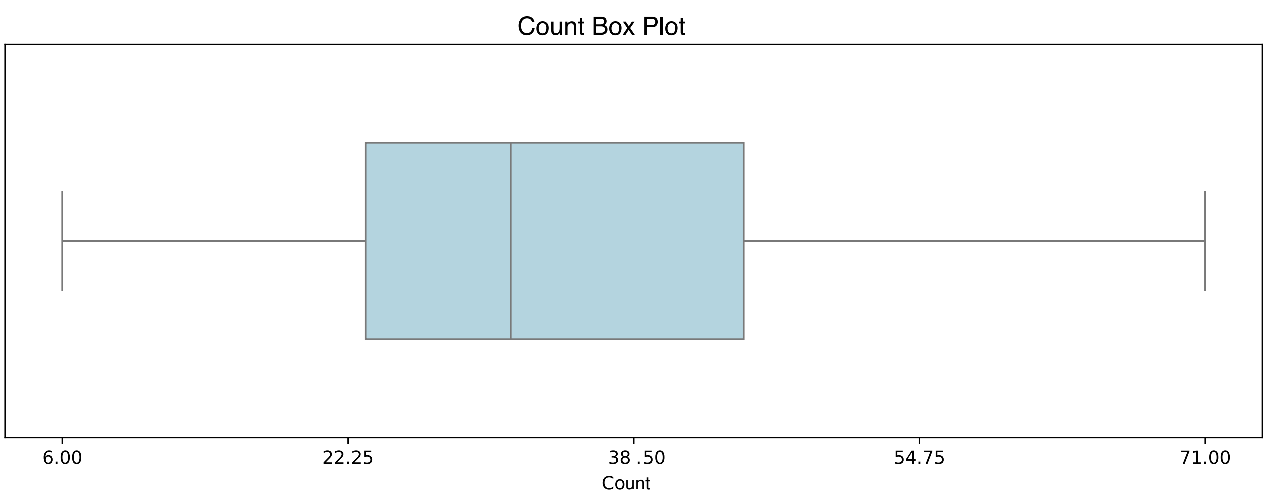


Chart 3.2.4.
Box plot of annual changes to the DOF from 2000 to 2025, adjusted for methodological criteria



4. FUNCTIONAL REQUIREMENTS AND DATA PROPOSAL (MINIMUM SETUP)

4.1. Suggested Tables and Rationale

Below is a proposed minimum set of relational tables that allow taxpayers to be linked to regulations and time periods, preserve regulatory versions, and activate impact rules. Each table includes recommended fields and a brief explanation.

Table 1

Taxpayer (suggested structure)

field	type	Description
taxpayer_id	UUID / INT	Unique taxpayer identifier
name	VARCHAR	Name or business name
RFC_ID / ID_number	VARCHAR	National tax ID number
type	VARCHAR	Individual / Legal entity
location	VARCHAR	Primary administrative jurisdiction
contact	JSON	Relevant contact information (email, phone)
registration_date	DATE	Date of registration in the system

Justification: Unambiguously identifying each taxpayer makes it possible to link regulatory events to specific impacts and to segment notifications and analyses according to sector, jurisdiction, or taxpayer category.

Table 2

Regulations (suggested structure)

field	type	Description
regulation_id	UUID / INT	Unique identifier of the regulation
title	VARCHAR	Official title of the legal provision
issuer	VARCHAR	Issuing authority (e.g., Official Gazette)
publication_date	DATE	Official publication date
effective_date	DATE	Date the regulation takes effect
repeal_date	DATE NULLABLE	If applicable, date of repeal or expiration
version	INT	Version number reflecting subsequent amendments or interpretive changes
pdf_reference	VARCHAR	Public URL to the official PDF in the DOF (e.g., https://dof.gob.mx/…/documento.pdf)
document_hash	VARCHAR NULLABLE	PDF hash when available (SHA-256 recommended)
raw_text	TEXT / BLOB	Captured text (OCR or source)
metadata	JSON	Articles, sections, cross-references
validation_status	ENUM	pending / legally validated / rejected

Justification: Preserving the text, its hash, and metadata facilitates the reconstruction of the historical regulatory timeline, validation of document integrity, and automation of regulatory mappings. The distinction between automatically processed content and legally validated content supports governance and quality control.

Table 3
Impact Rules (Suggested Outline)

field	type	Description
rule_id	UUID / INT	Unique identifier of the impact rule
standard_id	FK normas.id_norma	Associated regulation (may be linked to multiple articles or sections)
article_id	VARCHAR	Identifier of the affected article/section
impact_description	TEXT	Text describing the operational consequence
issue_date	DATE	Date the impact rule was created
effective_from	DATE	Effective date of the rule
effective_until	DATE NULLABLE	End date, if applicable
severity_level	ENUM	low / medium / high
recommended_action	TEXT	Ex.: update rate; send notification; suspend calculation process
automation_allowed	BOOLEAN	Whether the action can be executed automatically
responsible_person	VARCHAR	Unit/person assigned to review
version_log	JSON	Rule change history (user, timestamp)

Justification: serve as a bridge between regulatory provisions and operational actions. They enable prioritization, automation, and escalation according to criticality and the affected population segment. Maintaining versions histories and identifying the person responsible strengthens governance, accountability, and auditing.

4.2. Basic Operational Workflow

The proposed operational workflow describes the cycle from the capture of a regulatory publication through to its implementation and final logging. It is designed to ensure rapid detection and robust governance.

1. **Capture and Initial Ingestion**. The official publication is automatically imported (via scraper, Official Gazette API, or manual upload). It is stored in "normas.texto_raw", and "normas.hash_documento" is calculated. Basic metadata (publication_date, issuer) is recorded. The initial record is set to "validation_status" = "pending".

2. **Preprocessing and Structured Extraction**. The text is processed to extract articles, dates, and references; the result is saved in *normas.metadatos*. A draft set of *reglas_impacto* is automatically generated by mapping articles to operational impacts using templates and lexical matches (e.g., detection of terms such as "rate," "exemption," "deadline").

3. **Legal Validation and Enrichment**. A legal analyst reviews the data, corrects OCR/extraction errors, and validates or adjusts the proposed impact_rules. Upon validation, the validation status of the rules is updated to "legally validated," and the rule is versioned (the version field in impact rule is incremented). Accepted rules are assigned to a responsible person and a final criticality level.

4. **Prioritization and Operational Allocation**. The system calculates an impact score by combining severity level, segment scope, and the estimated number of taxpayers affected (by cross-referencing taxpayer table with segment scope). Tasks are prioritized, and internal notifications are generated for the responsible units.

5. **Execution of Actions and Controlled Automation**. Depending on the "automation_allowed" flag in "impact_rules", automatic actions are executed or tasks are created for human review. All actions are recorded in audit logs with references to "regulation_id", "rule_id", and the version applied.

6. **Monitoring and Feedback**. Operational metrics are monitored (including ingestion latency, legal validation time, post-application error detection rate). If deviations or failures are observed in predictive models, a retraining or manual review process is triggered and documented in the "version_log" of "Impact_rule".

7. **Archiving and Historical Traceability**. The regulation, along with its versions, the impact rules applied, and the action logs, is retained for audit and compliance purposes. Any future inquiries regarding past decisions can be reconstructed.

4.3. Data Traceability and Governance

To ensure that the system is dependable and legally defensible, traceability and governance must be built since the beginning of the design. Essential components and best practices are described below.

- **Immutable and Versioned Record**

Every standard and every impact rule must have an immutable identifier and be preserved in a way that allows historical reconstruction. The use of hashes verifies the integrity of the original text; versioning (version, log_version) tracks changes and who made them. Never overwrite the historical record without preserving the previous version.

- **Minimum Required Metadata**

Every regulatory record must include publication_date, effective_date, issuer, and official reference. Impact_rules must store responsible party, criticality level, and automation allowed. This metadata is necessary for auditing decisions and enforcing escalation policies.

- **Audit and event logging.**

Every automated or manual action resulting from a rule must record these items: user ID (or system ID), timestamp, regulation ID and version, rule ID, relevant input data, and the result of the action. These "event logs" make it possible to reconstruct the causal chain and are essential in audit or litigation processes.

- **Validation and Quality Control Policies**

Define clear procedures for legal validation, extraction testing (including random sampling of automated ingestion), and confidence thresholds that determine whether a rule is automated. Establish legal acceptance checklists before authorizing automation in high-impact cases.

- **Data Retention, Access, and Protection**

Establish retention policies for regulatory documents and logs in accordance with legal requirements. Control access through granular permissions and maintain audit trails of access to sensitive data. Protect data in transit and at rest (e.g. TLS, database encryption, and backup controls).

- **Contingencies and Rollback procedures**

Design procedures to reverse automatic changes when an error is detected (for example, parameter rollback and corrective notifications). These procedures must allow the previous state to be restored and the corrective actions to be communicated to the affected parties.

- **Compliance and External Audit**

Prepare periodic reports documenting processes, metrics, and controls for internal inspections or external audits. Maintain verifiable evidence of compliance with applicable transparency and data protection standards.

5. BENEFITS, RISKS, LIMITATIONS, AND INSTITUTIONAL CONSIDERATIONS

Benefits

The incorporation of context-aware mechanisms provides operational and governance benefits. Operationally, these mechanisms reduce errors resulting from the application of outdated standards, speeds up the identification of relevant changes, and improves resource prioritization, leading to more efficient management and lower correction costs. From the perspective of taxpayer service, segmented communications increase the relevance of the information provided to taxpayers and reduce informational noise. In terms of legitimacy and compliance, robust traceability, and the ability to reconstruct historical decisions strengthen administrative defense and institutional credibility.

Risks

There are technical, legal, and organizational risks that must be recognized and managed. Technically, automated text extraction and interpretation can produce errors (false positives/negatives) that, if automated without controls, have tangible consequences for taxpayers. Legally, automating interpretive criteria without proper validation could lead to decisions contrary to the intent of the law or to violations of procedural rights. Organizationally, excessive reliance on automation can erode internal capabilities—for example, a loss of practical legal experience if everything is delegated to the system—and generate accountability issues if responsibilities are not clearly assigned.

Limitations

Despite its benefits, the use of context-aware mechanisms has limitations that must be considered in institutional design.

First, their effectiveness depends on the availability of high-quality data: if the contextual information is incomplete, outdated, or biased, the inferences generated may lead to erroneous decisions.

Second, semantic limitations: systems may have difficulty grasping interpretive nuances or regulatory exceptions, especially in complex legal contexts.

Third, scalability may be constrained, as model performance can deteriorate when the volume of data or the diversity of operational scenarios increases, leading to consistency issues.

Fourth, ethical and transparency concerns must be considered, as the opacity of contextualization algorithms can hinder accountability and external validation of automated decisions.

Finally, the increased costs associated with higher computational capacity must be acknowledged, since implementing advanced architectures often requires significant investments in technological infrastructure, maintenance, and energy consumption, which can place pressures on institutional budgets and affect the system's long-term sustainability.

Institutional Considerations

To maximize benefits and mitigate risks, clear policies and institutional structures are required.

First, policy governing levels of automation should be established, defining which actions may be executed automatically, which require prior validation, and which serve solely as recommendations.

Second, responsible roles and committees should be created for data ingestion, legal review, operations, auditing, and data governance, with clearly defined mandates and Service-level agreements (SLAs).

Third, quality controls should be established for data capture and extraction (including validation sampling, regression testing, and performance metrics) and supported by a contingency plan addressing system failures (rollback procedures, internal communication, and corrective actions).

Fourth, legal liability frameworks and documentation protocols should be defined to specify how automated decisions are justified and who is held accountable for errors. Finally, institutions should invest in continuous training to ensure that legal and operational personnel can understand, monitor, and improve automated mechanisms, while retaining professional judgment in the most sensitive and consequential cases.

CONCLUSIONS AND RECOMMENDATIONS

The incorporation of context awareness into tax administration is not merely a technological improvement: it is an organizational transformation that enables more accurate, transparent, and defensible decision-making in the face of increasingly dynamics regulatory environments.

By integrating canonical references, versioning, impact rules, and traceability, the administration can reduce operational errors, mitigate predictive model drift, and improves communication with taxpayers.

A design that combines a centralized context infrastructure with specialized agents facilitates scalability, resilience, and clear accountability across administrative functions.

When implemented with appropriate controls, governance, and transparency safeguard, context awareness strengthens the tax administration's ability to respond rapidly, consistently and legitimately to regulatory changes.

The practical priority is to begin with a limited scope, learn rapidly from the pilot implementations, and scale progressively while maintaining the legal and operational safeguards that protect both the institution and taxpayers.

The empirical evidence presented in this study suggests that regulatory change is not an exceptional event but a permanent characteristic of contemporary tax systems. Consequently, tax administrations should move from static compliance architectures toward context-aware operational models capable of adapting continuously to legislative and regulatory developments.

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How the Brazilian Federal Revenue Service's New Service Model Came to Be: A Case Study of the Pilot Project for Consumption Tax Reform

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SYNOPSIS

This article explores the transformation of the taxpayer service at the Brazilian Federal Revenue Service (Receita Federal do Brasil- RFB) in the context of the Pilot Project for Consumption Tax Reform (RTC). Its objective is to analyze the resulting gains in efficiency arising from technological integration, process redesign and simplification, and knowledge development. The methodology included a regulatory analysis, an examination of internal data, and a study of the stages of the Pilot Project. The results indicate progress in tax simplification and cost reduction for taxpayers. In conclusion, it is evident that the change is structural, ushering in a new paradigm for the relationship between the tax authority and society, focused on transparency and compliance.

KEYWORDS: Consumption Tax Reform (RTC), RTC Pilot Project, Taxpayer Service, Training.

CONTENTS

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INTRODUCTION

The Consumption Tax Reform (RTC) represents one of the most significant advances in the modernization of the Brazilian tax system. By proposing the replacement of cumulative taxes with a model based on the Value-Added Tax (VAT), the reform seeks to simplify processes, reduce compliance costs, and promote greater transparency in the relationship between the tax authorities and society. This transformation is not limited to the regulatory aspect: it requires a profound technological and operational restructuring capable of supporting a new paradigm for tax collection and taxpayer service.

In this context, the RTC Pilot Project emerges as a strategic initiative to validate digital solutions and procedures prior to full-scale implementation. More than just a testing environment, the pilot represents a space for collaborative development space, involving companies from various sectors and teams from the Federal Revenue Service in the design of innovative workflows, tools, and practices. This article presents the institution's experience in creating the new service model, highlighting the challenges faced, the solutions adopted, and the results obtained, demonstrating how the integration of technology and management can redefine the taxpayer experience.

1. CONSUMPTION TAX REFORM IN BRAZIL

Constitutional Amendment No. 132/2023 ushers in a new era in Brazilian taxation. This change represents one of the most far-reaching and ambitious reforms to the national tax system since the 1988 Constitution. After decades of debate, fragmented proposals, and political resistance, Brazil is finally moving forward to replace a chaotic and cumulative tax model with a more rational and transparent system, aligned with international best practices.

The complexity of the Brazilian tax system has deep historical and legal roots, with its design dating back to the enactment of the National Tax Code (CTN) through Law No. 5,172/1966. Although the CTN established fundamental principles for taxation in the country, its implementation has been accompanied by a proliferation of legal and sub-legal regulations, as well as special regimes, which has often led to divergent interpretations among federal entities.

Within this legal and tax framework, the Consumption Tax Reform (RTC) has emerged, introducing a series of structural changes aimed at simplifying and modernizing the Brazilian tax system. One of the most notable aspects is the creation of the Value-Added Tax (VAT), which will apply to the consumption of goods and services and will be levied only to the value added at each stage of production or service provision.

In Brazil, the application of VAT will be dual, encompassing two distinct taxes administered by different levels of government, as we will detail in this paper.

1.1. Structure of the reform: CBS, IBS and IS

The RTC proposes the creation of two taxes to replace the current consumption taxes:

- CBS (Contribution on Goods and Services): a contribution tax under the jurisdiction of the Union intended to replace the PIS and Cofins[1].

- IBS (Tax on Goods and Services): a tax shared among the states, the Federal District, and the municipalities, intended to replace the ICMS and ISS[2].

1 PIS – Social Integration Program and Cofins – Contribution for the Financing of Social Security.

2 ICMS – Tax on the Circulation of Goods and Services and ISS – Services Tax.

In addition to the creation of the CBS and the IBS, the Imposto Seletivo (IS) will be instituted. Popularly known as the "Sin Tax," this tax aims to discourage the consumption of products and services that are harmful to health and the environment.

1.2. Key Benefits of RTC

The new tax system offers clear benefits to society. It is based on principles that prioritize taxpayers and Brazilian society.

One of the fundamental pillars of RTC is simplicity. The laws governing the ICMS (a state-administered tax) and the ISS (a municipally administered tax) will be consolidated into a single IBS law, thereby reducing the current complexity. The same will apply to the CBS, which consolidates the PIS and Cofins.

It is also worth highlighting the transparency of the tax process, as the tax amount will be clearly indicated on tax documents, making it easier for taxpayers to understand what they are paying.

It is important to note that RTC will bring about greater tax equity, since the tax will be levied at the destination (where the product is consumed) rather than at the source (where it is produced). The new legislation also provides for exemptions on basic food basket items and the refund of a portion of taxes to low-income families (cashback).

The new tax rules will reduce the so-called "tax war" between states and improve the relationship between governments and taxpayers. Consequently, the relationship between government entities, as well as between taxpayers and tax authorities, will be based on cooperation.

Finally, it is important to highlight the focus on sustainability. The IS will impose higher rates on products that harm human health or the environment, thereby discouraging their consumption and production.

1.3. The Transition of Tax Systems

The transition from the current tax system to the new one will be gradual, beginning in 2026 and reaching full implementation only in 2033. The year 2026 will be devoted to calibrating tax rates and testing the systems. During this period, taxes will not be collected; they will only be indicated on tax documents.

The transition period is important for society, as it aims to fine-tune tax rates, make the necessary adjustments to maintain revenue levels, implement new systems, and allow for a gradual adjustment of prices.

2. RTC PILOT PROJECT

It is extremely important to note that the changes will not only affect the taxes that will become part of Brazilian taxpayers' daily routine. An innovative digital ecosystem is being developed to ensure the proper functioning of the new tax calculation and payment system. The Tax Reform has provided an opportunity to change the current logic of self-assessment system[3]. Under the current system, taxpayers conduct their economic and legal transactions, make purchases and sales, calculate the amounts owed for these activities, identify the applicable taxes, file their returns, and thereby establish their tax liabilities through self-declaration. Only after completing all these phases—which together constitute the establishment of the tax liability—does the tax payment stage begin.

3 "Assessment by approval" ("in Portuguese: lançamento por homologação"), also known as "self-assessment," is a concept in Brazilian tax law set forth in Article 150 of Law No. 5,172/1966 (CTN), which is characterized by placing the responsibility for calculating and paying the tax on the taxpayer, with the tax authority responsible for the subsequent verification and approval (express or tacit) of such actions.

With the RTC, it will be possible to streamline all these steps, even exempting the taxpayer from performing many of them. The taxpayer's main concern will be to carry out their economic activity by issuing the corresponding tax document. The key change is that the tax document will become an acknowledgment of debt. In other words, this function will no longer be performed through tax returns.

Based on the tax documents, the tax authority will be able to calculate the tax and assist the taxpayer in that calculation. The taxpayer will be provided with information on the actual amount owed, without having to perform this step of the tax process. In this context, the tax assessment process will be conducted in an assisted, automated manner, finalized and completed by the tax authority. The entire system for calculating debits, credits, and refunds will be processed on a specialized platform called Assisted Assessment – AA (Apuração Assistida). The taxpayer must simply validate or reject the assessment. In this context, the national tax environment is expected to undergo a profound transformation, streamlining and simplifying procedures that were previously time-consuming and burdensome for taxpayers.

Against this background with the primary objective of enabling approximately 500 companies and representatives of civil society to evaluate, test, and provide feedback on the technological solutions developed for the implementation of the tax reform, the RTC Pilot Project was launched.

The project features a restricted production environment that ensures broad participation by companies from various economic sectors across the country in the validation and improvement of the new tax model's systems. It was necessary to create a reliable and controlled testing environment and to offer a viable, consistent, and relevant product to participating companies. Transactions carried out in this environment are simulations and have no tax, registry, or legal effect.

Two-way communication with participating companies was also established to provide guidance and gather feedback on the solutions.

The Pilot Project began on July 1, 2025, and is expected to run through December 31, 2026.

2.1. Taxpayer service in the RTC Pilot Project

The General Coordination of Taxpayer Services of the Brazilian Federal Revenue Service (COGEA) joined the RTC Pilot Project in April 2025. It assumed a strategic role in providing services to the participating companies. The deadline was very tight. COGEA needed to develop an action strategy!

COGEA quickly formed a management team for the RTC Project—"Taxpayer Service." After the team was formed, the main challenge was training the colleagues who would be responsible for assisting the companies.

In addition to training the team, it was necessary to determine which tool would be used to interact with the businesses. After an initial analysis of alternatives and the elimination of the least suitable options, the *Receita Atende* platform was chosen.

2.2. Scope and Objectives of Taxpayer Services in the RTC Pilot Project

- Meet the requirements of the RTC Pilot Project and prepare the Federal Revenue taxpayer service network to serve all taxpayers by 2026;
- Establish dialogue and cooperation with other business areas and integrate them into the second level of service (to be detailed in a later section);
- Provide support for the development and testing of integrated systems on the RTC Portal;
- Manage knowledge and promote the use of plain language in all materials made available to internal and external audiences;

- Develop manuals and technical reference documents;
- Promote capacity building throughout the taxpayer service network;
- Promote institutional communication regarding RTC services.

3. THE RECEITA ATENDE PLATFORM

This is a newly created technology platform for taxpayer assistance. Initially designed to replace the email service, it has evolved into a comprehensive, integrated platform that centralizes, organizes, and manages all services offered by the Brazilian Federal Revenue Service (RFB). It operates as an asynchronous omnichannel platform, receiving requests 24 hours a day, seven days a week. This solution represents a significant innovation in the RFB's service model, marking a structural shift: the focus is on the service requested, not on the channel used—a major departure from the previous philosophy, which relied on multiple taxpayer service channels.

It should be noted that, until the end of the first quarter of 2026, service to companies participating in the RTC Pilot Project will be provided through a prototype of "Receita Atende." This prototype is a simplified version of the platform, with basic functionalities for receiving and responding to requests.

It is worth noting, however, that the tool in question was designed to meet the taxpayer service demands of the Federal Revenue Service, and its validation was scheduled for November 2025. However, given the decision that the use of Receita Atende would be a crucial factor for the inclusion of the RFB's Taxpayer Service function in the pilot project, COGEA and the Federal Data Processing Service (SERPRO)—the public company responsible for the technological development of the RFB's solutions—launched the aforementioned prototype in July 2025.

As a result, not only did the RTC Pilot Project gain an excellent taxpayer service platform, but the service team was also able to conduct extensive testing of the prototype's feasibility, reinforcing the belief that the platform would be suitable and robust enough to meet taxpayer service demands.

4. TAXPAYER SERVICE IN THE RTC PILOT PROJECT: A TIMELINE

In May 2025, the first working group (GT-Atendimento) was formed, consisting of two managers and a team of 21 service representatives.

The team formed by COGEA would be responsible for receiving questions, feedback, complaints, and suggestions from companies. Through hard work, many hours of discussion, and by drawing on their knowledge of all regions of the country, within a few days the team had already received the names of 21 colleagues nominated from the RFB's taxpayer service network.

In June 2025, the GT-Atendimento underwent intensive training. The first 21 service representatives completed approximately 70 hours of online training, culminating in an in-person event in Brasília in July 2025.

During this event, the GT's taxpayer service team handled its first service requests through Receita Atende. This collaborative effort was supervised by managers from other RTC business areas. As the team handled the first 40 service requests, cases were discussed collectively, and any issues or bugs encountered in the technology tool were reported in real time to those involved in the platform validation process, which was taking place simultaneously at SERPRO's headquarters in Belo Horizonte (Minas Gerais).

With a trained team and the Receita Atende program up and running, a series of organizational initiatives were launched to ensure that the workflow and knowledge sharing became a reality.

Leveraging the technical and management skills of our colleagues on the GT-Atendimento team and striving to make the most of each participant's individual strengths, we began the process of organizing the vast amount of knowledge generated since the start of the Taxpayer service Pilot Project for RTC. At the same time, knowledge continued to be generated, resulting in the creation of manuals, a glossary, Q&A sections, etc.

Starting in August 2025, once services to participating companies were being provided in an organized and timely manner, other initiatives were implemented:

- Production of materials for knowledge dissemination: press releases, RTC glossary, service manual, FAQs, repository of standard responses, training guide;
- Development of a specific management dashboard (GT-Atendimento BI);
- Launch of the Time for Reform (A Hora da Reforma). This is a strategic training cycle aimed at disseminating the main concepts and tools of the RTC. The program is intended for all employees of the institution, with special emphasis on the service network (which will be detailed in a later section).
- Development of the Virtual Assistant—RTC Bot—which uses generative artificial intelligence to answer citizens' questions about the RTC starting in January 2026.

In anticipation of an increase in demand for services in 2026 with the start of the transition to the new tax model, it became necessary to expand the service team. In September, the team surpassed 100 members. To support this expansion, a specific training manual was developed for new members, in addition to other materials related to the RTC and its systems. This effort culminated in the creation of an RTC taxpayer service website within COGEA's page on the institution's intranet, centralizing and providing access to a single location to all RTC material relevant to the taxpayer service network.

5. SERVICE FLOW WITHIN THE RTC PILOT PROJECT

The companies participating in the pilot project conduct their simulated operations on the RTC Portal. This environment was developed using the same model as the current Federal Revenue Service Services Portal. The RTC Portal allows taxpayers to access various digital services related to the RTC.

On this RTC Portal, taxpayers can simulate their consumption transactions and access various modules, including: Tax Calculator, Assisted Assessment of CBS, and Refunds.

Requests from companies participating in the project are also managed by submitting a request through the RTC Portal. Although access remains restricted to participating legal entities, the request is easily identifiable on the Portal and must be submitted through the representatives or authorized agents of those companies. Participants can also view all their previous requests using a specific feature.

After obtaining certified access, participants in the RTC Pilot Project select the "RTC Service" option and can choose one of the 16 available topics.

Participating companies can attach up to 5 files to their request, in addition to the space provided to explain their inquiry, report an error, or suggest. This greatly facilitates the identification of errors and the resolution of questions by taxpayer service representatives.

After submitting the service request, the company will receive assistance through the Receita Atende platform. Its message will be routed to the appropriate service team based on the previously selected topic. If the requesting company has misclassified the service, the platform allows the request to be redirected internally.

In this environment, the service is structured into two levels of complexity: a first level handled by the GT-Atendimento team for low- and medium-complexity cases, and a second level handled by specialists from various business areas for high-complexity cases.

Therefore, it can be seen that there are structured workflows for the three situations that may warrant a request by participating companies:

- With regard to error reports, SERPRO specialists are connected to the second level of service at Receita Atende. These specialists are responsible for verifying that a system error actually exists.

- In the case of questions regarding any of the 16 proposed topics, companies participating in the RTC Pilot Project will receive conclusive service structured into two levels of complexity.

- The process for suggestions will be described later.

By the end of November 2025, after six months of operation of the RTC Pilot Project, nearly 700 services requests had already been handled, with 430 final resolutions and 137 referrals to the second level. The most frequently used services were Assisted Tax Assessments (209 requests), Tax Document (150), System Error Reports (133), and the Calculator (91 requests). The remainder were distributed among the other twelve available topics.

6. FEEDBACK FROM PARTICIPATING COMPANIES

One of the main objectives of the project is to receive suggestions for improvement from companies participating in the RTC Pilot Project. This feedback is collected through Receita Atende and forwarded to the respective business areas for analysis.

When a participating company submits a request with a suggestion, the service representative fills out an electronic form that automatically feeds a database. In turn, the GT-Atendimento management team sends these consolidated suggestions to the respective business areas on a weekly basis. By the end of November 2025, 71 suggestions had been submitted through this process.

To date, 26 reports of system errors have also been submitted through SERPRO's dedicated platform, in accordance with the workflow established within the pilot project.

7. CHALLENGES ENCOUNTERED

During the first few months of the pilot program, a backlog developed in the handling of requests assigned to second-level business area specialists on the Receita Atende platform.

This situation required attention and specific actions from the GT-Atendimento Management Team, in coordination with the RTC Projects Office. These actions included meetings with specialists, training on how to use the tool, and weekly check-ins to monitor the progress of the queues—but something more was needed!

Subsequently, COGEA developed a messaging service. This initiative is simple in design and highly effective, as evidenced by the current performance of second-level service requests.

Without detracting from the various management measures implemented during the two-month backlog of second-level requests, the messaging service has brought about a paradigm shift. The idea is simple: every time a second-level request is submitted on the Receita Atende platform and this information becomes available in Power BI, a standard email is automatically sent to the registered second-level specialist, informing them that there is a request pending their attention.

Another major challenge for the service provided by the Federal Revenue Service is the potentially steep increase in the number of requests starting in January 2026, when the RTC system modules will be available to all Brazilian taxpayers, and no longer just to companies participating in the Pilot Project. Furthermore, it is estimated that, by the end of 2026, approximately 219 billion tax documents and electronic returns will be submitted to feed the CBS Assisted Assessment system.

To address this challenge and filter out the requests that truly require specialized assistance, COGEA developed a bot—a virtual assistant—to answer general questions about the RTC. It was created using generative Artificial Intelligence (AI) and the knowledge base produced by the GT-Atendimento (the taxpayer service Working Group). Several stages of refinement have already been carried out to improve its responses. Extensive testing has demonstrated that the bot answers general questions about RTC concepts and workflows with clarity, objectivity, and reliability. In January 2026, the bot will be available on the RFB website.

8. KNOWLEDGE MANAGEMENT: A CHAPTER OF ITS OWN

At the start of RTC Pilot Project's taxpayer service initiative, a shortcoming was identified: there was very little information available in written format. Most of the shared knowledge was scattered across videos and live streams available on various channels. There was no unified repository where service representatives could find answers to their questions.

To ensure smooth communication within the team and to create a space for technical discussions related to the work process, a dedicated team was created on the Teams platform. This team is divided into two channels: Announcements and Discussions.

The "Announcements" channel is intended for messages from team leadership addressed to taxpayer service representatives, such as meeting schedules and the resolution of administrative and operational issues. It functions as an administrative channel.

The "Discussions" channel contains questions related to procedural uncertainties, theoretical discussions, and the inquiries themselves. It functions as a "discussion group."

This simple thematic division helped improve communication within the team, bringing fluidity and organization to the discussions. But the transformation had only just begun...

All the scattered and hard-to-access knowledge that was centralized is now centralized in one place. In the "Files" tab of the Announcements channel, all content produced by and for the RTC team is organized into folders divided by topic. Classes, videos, live streams, manuals, Q&A sessions: everything in one place, accessible with a single click.

A "Start Here!" tab was also created with content aimed at new team members, to facilitate their learning process and guide them through the initial procedures for requesting passwords, setting up profiles, and all the first steps necessary for a smooth transition into the team.

The next step was to make much of this knowledge available to internal staff. A website created by the -Atendimento, containing all the knowledge generated by the RTC Pilot Project, is available to staff on the COGEA page of the RFB intranet.

This content, produced by the team, includes several products launched in recent months, such as restricted production versions available to companies participating in the RTC Pilot Project, Frequently Asked Questions, an RTC Glossary, a Service Manual, a training tutorial, and documentation with sample responses. There are nearly 200 pages of various materials produced by the GT-Atendimento team, totaling 30 GB of knowledge archived on Teams.

9. A HORA DA REFORMA

Launched in September 2025, the program includes a series of live sessions covering each of the modules that make up the RTC system. Project managers from each business area of the new tax model are responsible for presenting the topic during a weekly one-hour live session. The full program will consist of 14 live sessions. After each presentation, participants will have the opportunity to ask questions, which will be answered by the presenter. By the end of November 2025, the live sessions had already attracted more than 6,000 live viewers.

In addition, the live videos are edited by the RFB's Communication Advisory Office (ASCOM) and are available on COGEA's training page. This expands the reach of the training.

More than just disseminating information, the "A Hora da Reforma" program aims to:

- Raise awareness about the importance and implications of RTC;
- Strengthen the institutional culture surrounding the reform;
- Promote the use of technical materials that are produced on an ongoing basis;
- Support the development of learning pathways;
- Improve the FAQ database to promote greater autonomy and efficiency in taxpayer service.

While the program does not replace specific technical training or formal guidance provided by the business areas, it serves as an institutional complement designed to strengthen the institutional culture surrounding the reform and support the taxpayer service network.

10. NEW HORIZONS

The transition to the new consumption tax model, which is expected to continue through 2033, demonstrates the Brazilian government's commitment to greater economic stability and regulatory certainty. The gradual adoption of the system, accompanied by ongoing testing and rate calibration, aims not only to ensure that revenue is maintained but also to guarantee that business competitiveness and tax compliance are not compromised. In this context, the RTC Pilot Project emerges as a strategic component, operating in a controlled environment that allows for technological and procedural validation prior to its full implementation.

More than just a regulatory change, the integration of technology and tax administration—as embodied in initiatives such as the Receita Atende platform and the solutions developed for the RTC modules—ushers in a new paradigm in the relationship between tax authorities and taxpayers. By simplifying processes, increasing transparency, and reducing compliance costs, these tools improve the quality of service provided, strengthen institutional trust, and foster a more cooperative relationship, which is essential to the reform's success.

The participation of nearly 500 companies in the Pilot Project reinforces this collaborative effort. The feedback received not only validated the features but also provided essential input for adjustments and improvements to both the systems and the service procedures of the Federal Revenue Service. This ongoing dialogue demonstrates that tax modernization can only be fully achieved when solutions are developed with a focus on taxpayers' actual needs.

In summary, the RTC consolidates a structural transformation that reposition Brazil within the global tax landscape, combining efficient tax collection, tax equity, and a service that is increasingly agile, accessible, and taxpayer oriented. This new horizon reaffirms that the evolution of the tax system depends, above all, on enhancing the experience of its users.

CONCLUSION

The assessment of the process of developing the Brazilian Federal Revenue New Taxpayer Service Model, based on the experience of the Pilot Project for Consumption Tax Reform, is very positive and has been recognized by the various stakeholders involved.

In the six months that have passed since the General Coordination of Taxpayer Services joined the RTC Pilot Project and the writing of this article, a cutting-edge team was formed and trained. The original team has since been expanded and is now operating on several fronts, including activities that often go beyond simply providing support to participating companies.

All the necessary tools were developed in the areas of technology systems and solutions; knowledge generation, storage, and management; workflows and communication; management tools; and training programs. These efforts have ensured the success of the Federal Revenue Service's taxpayer service experience, as evidenced by the figures presented throughout this article.

This journey demonstrates that, by combining innovation and commitment, the RFB is making steady progress toward a more efficient service model that is better prepared for the challenges of the Consumption Tax Reform. The path taken proves that collaboration between the tax authority and taxpayers transform challenges into achievements and consolidate a smarter service model, aligned with the future of public service and commensurate with the country's transformation.

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Data Governance as the Cornerstone of Digital Transformation in Tax Administrations: The experience of the Internal Revenue Service in Implementing a Data Fabric

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SYNOPSIS

This article analyzes the process of consolidating a comprehensive data governance model at Ecuador's Internal Revenue Service (SRI) and its progress toward a data fabric architecture. Its objective is to examine how strategic information management strengthens modern tax administration. The methodology includes a documentary review, an examination of international standards, comparative experiences, and a systematic analysis of the SRI's institutional experience. The results demonstrate a solid foundation for adopting advanced analytics and intelligent control. The article provides evidence and replicable lessons for tax administrations that are beginning the same journey.

KEYWORDS: Data Governance, Data Fabric, Digital Transformation, Digital Tax Administration, SRI, Advanced Analytics, Artificial Intelligence

CONTENTS

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INTRODUCTION

The digital transformation of the public sector has established data governance as a strategic pillar for the modernization of tax administrations (TAs). In a context characterized by exponential data growth, diverse data sources, and the need for evidence-based decisions, robust governance frameworks are essential to ensuring the quality, integrity, security, and availability of institutional information.

The current volume, variety, and velocity of tax data far exceed the capacity of traditional architectures designed for static, centralized environments with lower demands for flexibility. Today, tax administrations require more modern architectures—such as data fabric, data mesh, and similar approaches—that enable the integration of heterogeneous data, centralized governance, and real-time access, thereby ensuring traceability, quality, and reliability for critical processes such as tax control, tax risk management, and government interoperability.

The Inter-American Center of Tax Administrations (CIAT) notes that tax administrations have become “data-driven” organizations; that is, their decisions are highly dependent on quality data and algorithms to fulfill their functions of audit, service, and collection. It also maintains that data governance must encompass all institutional hierarchical levels through policies, standards, and processes that ensure responsible and strategic management (CIAT, 2022).

For its part, the Organization for Economic Cooperation and Development (OECD) emphasizes that data constitutes a strategic asset for modern tax administrations and that data governance is an essential requirement for information to generate value. The OECD highlights that data management encompasses not only data quality and protection but also its ability to enable innovation in the design, delivery, and evaluation of public policies and services, thereby strengthening institutional efficiency and transparency (OECD, 2020).

Accordingly, data is now the primary input for decision-making, fiscal risk management, and innovation in taxpayer services. This is not merely a conceptual statement but an institutional commitment to incorporating principles of best practices, developing new skills, and adopting tools that transform data into actionable information for decision-making.

In Ecuador, the Internal Revenue Service (SRI) has advanced in this direction by consolidating an information management model that not only supports tax collection but also strengthens public trust through the responsible, secure, and transparent use of data. To this end, it has developed the Institutional Data and Analytics Governance Model, a project designed to transform the way it manages, controls, and uses its data. This initiative will not only enable the incorporation of cutting-edge technology but will also organize, standardize, and govern information, ensuring that it is reliable, accessible, and useful for decision-making.

Within this framework, the future adoption of a data fabric integration architecture constitutes a key enabler for orchestrating, standardizing, and federating institutional data, thereby enhancing their reuse, interoperability, and large-scale analytical exploitation. This technological approach will enable the SRI to advance toward smarter, more integrated, and adaptive capabilities in the areas of control, tax risk, and taxpayer service.

This article analyzes the SRI’s progress, challenges, and prospects in the area of information governance, as well as the concrete steps taken by the SRI in this regard. The document begins by presenting concepts applicable to data governance and digital transformation, and then identifies the challenges faced by tax administrations. It then examines the main challenges encountered by Ecuador’s tax administration. Next, it presents the SRI’s case as a real-world implementation example and concludes with the lessons learned, conclusions, and next steps, emphasizing that no technological solution, no matter how advanced, can function fully without robust, sustainable, and cross-functional data governance.

Consequently, it is pertinent to examine how data governance is being consolidated as a technical and strategic foundation for tax modernization, both within the SRI and across international trends and best practices.

1. INTERNATIONAL CONTEXT: THE ROLE OF DATA GOVERNANCE IN THE DIGITAL TRANSFORMATION OF TAX ADMINISTRATIONS

The digital transformation of the public sector has established data as the most relevant strategic asset for decision-making, risk management, the provision of efficient services, and institutional transparency. In tax administrations, where information is the primary input for tax control, tax collection, and advanced analytics, having a robust governance model is an essential requirement.

1.1. Global Trends According to International Organizations

The OECD, through its *Tax Administration* series and reports on the digitization and digital transformation of tax administrations, shows that about three-quarters of the *tax administrations* analyzed already have a formal data management strategy, and that the most advanced transformation efforts explicitly rely on frameworks for data governance, information exchange, and analytics as core capabilities. At the same time, the Tax Administration 3.0 initiative proposes a vision of "*event-based*" tax ecosystems, where assessment and compliance processes are seamlessly integrated into the systems used by taxpayers, which presuppose reliable, timely, and interoperable data flows (OECD, 2020).

Based on the results of ISORA (the International Survey on Tax Administration) and its studies on digitalization in Latin America and the Caribbean, CIAT highlights significant progress in the region, particularly in areas such as electronic invoicing, online tax returns, and online payments. The organization emphasizes that the next frontier is precisely data governance and the intensive use of advanced analytics to improve compliance and services (ciat.org). It stresses that going "beyond electronic invoicing" involves consolidating data architectures that support sophisticated risk models, inter-agency interoperability, and personalized services (CIAT, 2022).

Taken together, these trends point to a common thread: data governance is no longer a secondary technical issue, but rather a pillar of tax strategy and fiscal policy.

1.2. Comparable Cases: Spain and Brazil

In this international context, Spain and Brazil (through the AEAT and the RFB, respectively) stand out as benchmarks in digital tax administration.

The State Tax Administration Agency (AEAT) is a leader in the region for its use of big data and data governance. Recent studies describe how the AEAT has developed a data management model in which information from tax returns, reporting forms, and third parties not only feeds into selection and control processes but also into tax statistics and analytics for multiple purposes (Collosa, 2021).

CIAT (2022) highlights the AEAT's case as an example of using big data tools to cross-reference nearly 70 different sources of information in order to identify significant assets that may be used to defraud the tax authorities.

This type of architecture requires a rich metadata layer (definitions, lineage, quality rules) that approximates the concept of active metadata—that is, metadata that not only documents but also governs and automates the integration, control, and use of data.

For the SRI, this case illustrates the importance of having:

- A common semantic model for tax data.
- Institutional processes adapted to updating and utilizing that metadata.
- An approach in which the tool (data fabric) is supported by an already defined data governance framework.

For its part, the Brazilian Federal Revenue Service (RFB) has built one of the world's most interoperable tax data ecosystems through the Public Digital Bookkeeping System (SPED). This system integrates accounting, tax, and labor information under uniform national standards, enabling near-real-time analysis and early detection of inconsistencies on a massive scale (Federal Government of Brazil, 2023). The Brazilian case demonstrates that effective interoperability requires architectures capable of federating and harmonizing data from multiple sources, foreshadowing the importance that modern approaches—such as data fabric—will have for tax administrations seeking to integrate diverse platforms without replacing their legacy systems.

Taken together, these experiences demonstrate that the digital transformation of the most advanced tax administrations rests on three pillars: mature data governance, modern architectures for integrating and federating information, and the use of analytics and artificial intelligence (AI) based on reliable and traceable data.

These lessons are directly relevant to the SRI's path toward implementing a data governance model and, in the near future, a new data fabric technological solution.

1.3. Demand for Emerging Technologies: Interoperability, Federated Architectures, and Generative AI

The consolidation of these data ecosystems has created new demands for tax administrations (TAs):

1. **State-wide interoperability for transaction traceability**

   The fight against tax evasion, complex tax fraud, and the digital economy requires that tax data be connected to information from customs, public registries, social security, financial institutions, and other stakeholders. The OECD, CIAT, and the World Bank emphasize that the most advanced tax administrations are those that participate in genuine public data ecosystems, with clear rules governing data sharing, privacy, and security https://www.oecd.org/en/topics/sub-issues/digital-transformation-of-tax-administration.html?utm_source=chatgpt.com(OECD, 2020; CIAT, 2022).

2. **Need for Federated Architectures**

   Given the volume and diversity of data, maintaining a single central repository is no longer realistic or efficient. The trend is toward federated architectures, where data remains in its domains of origin but is accessed through layers of virtualization and common governance. Data fabric is the approach that enables this logical federation, relying on metadata, policies, and shared services.

3. **Generative AI and Advanced Analytics in Audit, Risk Management, and Support**

   Recent reports on the use of AI in the public sector highlight that tax administrations are beginning to incorporate this technology not only for traditional scoring models, but also for intelligent taxpayer assistance, automated drafting of communications, and the analysis of complex patterns (OECD, 2025). However, these advanced applications depend critically on:

- Well-governed, high-quality data.
- Clear lineage and traceability to explain automated decisions.

- Ethical and legal frameworks that ensure proportionality, non-discrimination, and transparency.

In the case of the SRI, this means that data governance and the data fabric architecture not only enable traditional analytics but also lay the groundwork for the responsible adoption of generative AI and advanced tax risk models.

2. SRI ASSESSMENT: CURRENT SITUATION, GAPS, AND DRIVERS OF CHANGE

Since 2022, the Internal Revenue Service has pursued the ongoing objective of implementing and strengthening information governance, addressing various dimensions, including processes, policies, structures, culture, organizational change, and staff training.

To this end, in March 2022, the Internal Revenue Service, the Inter-American Development Bank, and the consulting firm EY Addvalue Asesores Cia. Ltda. signed a contract for consulting services on information governance models, infrastructure, data analytics, and CRM advisory services for the SRI. This non-reimbursable technical cooperation project for the Internal Revenue Service covered the following aspects:

1. Information Governance Model
2. Data Infrastructure
3. Data Analytics
4. Customer relationship management (CRM)

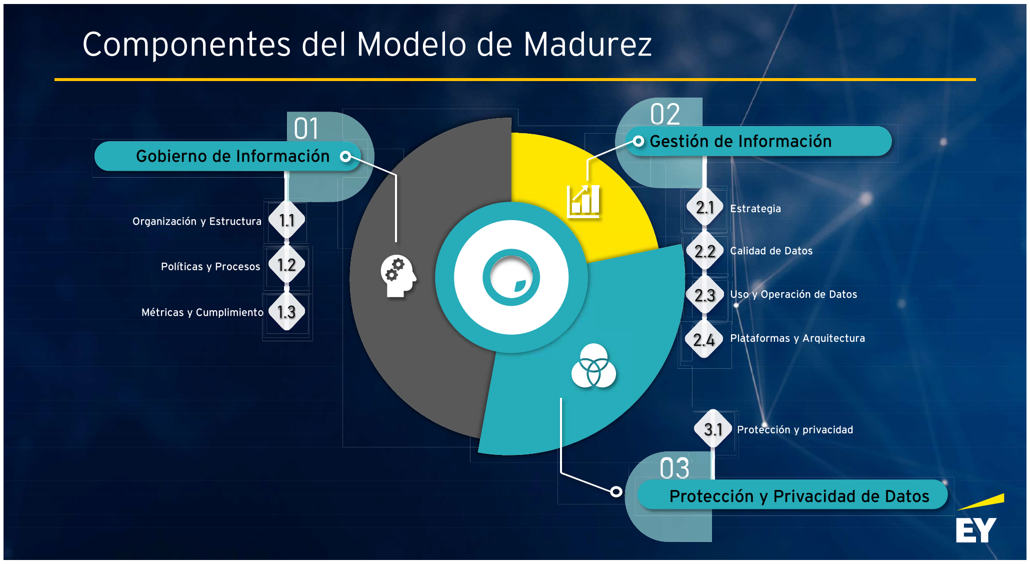
The objective was to design each component of the data governance model (domains, organizational structure, committees, processes, policies, indicators) based on international best practices and adapted to the SRI's specific context. To this end, the institution's data governance maturity model was evaluated by establishing a methodology based on maturity tools, interviews, structure, organizational chart, KPIs (key performance indicators), processes, and an understanding of tools and systems, thereby enabling the development of a maturity measurement scale. (**Table 1**).

Table 1
Maturity Level Scale

Weighting	Maturity Level	Description of the Maturity Level
0	Not Started	No practices associated with the evaluated function have been identified.
1	Started	There is widespread awareness of the need within the organization, and isolated practices have been identified.
2	Managed	The components of the evaluated function have been identified, though only partially defined.
3	Defined	The components of the evaluated function have been formally defined and are fully implemented throughout the organization.
4	Measured	Measures and methods for monitoring the components of the evaluated function have been identified.
5	Optimized	Mechanisms are in place for the evaluation and continuous improvement of the function.

Three major components of the maturity model were evaluated: information governance, information management, and data protection and privacy. Each of these components included various operational and strategic aspects, which are detailed in **Figure 1**.

Figure 1
Components of the Maturity Model



Note. Taken from the report "Current State of Information Governance" – EY Consulting, October 2022.

The results, obtained through a series of workshops with SRI staff members, are presented in **Figure 2**.

Figure 2
General Maturity Model Assessment Results (Current SRI Status)

Note. Taken from the report *Current State of Government Information* – EY Consulting, October 2022.

Based on the consulting firm's findings, which indicated that most components were at an initial stage of maturity, the Internal Revenue Service defined an action plan to strengthen the organizational structure, policies and procedures, technology, and tools in order to significantly improve the Data Governance Model.

2.1. Structure

The Internal Revenue Service (SRI) was established on December 2, 1997, based on the principles of justice and equity, in response to high levels of tax evasion.

In 2008, the SRI had several flagship applications to support its operations. However, to streamline information management, two key units were created. The first, called **Business Intelligence**, was located within the Technology Directorate, and its main objective was to create data cubes and manage tools for data analysis. The second unit, called **Information Systems**, was created under the Tax Intelligence Department with the goal of centralizing the institution's information requests and managing the annual Information Management Plan.

By 2014, with the amendment of the Organic Process-based Statute, information management was further strengthened through the establishment of the **Information Intelligence Unit** within the National Planning Directorate. Its primary objective was to implement information governance and provide a strategic vision for this function.

In 2014, the Business Intelligence unit was renamed **Data Warehouse** to begin development work aimed at implementing a robust Data Warehouse with databases designed for information analysis.

Later, in 2019, the Information Intelligence Unit was transferred to the National Department of Tax Risks; the goal was to strengthen data-driven analysis and align information management with the institution's core tax functions.

In 2023, as a result of the latest reform to the **Organic Process-Based Statute**, a National Department was established within the Technology Directorate. This unit was conceived as the strategic hub of the institution and brings together the following key areas: Technology Architecture, focused primarily on innovation initiatives; Technology Planning, aimed at driving the design of institutional services based on ITIL (Information Technology Infrastructure Library) best practices; and, finally, the Information Management area, whose main focus is data governance.

From 2008 to the present, the SRI has evolved structurally to prioritize information management and governance, as reflected in the creation of the information units.

2.2. Policies and Procedures

On November 21, 2023, the highest authority approved the "Information Governance Policy," whose objective is "to establish a comprehensive information governance framework that ensures the effective management, quality, and integrity of data throughout its entire lifecycle, treating it as an intangible asset of the Internal Revenue Service (SRI)." To ensure that data is considered a strategic asset, the policy promotes the adoption of practices that support its management and data-driven decision-making, as shown in **Figure 3**.

Figure 3
Principles of Information Governance

Note. Information Governance Policy, November 2024

This Policy establishes a specific organizational structure for data management, clearly defining the roles involved in its administration and use. Among the most relevant are **Information Governance Officer**, responsible for regulatory and strategic coordination; **Information Owners**, responsible for the integrity and quality of the data under their control; **Data Scientists**, focused on advanced analysis and knowledge generation; and **Data Architects**, responsible for designing and standardizing the institutional architecture, among others. A clear definition of these roles is essential to ensure accountability, traceability, and consistency in information management, and serves as a key enabler for advancing toward modern architectures such as data fabric and consolidating the SRI's digital transformation.

Subsequently, in January 2024, the Service Quality and Institutional Development Management Committee approved the **Information Governance Policy Implementation Plan** presented by the Information Governance Officer; the document includes actions for each of the Plan's components: Operational Model, Data Quality Plan, and Domains Handbook.

2.3. Tools

Over the years, the SRI has used various tools for data analysis and exploitation, some of which are institutional tools and others that have been adapted or acquired to meet the specific needs of the functional units required for data analysis and utilization.

These are detailed in the **Figure 4**.

Figure 4

Current D&A Tool Map

Note. Excerpted from the report "Current State of Government Information" – EY Consulting, October 2022.

3. INFORMATION GOVERNANCE AT THE SRI

Following the approval of the Information Governance Policy, the SRI began a process of institutional transformation. This process aims to strengthen information management through a modern, coherent, and strategic approach, aligned with international standards and the needs of a tax administration undergoing a digital transition.

Conceived as a gradual and sustained effort, this process has made it possible to implement a series of interdependent actions. These actions seek not only to strengthen formal data governance but also to build the capabilities, culture, and structures that enable the value of information at all levels of the organization. The SRI has prioritized the pillars outlined in the **Figure 5**.

Figure 5
Pillars of Information Governance

Note. Information Governance Policy, November 2024.

The process began with the definition of the federated operational model for data governance. This approach recognizes the complexity and diversity of the information managed by the SRI, as well as the need for each functional unit to take an active role regarding the data under its responsibility. The model, explicitly outlined in the Information Governance Policy, stipulates that data planning, management, and utilization are carried out in a decentralized manner, but under the supervision, guidelines, and principles established by a central governance structure. Consequently, it balances the specialized knowledge of the areas responsible for generating and custodying information with the need to maintain consistency, interoperability, and common standards at the institutional level.

To implement this operational model, process diagnostic workshops were conducted, which helped identify issues, gaps, opportunities for improvement, and the need for alignment with current policy. These workshops provided a detailed overview of the current state of information flows, critical issues related to data accountability, traceability, and quality, as well as the requirements for moving toward a more mature federated framework. This stage also included updating the Information Management Procedure, which incorporated new technical terminology, redefined process roles and responsibilities, and aligned formats, tools, and control mechanisms with the principles established in the policy.

One of the most significant milestones in this phase was the identification and formal delegation of Information Owners, who are undoubtedly key actors within a federated model. The designation of these roles is essential to ensure that each data domain has a clear institutional owner with the capacity to define semantic standards, validate metadata, drive quality improvements, and coordinate actions with technical departments and the central Data Government structure. Although this process is progressing gradually, its establishment marks a turning point in organizational culture, as it introduces the notion of explicit responsibility for data beyond the systems that manage it.

At the same time, the SRI has strengthened its efforts in data quality management. It is recognized that the reliability, integrity, and accuracy of information are an indispensable prerequisite for both day-to-day operations and the development of advanced analytics and the delivery of new digital services.

In this regard, activities were carried out to prioritize critical sources and issues, define institutional quality indicators, develop action plans, and establish evaluation and monitoring cycles. This approach, structured around the continuous improvement model (Plan–Do–Check–Act), has made it possible to establish a systematic process that goes beyond the isolated identification of errors and pursues comprehensive and sustained data quality management.

Another fundamental component of institutional progress is the development of the **Information Domains Handbook**, an essential tool within any modern data governance framework. The Information Domains Register serves as the institutional repository where business semantics are organized, documented, and structured: concepts, information attributes, metadata, quality rules, and relationships between elements. To advance this initiative, a specific technological solution was implemented, a methodology for domain registration and validation was developed, and a process was launched to collect and update business and technical metadata with the direct participation of information owners. This work, while ongoing, is crucial, as it provides the conceptual foundation for future systems integration, interoperability, and the adoption of advanced architectures such as data fabric.

The evolution of data governance could not be sustained without an equivalent effort toward cultural transformation. For this reason, the SRI has implemented various initiatives aimed at strengthening an organizational culture based on the strategic value of data. These include awareness campaigns, communication materials, forums for dialogue with data owners, perception surveys, and training programs on topics such as data analytics, machine learning, data quality, metadata, and accountability in information management. This cultural component is particularly important for ensuring that institutional policy is not limited to a set of regulatory guidelines, but is understood, embraced, and applied in the day-to-day work of teams.

In addition to this internal process, the SRI participated in the KSP (Knowledge Sharing Program), developed in collaboration with the Korea Development Institute (KDI). This initiative facilitated access to highly specialized knowledge transfer in areas such as information governance, data architecture and engineering, and data science, which strengthened the strategic vision and technical capacity of the roles involved in data management.

The experience gained through this program helped align the SRI with international standards, complemented internal progress, and reinforced the competencies required to address future challenges.

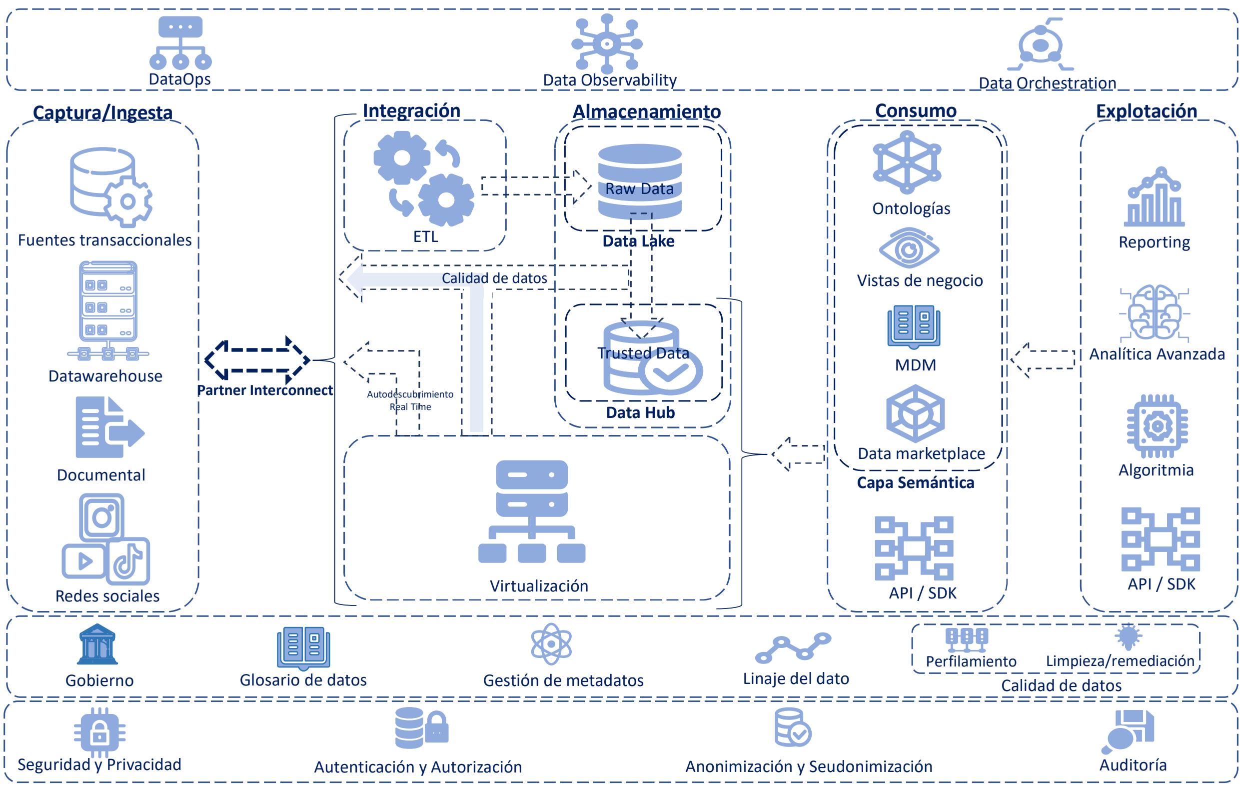
Taken together, the progress made between 2024 and 2025 demonstrates an institutional process in full consolidation. The SRI has established an operational structure based on clearly defined roles, strengthened its quality and metadata processes, promoted a data-driven culture, and incorporated cutting-edge technical knowledge. Taken together, these elements form a solid foundation for the next phase: the adoption of modern architectures, such as data fabric, which will enable the integration, federation, and utilization of information in a more efficient and strategic manner, thereby driving the digital transformation of the tax administration.

4. DATA FABRIC PROJECT ROADMAP (2023–2027)

Efforts are currently focused on acquiring a Data fabric solution designed to help organizations solve complex data problems and address specific use cases by managing their data, regardless of the various types of applications, platforms, and locations where this data is stored. To this end, considering international best practices and the institutional progress made, the following reference architecture was defined in accordance with the ***Figure 6***.

Figure 6

Data Fabric Reference Architecture



Note. Request for Service Proposals – Internal Revenue Service, November 20, 2024

4.1. Phase 1: Preparatory Stage (2023–2024)

During 2023, market research was conducted and potential technological solutions for analytics and information governance were evaluated with various vendors. As part of this process, a Request for Information (RFI) was published on the relevant IDB portals, and a total of ten proposals were received from bidders. Based on this, the team conducted a detailed analysis of the proposals received and developed a methodology for evaluating the required functionalities. These were reviewed through demonstration sessions, during which proof-of-concept tests were conducted, allowing bidders to present their tools and the SRI to validate the extent to which they aligned with its institutional needs.

At the same time, in July 2023, Ministerial Agreement No. MINTEL-MINTEL-2023-0015 (Ministry of Telecommunications and the Information Society, 2023) was signed to promote and foster Ecuador's digital transformation. It states: "Article 5.—Use of the public cloud: Public sector entities that require software, solutions, infrastructure, or technology platforms to carry out their functions within the scope of their authority and to deploy digital services shall use the infrastructure, software, or platforms as a service provided by cloud service providers, in accordance with the minimum requirements for a cloud service defined in this policy.

Based on the RFI results and the new Ministerial Agreement, the **RFI Results Report** was prepared in October 2023, containing the following key recommendations:

- When acquiring a data fabric platform, prioritize its implementation through Software as a Service (SaaS) cloud solutions, given the speed, flexibility, security, and scalability they provide.
- Consider technological solutions that ensure compliance with national and international security standards, with particular emphasis on data protection, privacy, and information security.
- Request that the National Technology Directorate and all parties involved undertake necessary steps to facilitate the migration to and adoption of cloud services.
- Identify and assess the SRI's needs through use cases that will help refine the technical specifications, as well as provide benchmark costs for the market study.
- Given the shortage of specialized professionals (data scientists and data analysts), we suggest implementing internal recruitment initiatives aimed at identifying talent with expertise in at least the following areas: statistics, mathematics, big data, advanced analytics, and artificial intelligence. These roles would be gradually integrated into the project to continue strengthening the organization's analytical capabilities with the support of the Program Manager. In addition, it is recommended to include training and capacity-building programs for technology roles to manage cloud-based components.

Following the approval of that report by the highest authority, steps were taken to prepare the documentation for the preparatory phase.

During the fourth quarter of 2023, efforts focused on identifying the five prioritized use cases to be addressed in the contract, with the goal of strengthening tax control processes (**Table 2**).

Table 2
List of use cases to be implemented in the data fabric-type technology solution

No.	Name	Unit in charge
1	Estimation of the Fiscal Impact of Tax Benefits and Incentives	Institutional Planning
2	Development of an Analytical Model of Networks Among Taxpayers for Tax Fraud Schemes	Tax Intelligence
3	Identification of the correct application of the 0% VAT rate	Tax Risks and Information
4	Mathematical Model of Corporate Income Tax Compliance (for the 15 economic sectors).	Tax Risks and Information
5	Development of a proposal for the selection of tax controls cases to be implemented in the Tax Management and Audit departments nationwide	Tax control

A workshop was held to present the methodology for identifying use cases for advanced analytics with the functional and technical stakeholders of the Institutional Data Governance and Analytics Model project; this methodology was developed by the Internal staff of the Information Management Coordination Unit.

In 2024, the documents for the preparatory phase were finalized, and the bidding documents were published, moving the process to the questions-and-clarification stage.

4.2. Phase 2: Pre-Contractual Stage (2025)

In 2025, the Technical Evaluation and Selection Committee was formed, comprising representatives from all relevant areas. A total of 12 bids were received, and the evaluation of the solutions was completed in September 2025, at which time the IDB was asked to provide its no-objection to the award report. In the last quarter of 2025, the contract was awarded and executed to begin implementing the data fabric technology solution for data governance and advanced analytics using the Stratio tool deployed on the AWS (Amazon Web Services) cloud.

The selection of the technological tool that will support the SRI in leveraging data—primarily through predictive and prescriptive analytics—follows a process of significant maturation in institutional information governance and a strengthening of the roles of information governance professionals, scientists, engineers, and data architects.

4.3. Phase 3: First Stage of Implementation (2025–2026)

Upon signing the contract (December 2025), the implementation of the data fabric technology solution within the Ecuadorian tax administration will formally begin, and the key milestones include:

- Work methodology and specialized knowledge transfer: This involves the submission and approval of the work plan to be carried out by the contractor, including the most relevant activities for timely monitoring. It also includes the transfer of specialized knowledge on topics such as the administration and operation of the data governance technology solution, data integration, advanced analytics, and related areas.

- Subscription to the Stratio technology platform deployed on the AWS cloud through November 30, 2027.

- Development of five prioritized use cases based on the functional definitions previously identified, which include governance capabilities such as: data dictionaries, business terms, lineage, ontologies, among others, for the data sources associated with the use cases, as well as the analytical capabilities implemented through the algorithms, mathematical models, and artificial intelligence provided by the solution.

- Execution of work orders through a pool of predefined hours for new requests, which will be used on demand and may be utilized during the term of the contract.

4.4. Phase 4: Operation and Maturity (2027)

The transfer of the technological solution to institutional operations will take place following the successful implementation by the vendor of the five prioritized use cases, along with the corresponding methodological and technical support provided by the project team and business users. This transition ensures that business units have access to a mature and validated platform that is ready to be used and expanded to new processes in accordance with the strategic guidelines defined within the data governance framework.

In a later phase, the functional units will assume responsibility for maintaining, managing, and evolving the technological solution, ensuring their operational continuity and its gradual integration into core business processes. This distributed adoption model allows for the consolidation of internal capabilities, promotes the effective use of data, and ensures that the solution becomes a permanent catalyst for innovation, operational efficiency, and informed decision-making within the SRI.

5. CHALLENGES FACED AND CHANGE MANAGEMENT

Despite the progress made in consolidating data governance, the SRI faces a number of challenges that must be addressed to ensure the sustainability and evolution of the model.

First, the protection of privacy and personal and tax information takes on critical importance in an institutional context characterized by an annual increase in the capacity to integrate, analyze, and leverage large volumes of data. The growing integration between internal systems and external sources, combined with the use of more sophisticated technologies, requires strengthening regulatory frameworks, technical controls, and institutional practices aimed at ensuring confidentiality, proportionality, and the legitimate use of data, while maintaining public trust and complying with international standards.

A second challenge relates to human capital development. The transition to a data- and analytics-driven tax administration requires specialized skills in key disciplines such as data science, data engineering and architecture, cybersecurity, metadata management, and information quality—capabilities that are currently limited. This involves not only training existing staff but also designing strategies for attracting. recruiting, developing talent that will enable the SRI to build competent teams capable of operating and evolving advanced information models. At the same time, digital and analytical literacy must permeate all functional levels to promote the effective use of information in decision-making.

The third challenge is directly linked to the implementation of the Data Governance and Advanced Analytics Project (**data fabric**), an initiative that introduces emerging technologies for dynamic integration, active metadata, and data virtualization. Adopting this type of architecture presents challenges related to interoperability between legacy systems and modern platforms, change management, organizational adaptation, and operational sustainability. However, it also represents a strategic opportunity to expand the agency's analytical capabilities, strengthen tax control models, improve the taxpayer experience, and enable smarter services in the future.

Far from being barriers, these challenges serve as a catalyst for the consolidation of a new institutional phase. Looking ahead, the SRI is moving toward a smart tax administration model, in which information becomes the primary driver of innovation, efficiency, and legitimacy. The ability to leverage data in an ethical, secure, and strategic manner will strengthen tax compliance, improve risk targeting, anticipate taxpayer behavior, optimize internal processes, and offer more personalized services to taxpayers.

In this context, data governance is positioned not only as a technical component but also as a transformative pillar of the tax administration model, capable of supporting the institution's ongoing evolution and its adaptation to the challenges of an increasingly digitalized economy.

6. LESSONS LEARNED FOR OTHER TAX ADMINISTRATIONS

The process of designing and implementing data governance at the SRI has yielded a number of insights that are essential for guiding future phases of the project and constitute a reference for other tax administrations undergoing similar processes.

The adoption of data governance should begin in a timely manner and, preferably, through an explicit decision by the highest institutional authority. Strategic leadership from the highest authority is crucial for building legitimacy, prioritizing resources, overcoming cultural resistance, and ensuring that data governance is not sidelined in favor of other technological or administrative initiatives.

Implementing data governance is not the same as acquiring a technological tool; rather, it requires the joint involvement of technical and functional teams. Data governance is, fundamentally, an institutional process that redefines responsibilities, roles, and practices in information management, and that requires cross-functional coordination among those who generate, consume, and manage data. In this sense, the technological tool is a complementary enabler—not the starting point or the central component.

While international frameworks provide solid conceptual guidance by defining principles, roles, and domains, these frameworks do not address in detail the complexities of actual implementation nor do they consider specific institutional conditions. There is a risk that data governance will remain a theoretical or normative exercise if concrete actions are not taken to translate the design into institutional practices. To avoid this, the SRI employed a combination of strategies: technical assistance from specialized consulting firms such as EY, support from the KSP program in partnership with the Korea Development Institute (KDI), a structured change management program, and self-directed learning and technical training for its internal team. This approach enabled the practical implementation of data governance, integrating concepts into operational processes and generating evidence of value from the early stages.

Finally, data governance is initially perceived as merely the implementation of a tool. However, the SRI's experience shows that tools represent the final phase of the process, not the beginning. Before incorporating advanced technology platforms, it is essential to lay the institutional groundwork: define information owners, establish quality guidelines, create indicators, measure maturity levels, and standardize concepts and metadata. Only once these elements are in place can the technological tool realize its full potential and become an effective enabler of the data governance model.

Taken together, these lessons underscore the importance of adopting a progressive, institutionally anchored approach based on human capacity building rather than on the implementation of technological solutions. The SRI's experience confirms that data governance is an ongoing process that requires strategic vision, leadership, operational discipline, and sustained commitment from the entire organization.

7. EXPECTED BENEFITS OF IMPLEMENTING THE DATA FABRIC

The consolidation of data governance and the implementation of the Data Governance and Advanced Analytics Project, based on a data fabric architecture, will enable the SRI to develop institutional capabilities of high strategic value.

First, a significant strengthening of operational and analytical capabilities is anticipated, resulting from the federated integration of information sources, the automation of metadata, and the availability of reliable data to feed predictive models, strategic indicators, and decision-support systems. This vision will make it possible to strengthen tax risk management, anticipate atypical behavior, and implement more timely and efficient tax controls.

Furthermore, when necessary, the proposed architecture will facilitate more robust interoperability with other public entities, enabling more integrated, secure, and consistent processes within the government ecosystem. This capability will optimize risk-based tax control, improve transaction traceability, and contribute to more far-reaching public policies, especially in a context where digital commerce demands increasingly agile responses.

In the area of taxpayer services, the adoption of the data fabric will enable progress toward smarter and more personalized digital services, based on standardized, high-quality data. This will facilitate the development of simpler tools, more intuitive processes, and predictive mechanisms that guide taxpayers toward proper compliance with their tax obligations. Consistency in the information provided across different institutional channels will help reduce errors, improve response times, and increase user satisfaction.

At the institutional level, the project will help strengthen the principles of transparency, security, and governance by providing more robust mechanisms to document data lineage, apply quality controls, audit data transformations, and ensure compliance with ethical and regulatory standards. This technical robustness will foster public trust and reinforce the SRI's reputation as an agency that uses information responsibly and strategically.

Ultimately, realizing these benefits will enable the SRI to move toward a smart tax administration model, in which information becomes the driving force behind innovation, efficiency, and institutional legitimacy. The ability to integrate, govern, and utilize data in a modern and secure manner will be a key enabler for addressing the challenges of the digital economy, supporting evidence-based decision-making, and sustaining a continuous process of institutional transformation.

CONCLUSIONS

The SRI's experience demonstrates that data governance has established itself as an indispensable pillar for strengthening modern tax administration. The launch of the Data Governance and Advanced Analytics Project, which includes the future adoption of a data fabric architecture, demonstrates that strategic information management not only enables more efficient processes but also helps consolidate a public management model based on evidence, transparency, and informed decision-making.

In a context marked by increasing economic complexity and sustained demand for digital services, the institutional capacity to govern, standardize, and utilize data becomes critical to ensuring the sustainability of the tax system.

The progress made reflects significant strides toward a comprehensive data governance model, underpinned by the formal definition of roles, semantic standardization, the gradual improvement of information quality, and the development of specialized technical capabilities. This process, which integrates strategic planning, technical support, change management, and institutional learning, has made it possible to establish a solid foundation for the adoption of emerging technologies focused on advanced analytics and intelligent tax control.

Beyond its internal benefits, the project positions the SRI as a reference institution in information governance and digital transformation. The interest expressed by international organizations such as the Inter-American Development Bank (IDB), as well as by various tax administrations in the region, confirms that the SRI is moving forward in line with international best practices and, furthermore, is beginning to generate replicable lessons and standards that can inform similar initiatives in other countries. This regional visibility reinforces the project's strategic importance and positions the SRI as an active player in the continent's tax modernization efforts.

Overall, the progress made and the capabilities developed demonstrates that the SRI is at a pivotal stage in its institutional evolution. The consolidation of data governance, together with the future implementation of the data fabric, will not only improve internal management but also drive a profound transformation toward a smart tax administration capable of anticipating risks, offering personalized services, strengthening public trust, and responding swiftly to the challenges of the digitalized economy. In this regard, data governance—far from being an isolated project—is a continuous process and a strategic component for the present and future of Ecuador's tax administration.

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APPENDICES

International Reference Frameworks for Data Governance

This appendix presents the conceptual foundations that underpin the implementation of data governance, identifying key international standards such as DAMA–DMBoK, OECD, CIAT, ISO/IEC 38505, and ISO 8000, and detailing the fundamental concepts used in this article.

a. DAMA–DMBoK: Global Data Management Standard

The *Data Management Body of Knowledge* (DAMA–DMBoK 2.0) is the most widely used framework for data management worldwide. DAMA defines data governance as: "The planning, oversight, and control of data management and related resources" (DAMA International, 2017).

DAMA defines disciplinary areas such as data architecture, quality, metadata, security, integration, storage, modeling, and analytics. Its main contribution to the tax field is the recognition of data as an institutional asset whose management requires formal roles, processes, standards, and responsibilities.

b. OECD: Data as a Strategic Asset of the State

The Organization for Economic Cooperation and Development (OECD) maintains that governments should: "Data are as a strategic asset by defining their value, measuring their impact, and using them to innovate in the design, delivery, and evaluation of public policies" (2024).

Its approach promotes the creation of data-driven public value, the ethical and secure use of data, interoperability, the protection of personal data, and evidence-based government decision-making. These guidelines are fully applicable to tax administration, which require reliable information for risk management and innovation in digital services.

c. CIAT: Data Governance for Tax Administrations

In its guide "*Data Governance for Tax Administrations: A Practical Guide* (2022)", CIAT states that: "Data are an essential asset within modern tax administrations," and that data governance is necessary to ensure that: data are consistent, reliable, protected, and used appropriately.

CIAT proposes a practical model that includes institutional policies, specialized roles (Information Owners, Data Stewards, CDO), information domains, quality, security, metadata, analytics, and operational models (centralized, decentralized, federated).

The SRI's preferred approach is a federated model in which operational units share responsibility for their data, while a central body establishes guidelines, standards, and cross-functional oversight mechanisms.

d. ISO/IEC 38505: Organizational Data Governance

The ISO/IEC 38505 series defines principles and responsibilities for the responsible, ethical, and traceable use of data. It stipulates that organizations must make decisions regarding data in a responsible and ethical manner, in alignment with organizational objectives.

e. ISO 8000: Data Quality

Quality is defined: "The ability of data to meet the needs of those who use them. It includes dimensions such as accuracy, consistency, completeness, validity, timeliness, and uniqueness."

Fundamental Concepts of Data Governance

This section presents the essential concepts that underpin the implementation of data governance in a tax administration. The definitions are based on the DAMA–DMBoK, CIAT, OECD, COBIT 2019, and ISO 38505–8000 frameworks.

a. Governance and data management.

Governance refers to the set of rules, decision-making structures, and oversight mechanisms through which an organization guides, controls, and evaluates its performance. COBIT 2019 defines it as the institutional capacity to assess, direct, and monitor organizational resources.

Data governance, according to DAMA–DMBoK, is the planning, oversight, and control of data management and related resources. It applies governance principles to the information lifecycle and ensures that data are reliable, complete, and secure; maintains integrity and traceability; are used in an ethical, responsible, and compliant manner; and generates value for institutional processes.

b. Data management.

Data management implements the guidelines established by data governance.

DAMA organizes it into 11 disciplines, including: data architecture, quality, metadata, storage, integration, security, data modeling, and design.

Its purpose is to ensure that data is available, accessible, standardized, and ready for analysis.

c. Data quality

This refers to the fact that the information is reliable and useful for analysis, operations, and decision-making. Its main dimensions include:

- Accuracy (reflects reality)
- Consistency (coherence between systems)
- Completeness (absence of omissions)
- Validity (compliance with rules)
- Being updated (Current validity)
- Unicity (without duplications)

d. Roles and Responsibilities of Data Governance

A clear definition of roles is one of the core principles of DAMA and CIAT.

- **Chief Data Officer** (CDO): strategic leader of the data function.
- Information Owner: Functional owner of the data within their domain.
- Data Steward: Operational custodian of the data; ensures its quality, integrity, and standardization.
- Data Quality Manager: responsible for monitoring metrics, diagnostics, and improvement plans.
- **Data architect**: defines models, lineage, metadata, and interoperability architecture.

e. Data Architecture

Data architecture describes the logical, technical, and organizational structure through which data flows, is organized, and is transformed. It includes conceptual and logical models, semantic definitions, data lineage (source–transformation–use), cross-functional flows, integration between systems, and technical standards and specifications.

A robust architecture is the foundation for advanced analytics and enabling technologies such as data fabric.

f. Metadata

Metadata are “data about data,” and allows users to: understand the meaning of the data, identify their origin, purpose, and transformation, ensure standardization, improve control and quality, and enable interoperability.

For CIAT and DAMA, metadata are a critical pillar of governance, since without them there is no common institutional language.

Information domains:
Domains group data related by a common purpose (for example: taxpayers, tax returns, tax collection, compliance, risks, internal processes). For CIAT, domains enable the agency to assign responsibilities, structure metadata, manage quality, facilitate the federated model, and ensure alignment with core business processes.

They constitute one of the central components of the SRI´s approach to organizing and governing institutional information.

g. Data culture

A data culture means that the entire organization: values data as an asset, uses information for decision-making, understands its responsibilities, adheres to best practices in data creation, processing, and utilization, and incorporates skills in analytics and artificial intelligence.

The OECD notes that no public-sector digital strategy can be sustained without an institutional culture based on evidence.

h. Enabling technologies: the data fabric

The data fabric is an architectural approach that integrates and automates data management in complex, distributed, and heterogeneous ecosystems.

Its capabilities include virtualization and intelligent integration, metadata, lineage, embedded governance, continuous quality, cataloging, analytics, and machine learning, among others.

Fiscal Transparency and Management of Tax Incentives in Brazil: the DIRBI as an Instrument of control, Evaluation and Public Accountability

Réritón Weldert Gomes

SYNOPSIS

This article analyzes the **DIRBI** (*Declaration of Incentives, Waivers, Benefits and Tax Immunities*) implemented by the **Federal Revenue of Brazil** as a structural innovation in the management and transparency of tax expenditure. The DIRBI consolidates, for the first time, standardized information on the different tax benefits granted by the federal government, making it possible to evaluate the amount of incentives granted, their scope and their consistency with public policies. The study describes the regulatory framework of this new declaration, the technological architecture that supports institutional interoperability and the expected impacts on control, evaluation and accountability. Finally, the article analyzes its potential as a regional reference to strengthening fiscal efficiency and transparency in Latin America.

KEYWORDS: Tax Transparency, Tax Benefits, Tax Expenditure, Tax Administration, DIRBI.

CONTENTS

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INTRODUCTION

The management of tax expenditures is one of the greatest challenges of contemporary tax administrations. Incentives, exemptions, waivers and differential treatments represent public policy decisions with significant impacts on revenue collection, equity and efficiency of the tax system. However, in most countries, the information on these benefits is usually dispersed, heterogeneous, lacking objectivity and characterized by a low level of transparency.

In Brazil, this issue has acquired special relevance due to the sustained growth of tax expenditures, which has become a growing concern for the Brazilian society. The continuous expansion of incentives, waivers, benefits and immunities of a tax nature granted by the federal, state and municipal governments has reduced the state's ability to invest in priority areas such as health, education and infrastructure.

At the federal level, the volume of tax expenditures increased from R$ 33.6 billion in 2003 to R$ 543.6 billion in 2025, according to the Budget Guidelines Act (LDO 2025), generating significant pressures on public accounts and the fiscal balance.

In order to face this structural problem, the Constitutional Amendment (EC) No. 109 of March 15, 2021, also known as *Emergency PEC*, introduced fiscal restraint measures and adjustment mechanisms aimed at ensuring the sustainability of public finances, including the limitation of expenditures linked to tax benefits.

Among the main objectives of EC 109/2021 are:

- **Making emergency assistance feasible:** it allowed the resumption of aid payments during the Covid-19 pandemic, establishing compensatory fiscal rules so as not to compromise public finances.
- **To institute the "state of national public calamity":** that, during its validity, dispensed with the observance of certain fiscal rules, such as the "expenses ceiling".
- **Create automatic fiscal adjustment mechanisms (triggers):** he incorporated the **article 167-A** in the Constitution, which establishes mandatory measures for federal entities that register current expenses exceeding 95% of their current income. These measures include restrictions on salary increases, the creation of positions or benefits, and hiring that involves increased spending.

An additional and crucial aspect of EC 109/2021 was the **limitation of expenses arising from tax benefits**, considered a form of indirect public expenditure. The most relevant provisions include:

- **Prohibition of granting or extension of benefits:** when the fiscal triggers are activated (current expenditure/income ratio of more than 95%, or optionally 85%), the entities are prevented from creating or expanding tax incentives.
- **Greater rigor in control:** the amendment strengthened the monitoring mechanisms on the growth of tax waivers as part of the effort to ensure fiscal sustainability.
- **Reduction plan at the federal level:** it determined the elaboration and sending of a plan of gradual reduction of incentives and tax benefits, evidencing the government's will to contain this type of public spending.

In summary, the **EC 109/2021** it established a new legal framework of fiscal responsibility, in which the restriction on the creation or extension of tax benefits becomes a central tool for the recovery of the balance of public finances.

This new legal paradigm is accompanied by the debate on the consumption tax reform (Complementary Law No. 214/2025) and the need to have a comprehensive view of tax expenditure, which allows evaluating the effectiveness of economic and social stimulus policies. In this context, the Federal Revenue of Brazil, in coordination with the Ministry of Finance, developed the Declaration of Incentives, Waivers, Benefits and Tax Immunities (DIRBI), an instrument that introduces a new paradigm in the management of tax benefits.

The purpose of the DIRBI is to systematize, validate and publish the information on the benefits granted by the Federal Government in an objective and transparent manner, thereby promoting accountability and social control of the use of public resources. Beyond its declarative nature, the system constitutes an interoperability and data analysis platform, enabling a deeper understanding of the impact of tax benefits on the economic and social development of the country.

1. CONCEPTUAL AND NORMATIVE FRAMEWORK

1.1. Context of tax benefits in Brazil

During the last decades, the Brazilian tax system has incorporated an increasing number of exemptions, reductions of tax rates, presumed credits and special regimes, aimed at promoting specific economic sectors or regions.

According to the official estimates of the Federal Revenue of Brazil and the Budget Guidelines Act 2025 (LDO 2025), the annual volume of federal tax waivers is about 5% of the Gross Domestic Product (GDP), reaching R$ 543.6 billion in 2025.

This amount reflects a significant impact on the sustainability of public accounts and confirms the structural weight of tax benefits within Brazilian public spending. (Reference: Budget Guidelines Act 2025 – Annex V https://www25.senado.leg.br/documents/137784508/140419628/Anexo_V.pdf/35cee2bb-86d4-497d-b6a1-976c0bd9f627)

The growth of tax benefits is a structural trend of expansion observed since the early 2000s. In 2003, federal tax expenditures amounted to just R$ 33.6 billion; twenty years later, that figure had grown by a factor of sixteen.

In relative terms, more than one real out of every five collected by the Brazilian state stops entering the public budget due to tax waivers, which restricts the fiscal space available for investment in social and infrastructure policies. Comparatively, the current volume of these expenditures is equivalent to almost half of the federal budget allocated to education or twice the annual expenditure on public health, which reinforces the urgency of establishing a solid institutional framework to monitor their effectiveness and legitimacy.

The multiplicity of legal regulations, the historical absence of consolidated data on the total amount relinquished, the lack of uniform evaluation criteria and the absence of a centralized register of beneficiaries have made it difficult to measure and effectively control tax incentives.

Despite the historical effort of the Ministry of Finance to publish annual estimates, traditional tax expenditure reports had substantive limitations, including:

- lack of **regular updating** and data traceability;
- **regulatory heterogeneity**, with more than a thousand legal incentive provisions in force;
- and **the absence of an integrated base** that would allow to accurately identify the beneficiary taxpayers and the amounts actually waived.

These gaps created obstacles for the public oversight, accountability and the assessment of the economic and social impacts of the benefits.

Faced with this scenario, the Declaration of Incentives, Waivers, Benefits and Tax Immunities (DIRBI) emerges as a modern, evidence-based institutional response, oriented toward obtaining objective and standardized data on the amounts forgone, reducing information asymmetries and strengthening intergovernmental coordination in the management of tax benefits

1.2. Legal basis and strategic objectives of the DIRBI

After the approval of the Constitutional Amendment No. 109/2021, the Brazilian legal framework moved towards greater transparency in tax benefits. Historically, Article 198 of the National Tax Code (CTN), in its original wording, enshrined tax secrecy, and for decades it was invoked as a basis for denying the disclosure of information about the value or beneficiaries of tax exemptions, subsidies or incentives. This precept limited transparency and hindered social control over the use of public resources foregone through tax expenditures.

However, Complementary Law No. 187 of 16 December 2021 introduced a significant amendment to that article, adding §3.º, paragraph IV, which establishes an exception to the tax secrecy rule to authorize the disclosure of information related to incentives or benefits of a tax nature whose beneficiaries are legal entities. (Reference: Lei Complementar nº 187/2021 – art. 198, §3º, IV, CTN)

The impact of this modification was transformative, inaugurating a new stage of **active transparency** in the management of tax benefits in Brazil. Among its main effects are:

- **Removal of tax secrecy:** the reform eliminated the legal barrier that previously protected the identity of companies benefiting from tax exemptions, subsidies or reductions.
- **Increased transparency:** it established the possibility – and in some cases, the obligation – to publish data relating to the beneficiaries of tax incentives, promoting greater social control and public scrutiny over the use of resources derived from tax waivers.
- Progressive implementation by the federative entities**:** the rule required the adoption of implementing regulation by the Union, the States and the Municipalities to operationalize this active transparency, which is gradually being developed through complementary regulations.

In this new legal and institutional context, the Declaration of Tax Incentives, Waivers, Benefits and Immunities (DIRBI) was established by Law No. 14,973, of September 16, 2024, which determined the obligation, at the federal level, for tax benefit granting bodies to publish and keep updated information on programs and incentives of a tax nature.

Its regulations, developed by the Federal Revenue of Brazil, defined the registration, validation, analysis and publication modules, guaranteeing a continuous and secure flow of information between the different levels of government. (Reference: Law Nº 14.973/2024).

Among the **strategic objectives** of the DIRBI are the following:

- To promote the **active transparency** regarding tax expenditures and their beneficiaries;
- To allow for the **periodic evaluation** of the effectiveness of incentives in relation to their economic and social goals;
- To facilitate accountability before the National Congress and the control bodies;
- To provide technical inputs for the review and rationalization of tax benefits policies;
- To encourage the **federal cooperation** and interoperability between tax administrations.

The effective implementation of the DIRBI was achieved through the **Normative Instruction RFB nº 2.198, of June 17, 2024**, which established the procedures and technical specifications for the declaration of tax benefits by taxpayers.

With this rule, the Federal Revenue of Brazil consolidated a **new model of accessory obligation**, which integrates transparency, interoperability and digital governance into the Brazilian tax system. (Reference: Instrução Normativa RFB nº 2.198/2024).

1.3. International references and comparative best practices

Various tax administrations have made progress in the development of **tax expenditure observatories, reports and catalogs**, focusing on transparency, traceability and periodic evaluation. Among the most relevant international experiences are:

- **Spain**, with the *Annual Tax Benefits report*, published by the Ministry of Finance, detailing the cost of each measure and its impact on the State budget[1].

- **Chile**, whose *Tax Expenditure Report* includes standardized technical data sheets by measure, evaluating its justification and scope, prepared by the Directorate of Budgets (DIPRES)[2].

- **Mexico**, with the *Reports on Tax Revenue forgone* of the Ministry of Finance and Public Credit (SHCP), which present historical series and ex-ante and ex-post evaluations[3].

- **Colombia**, through the *Tax Benefits Report* of the Ministry of Finance and the DIAN, which incorporates digital catalogs and effectiveness analysis[4].

These experiences converge in the adoption of public catalogs, clear metadata and comparable series, thus establishing an international standard of fiscal transparency.

The DIRBI aligns itself with this model by combining mandatory declaration, technological integration and institutional interoperability, with the publication of open data on the Federal Revenue of Brazil portal and the *Transparency Portal* of the Federal Government of Brazil【[5]】.

The **DIRBI** it also responds to the essential principles of a Modern tax administration, in line with the recommendations of the Inter-American Center of Tax Administrations (CIAT), the Organization for Economic Cooperation and Development (OECD), the International Monetary Fund (IMF) and the United Nations (UN). Among the most prominent pillars are:

- **Transparency, good governance and the fight against tax evasion and fraud**: The data obtained through the DIRBI are published on the open data portal of the RFB, in downloadable spreadsheet format and through the *interactive DIRBI dashboard.* This instrument promotes accountability and contributes to the control of evasion, since the **identification of beneficiaries** allows to detect the misuse of tax benefits and prevent tax avoidance. (See: CIAT, *Manual of Good Practices in the Measurement of Tax Expenditures*, 2011; OECD, *Best Practices for Budget Transparency*, 2022; IMF, *Fiscal Transparency Handbook*, 2019).

- **Simplification and legal certainty:** The creation of a simplified declaration, available in the *E-CAC portal* of the Federal Revenue of Brazil, with API (Application Programming Interface) integration and automatic validations, reduced the administrative burden of taxpayers. In addition, Law No. 14,973 of September 16, 2024, and Normative Instruction RFB No. 2,198/2024 established clear rules on the conditions for receiving tax benefits, providing greater legal certainty. (See: OECD, *Tax*

Administration 2023: Comparative Information on OECD and Other Advanced Economies, Paris: OECD Publishing).

- **Modernization and digitalization**: The DIRBI uses advanced automation, interoperability and data analysis technologies, facilitating the interaction between the tax administration and taxpayers through personalized communications. The publication of information in an open format strengthens the **active transparency** and citizen access to high-value data. (See: IMF, *Digital Government Transformation and Tax Administration*, How-To Note 2022/4).

- **Focus on compliance and risk management**: The DIRBI allows automatic verification of compliance with the legal requirements associated with the application of tax benefits, identifying non-conformities, optimizing the control processes and encouraging the **voluntary self-correction** through automatic non-compliance alerts. (See: CIAT, *Risk Management in Tax Administration*, 2020 CIAT Series).

The implementation of the DIRBI is a continuous and evolving process, based on the institutional commitment of the Federal Revenue of Brazil, the investment in technological infrastructure and the permanent training of its technical staff. It also reflects an constant dialogue with internal and external actors -subnational entities, control bodies, the private sector and international organizations-, which ensures the consolidation of a culture of transparency and accountability in the management of tax benefits.

2. DEVELOPMENT: THE DIRBI

2.1. System architecture and components

The **DIRBI** it is structured into **four functional layers** that integrate the management, validation, analysis and publication of tax information:

- **Declarative layer:** structured reception of the information by the granting bodies and taxpayers, with **automatic validations, integrity rules and consistency checks** that guarantee the consistency of the declared data.

- **Semantic layer:** it forms a **unique and standardized catalog** of types of incentives, waivers, benefits and immunities, based on common taxonomies, data dictionaries and interoperable metadata that facilitate the cross-referencing of federal, state and municipal bases.

- **Analytical layer:** consolidates **time series and comparable dimensions**, allowing traceability by program, legal basis, economic sector, geographical region and target group. This layer constitutes the core of the fiscal intelligence and public policy monitoring model.

- **Publishing layer:** integrates an **interactive public dashboard (Power BI)** and open-format data sets available in the **Federal Revenue of Brazil Open Data Portal**, promoting active transparency and the reuse of information by researchers, journalists and control bodies.

The DIRBI is a simplified electronic declaration through which legal entities inform the Federal Revenue of Brazil of tax credits not constituted as a result of incentives, waivers, benefits or immunities of a tax nature.

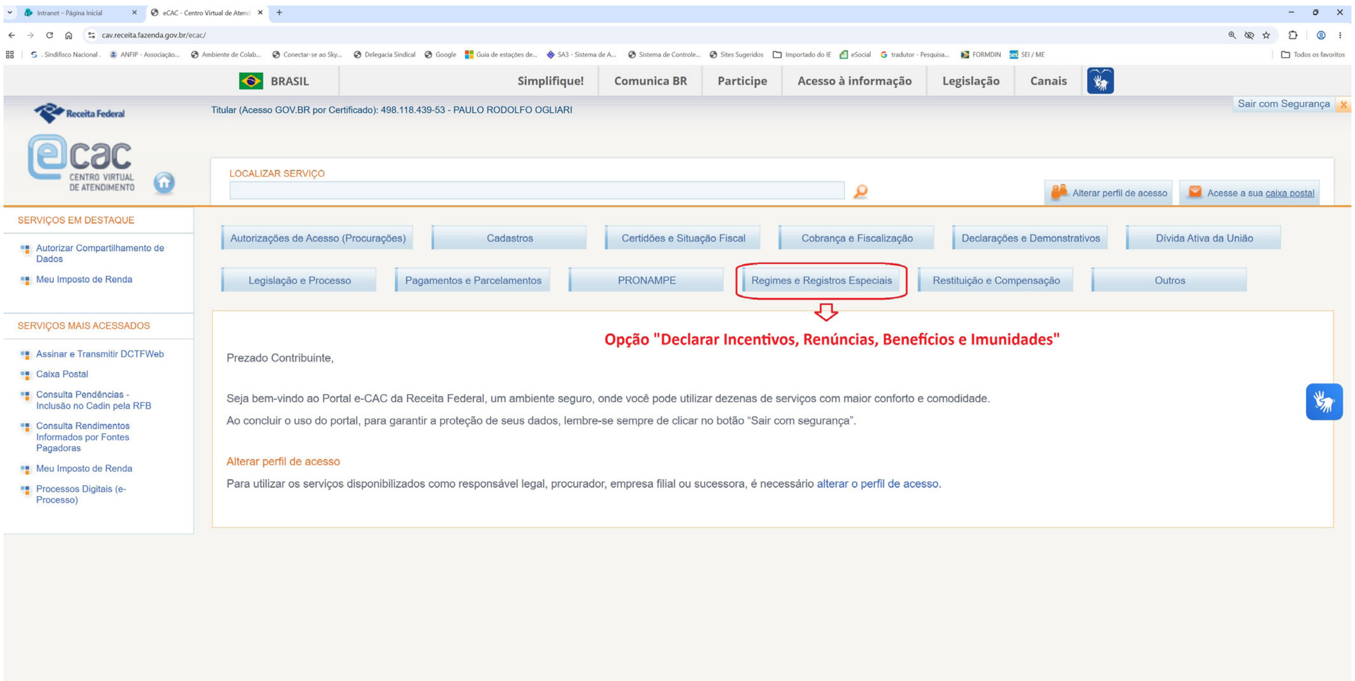
Its implementation has been gradual: it began in 2024 with 16 reportable tax benefits, reaching 88 active benefits in 2025 and 173 in 2026, with benefit utilization data available since January 1, 2024.

The declaration can be submitted directly through the e-CAC Portal or through API integration, which allows automatic communication between companies' accounting systems and the RFB platforms, guaranteeing efficiency, error reduction and administrative time savings.

The illustrations presented below show how the electronic form of the DIRBI – accessible on the e-CAC Portal of the Federal Revenue of Brazil – was designed under the principles of simplicity, objectivity and transparency.

In the first image, the interface of the *Virtual Taxpayer Assistance Center (e-CAC)*, where the option "Declare Incentives, Waivers, Benefits and Immunities", available in the menu *Special Regimes and Registers*, allows the user to directly access the digital declaration system.

Figure 1
E-CAC Portal – access option to the DIRBI

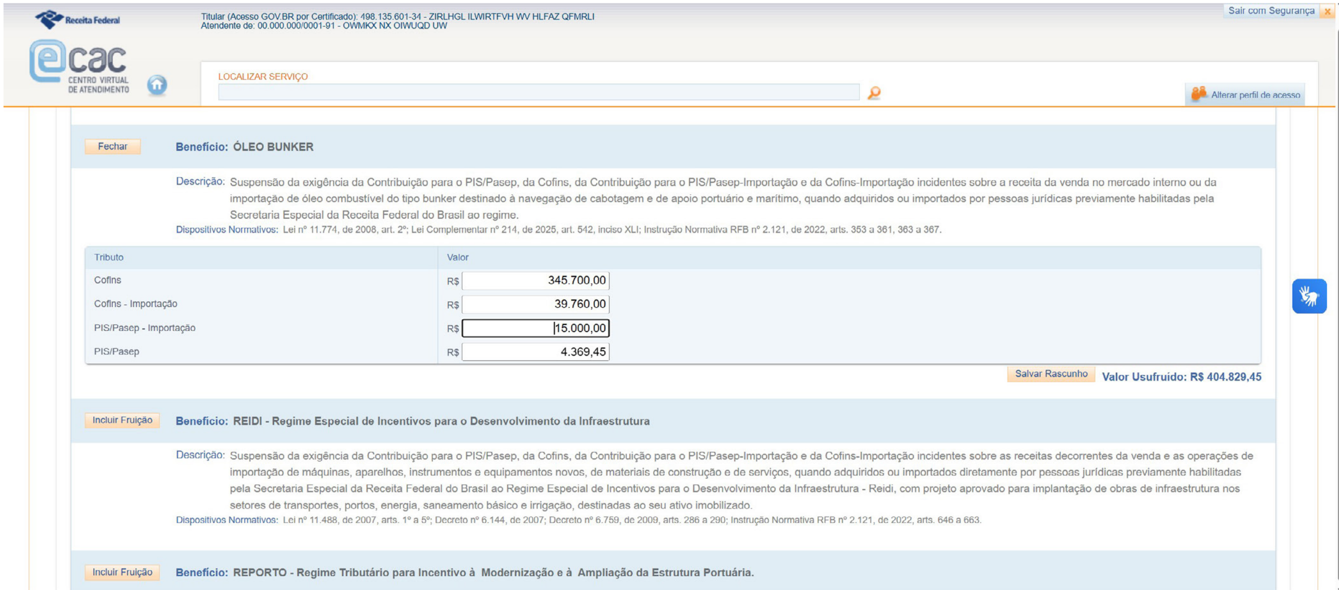


Source: Federal Revenue of Brazil – e-CAC portal.

In the **second image**, it is evident how the **data-entry process is streamlined and structured**, with predefined fields by type of tax and with detailed information about each tax benefit applied. The system features automatic validations and an intuitive interface that facilitates the spontaneous declaration of the taxpayer, promoting transparency and accuracy of the reported data.

Figure 2

Tax Benefit Utilization Form – practical example in the e-CAC



Source: Federal Revenue of Brazil – e-CAC portal.

The following entities are **required to submit to the DIRBI monthly**:

- Legal entities governed by private law, including those treated as such for tax purposes and exempt entities;
- **Consortia** that conduct legal transactions on their own behalf, including the hiring of natural or legal persons, with or without employment ties.

The following entities are **dispensed from filing** the DIRBI:

- **Micro and small enterprises** included in the **Unified Special Regime (Simple National)**, instituted by the Complementary Law **No. 123/2006**, as regards the period covered by that scheme;
- The individual microentrepreneur (MEI);
- The **legal entities commencing activities**, with respect to the period between the month of their incorporation and the month prior to their registration with the *Cadastro Nacional da Pessoa Jurídica* **(CNPJ)**;
- The **entities immune to taxes or contributions**, in accordance with the provisions of current tax legislation. (References: Instrução Normativa RFB nº 2.198/2024; Lei nº 14.973/2024).

In this way, the DIRBI embodies a modern approach to **digital tax governance**, by combining usability, automated control and public accessibility, elements that strengthen **trust between the tax administration and taxpayers**.

The system is also an essential tool for the **prevention of tax evasion and tax fraud**, since electronic self-declaration allows the Federal Receita to **verify in real time** the legitimacy of the reported values and detect possible inconsistencies.

2.2. Governance and institutional cooperation

The implementation and consolidation of the Declaration of Incentives, Waivers, Benefits and Tax Immunities (DIRBI) rests on a collaborative governance model that involves different levels of public administration, control bodies and civil society. This inter-institutional framework makes it possible to guarantee regulatory coherence, technological interoperability and the strategic use of tax information.

- **Federal Revenue of Brazil (RFB) / Ministry of Finance:** Responsible for the regulatory and technological coordination of the system, the stewardship of the national catalog of tax benefits and the monitoring of declarative compliance. The RFB acts as the managing authority and guarantor of data quality, integrating information from the granting entities through automated procedures and standardized taxonomies. Its role also includes the generation of periodic reports of active transparency, available through the **Open Data from the RFB**.

- **Sectoral and subnational bodies:** They participate in the homogeneous coding of the programs and in the transmission and certification of information within the DIRBI system, ensuring the traceability of the tax benefits granted in their respective areas (industry, agriculture, infrastructure, innovation, etc.). This flow of intergovernmental information promotes a comprehensive view of tax expenditure at all three levels of government.

- **National Congress and control bodies (TCU/CGU):** They use the data from the DIRBI as the main input for the evaluation of public policies, audits and effectiveness reviews. The Court of Auditors of the Union (TCU), in its *Relatório de Levantamento sobre Gastos Tributários Federais 2024*, stressed the importance of the system for transparency and control of tax expenditure【[1]】.

Similarly, the **Office of the Comptroller General of the Union (CGU),** in their **2024 Tax Expenditure Dashboard**, consolidated information from the DIRBI and sectoral bodies for joint monitoring of fiscal waiver policies【[2]】. (References: 1TCU – *Relatório sobre Gastos Tributários Federais* 2024; 2 CGU – Panel of Tax Expenditures)

- **Civil society, academia and international organizations:** They access the **open data and statistical series** published by the RFB and the control bodies, enabling applied research and comparative studies on the efficiency and equity of tax benefits. The informed participation of society and the scientific community strengthens accountability and supports the cycle of continuous improvement in the management of tax expenditure, in line with the good practices promoted by the CIAT, the OECD and the IMF.

2.3. Indicators, analysis and results

The DIRBI has reached a degree of institutional maturity that allows the construction of comparable historical series, the traceability of tax incentives and the use of open information by society, control bodies and academia.

In its initial phase, the DIRBI consolidated 16 tax benefits and tax waivers prioritized for standardization and publication. As the declarative processes were strengthened and new granting bodies were incorporated, the catalog was progressively expanded to reach 88 active benefits in 2025, covering all relevant sectors of the Brazilian economy. 【[1]】

1 News RFB – Lançamento do Painel DIRB

As of May 2025, 1,013,864 declarations had been filed by 95,067 taxpayers, totaling R$ 419.94 billion in declared amounts, according to the official DIRBI dashboard of the Brazilian Federal Revenue (RFB). [2]

This expansion reinforces the role of the DIRBI as a national platform for transparency and control of tax expenditures, integrating federal, sectoral and territorial bases.[3]

The model is based on two main transparency instruments:

- The **Interactive Dashboard Power BI – DIRBI**, which allows to visualize values, filers and temporal evolution of tax benefits. Federal Revenue of Brazil – Painel DIRBI (Power BI).

- The **Catalogue of Open Data of the Receita Federal**, which provides *datasets* downloadable with up-to-date metadata, taxonomies and legal references. Catalogue of Open Data – Benefícios e Renúncias Fiscais (RFB).

These tools comply with the principles of proactive transparency, interoperability and reuse of public data, in line with the OECD recommendations (*Best Practices for Budget Transparency*, 2022) and the IMF's recommendations (*Fiscal Transparency Handbook*, 2019).

Based on the international methodology of tax expenditure management (OECD, CIAT, IMF), the following battery of performance indicators for the DIRBI is proposed:

- **Catalogue coverage:** number of benefits published / universe identified (growth of 16 → 173 = institutional maturation).

- **Fiscal effort:** total cost of the waiver by type of instrument (exemption, presumed credit, reduced tax rate, etc.).

- **Concentration:** Herfindahl index by benefit or sector (top 10 profits and top 5 sectors).

- **Territorial equity:** distribution by Federal Unit and per capita ratio.

- **Programmatic effectiveness:** linking the benefit with public policy objectives (employment, investment, innovation, regional development).

- **Duplication or complacency:** identification of overlaps on the same economic basis.

- **Declarative compliance:** percentage of granting bodies that report on time and rate of declarations correction rate.

The first results show the **maturation of the system and the consistency of the declared data**. The standardization of metadata has made it possible to reduce asymmetries between historical tax expense reports and current declarations.

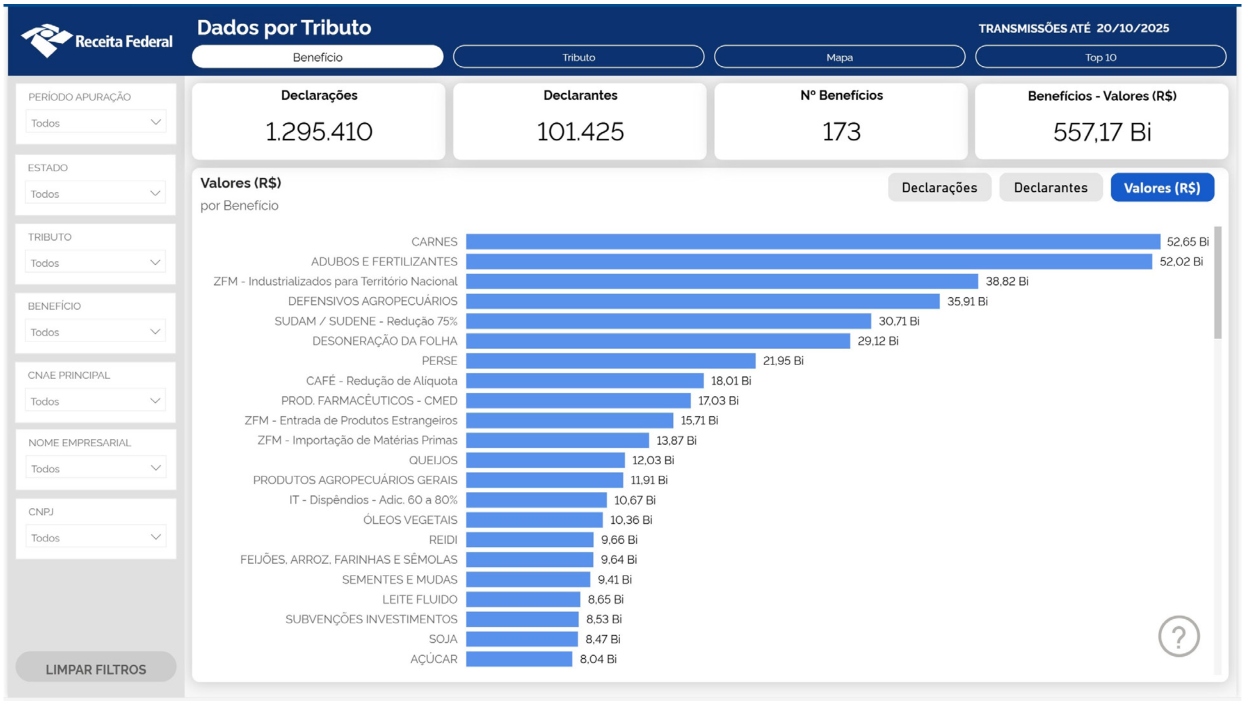
The DIRBI dashboard, the main visualizations of which are reproduced below, allows users to explore the declarative data under different analytical perspectives:

2 Federal Revenue of Brazil – Painel DIRBI (Power BI)

3 Catalogue of Open Data – Benefícios e Renúncias Fiscais (RFB)

Figure 3

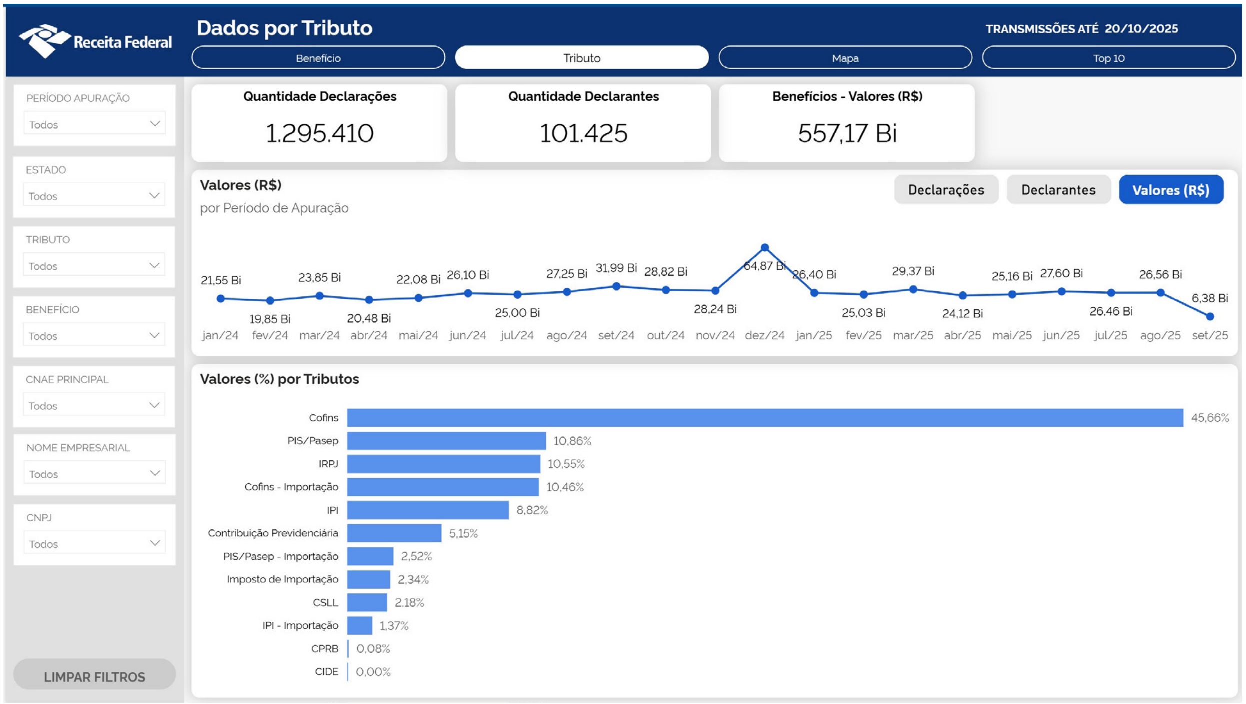
Total declared by tax benefit (in R$)



Source: Federal Revenue of Brazil – Painel DIRBI (Power BI)

Figure 4

Monthly evolution and distribution by affected tax

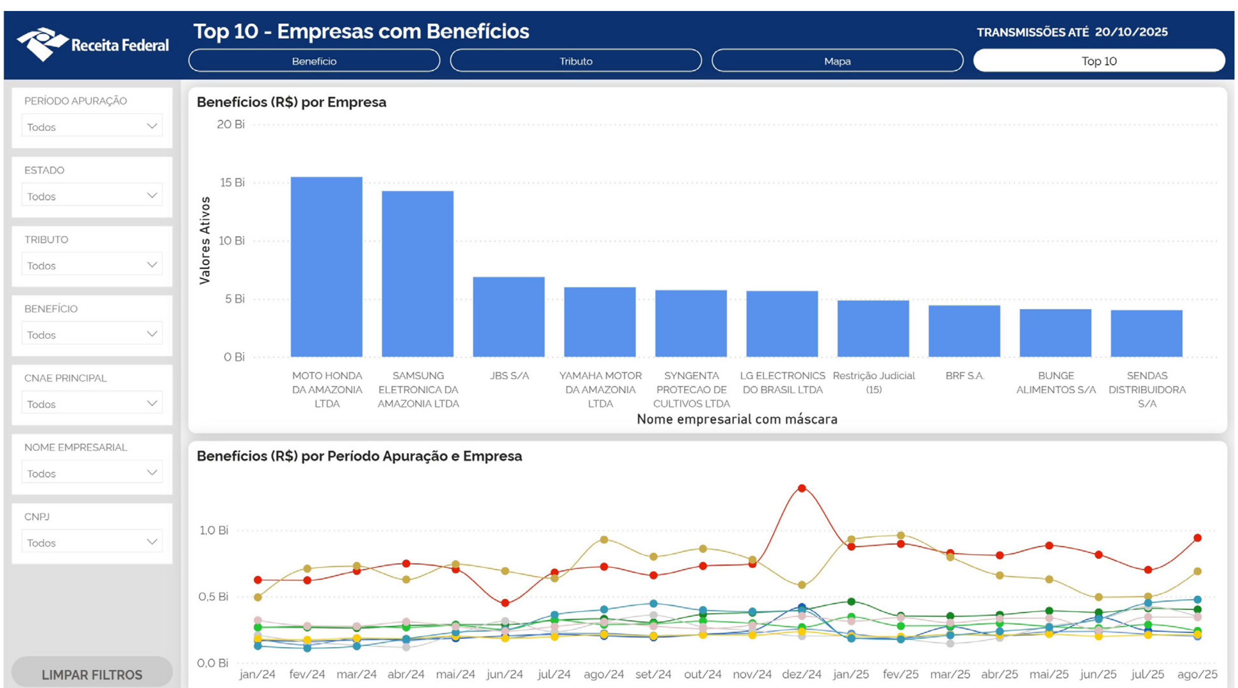


Source: Federal Revenue of Brazil – Painel DIRBI (Power BI)

Figure 5
Geographical distribution of tax benefits by state and company

Source: Federal Revenue of Brazil – Painel DIRBI (Power BI)

Figure 6
Ranking of the main beneficiary companies (Top 10)



Source: Federal Revenue of Brazil – Painel DIRBI (Power BI)

The available data allows us to observe that:

- The most significant benefits correspond to **“Meat and Meat Products” (R$ 52.65 bi)” “Fertilizers” (R$ 52.02 bi)**, and **“Manaus Free Trade Zone (ZFM) – Industrial Goods for the Domestic Market” (R$ 38.82 bi)**.

- The most affected taxes are “**Cofins” (45.66 %)**, “**PIS/Pasep” (10.86%), “IRPJ” (CIT – 10.55%), “Cofins – Importação” (10.46)** and- “**IPI” (8.82 %)**.

- The geographical concentration evidences a strong presence in the states of the **North and Southeast**, highlighting Amazonas, São Paulo and Rio de Janeiro.

- The companies with the highest declared benefit utilization belong to strategic sectors (automotive, electronics, agro-industry and pharmaceutical).

Together, the DIRBI consolidates an **unprecedented instrument of fiscal governance**, which allows the tax administration, the Congress and the control bodies to **evaluate, compare and redesign tax expenditure policies** based on empirical evidence and verifiable public data.

2.4. The PERSE as a success story of the DIRBI

The Events Sector Recovery Emergency Program (PERSE) has established itself as an emblematic example of the successful use of the DIRBI to guarantee transparency, governance and control of tax benefits.

Through the simplicity of the declarative model and the technological integration of the DIRBI, the Federal Revenue of Brazil was able to monitor in real time the evolution of the tax waivers, consolidating information from more than **14 thousand beneficiary companies**.

According to the *Bimonthly Follow-up Report of the PERSE (June 2025)*[4]*,* the declared data allowed to verify that the program reached the **legal limit of R$ 15 billion** in March 2025, which justified its termination effective April 2025. The charts included in the report (Figure 7 and figure 8) show the monthly and cumulative evolution of the tax waiver, showing how the DIRBI made possible a transparent, accurate and public monitoring process.

The results showed that the DIRBI allowed:

- The immediate identification and correction of inconsistencies;

- The publication of periodic reports with auditable and verifiable data;

- The holding of a public hearing at the National Congress, based on empirical evidence;

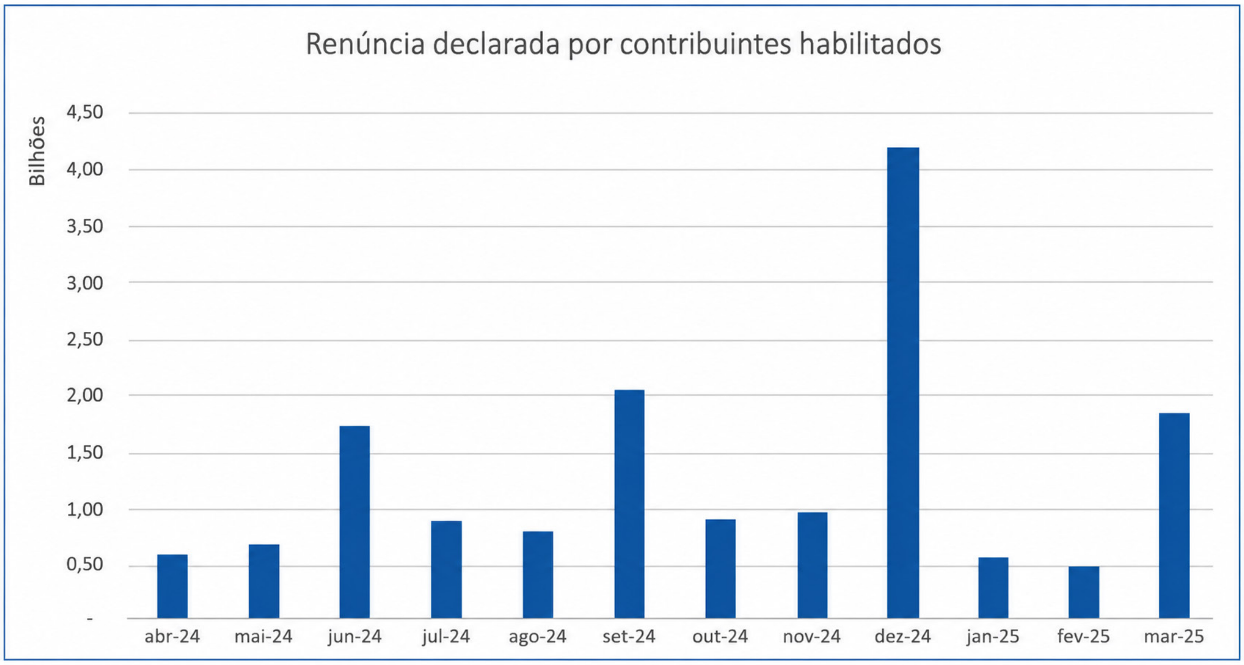
- An improvement in market predictability and legal certainty.

The PERSE case illustrates how the DIRBI strengthens fiscal discipline and data-driven decision-making, aligning with the best practices recommended by CIAT, the OECD and the IMF.

4 *https://www.gov.br/receitafederal/pt-br/centrais-de conteudo/publicacoes/reports/perse/report-bimonthly-of-accompanying-do-perse-2025-06-02-4.pdf/view*

Figure 7

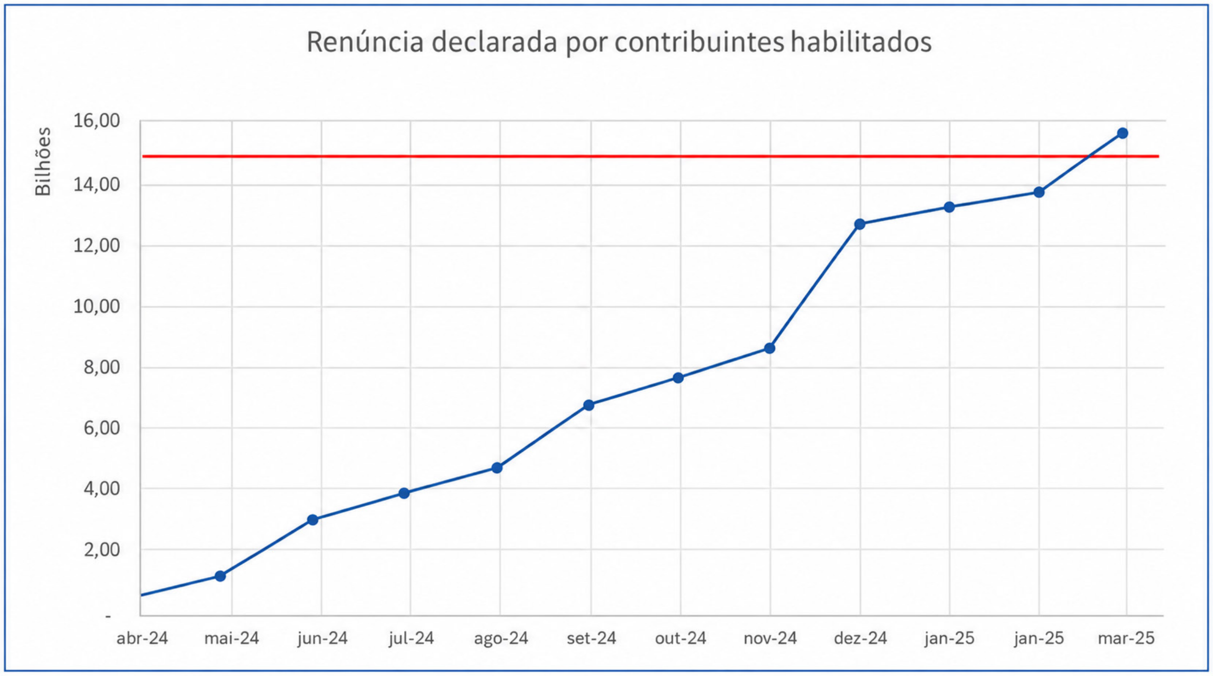
Tax waiver by reporting period (Apr/2024-Mar/2025)



Source: Tax benefits management system (SISEN).

Figure 8

Accumulated tax waiver and attainment of the legal limits (R$ 15 billion)



Source: Tax benefits management system (SISEN)

3. EXPECTED IMPACTS AND CONTRIBUTIONS FOR FISCAL TRANSPARENCY

- The implementation of the **Declaration of Incentives, Waivers, Benefits and Tax Immunities (DIRBI)** constitutes a milestone in the modernization of public tax expenditure in Brazil. Its design and initial results allow to anticipate structural impacts in terms of **transparency, tax efficiency and digital governance**.

- **Active transparency:** The DIRBI transforms the treatment of tax expenditure into an auditable and verifiable process, guaranteeing public access to consolidated data and promoting the **parliamentary, social and academic oversight**. Tax benefits are no longer an "opaque area" of the budget, becoming a component subject to accountability and performance analysis.

- **Regulatory improvement:** The system favors the incorporation of sunset clauses, periodic reviews and verifiable goals for each incentive program. This approach allows the continuity of a benefit to depend on its real impact on employment, investment or regional development, promoting regulatory discipline and results-based evaluation.

- **Fiscal discipline and empirical evidence:** The DIRBI generates quantitative and traceable information that facilitates public policy decisions on the continuity, redesign or extinction of low-performing benefits. By consolidating data on the beneficiaries and the associated fiscal costs, it provides empirical evidence for the review of tax expenditures at all three levels of government.

- **Interoperability and institutional cooperation:** The platform enables the reuse of data by the Court of Auditors of the Union (TCU), the Office of the Comptroller General of the Union (CGU) and subnational treasuries, stimulating the creation of local observatories of tax expenditure. This interoperability ecosystem encourages regulatory convergence and federal fiscal transparency.

- **Replicability and federative model:** The successful experience of the DIRBI has the potential to be replicated, with the corresponding adaptations, by state and municipal tax administrations. The new paradigm of fiscal transparency, consolidated with the modification of the *National Tax Code* in 2021, encourages all tax authorities to publish the benefits granted to legal entities and their respective tax impacts.

- In this context, the DIRBI inaugurates a virtuous cycle of **evaluation and redesign of public policies based on tax benefits**, by generating objective data on the beneficiary taxpayers, the amounts involved and their territorial and sectoral distribution. This approach strengthens the legitimacy of fiscal decisions and facilitates studies of efficiency and equity in the use of public resources.

- **Innovation and international transfer:** The declarative and technological models developed by the Federal Revenue of Brazil – particularly the transmission, validation and automatic benefits utilization analysis – can serve as a **basis for new tax management tools** at other levels of government and even in other Latin American tax administrations.

Since tax incentives are key economic policy instruments in many countries, the **DIRBI** is presented as a **replicable reference** in terms of transparency, control and evaluation of tax expenditure, in line with the good practices promoted by the CIAT, the OECD and the IMF.

CONCLUSIONS

The Declaration of Tax Incentives, Waivers, Benefits and Immunities (DIRBI) is consolidated as a data governance and accountability framework for tax benefits in Brazil.

The combination of mandatory declaration, public catalog and publication of information as open data creates the necessary conditions for an evidence-based management model, enabling the prioritization of resources, rationalization of incentives and the improvement of public policies.

The institutional evolution—from 16 initial benefits to 173 currently declared benefits – demonstrates the maturation of the system and its ability to adapt to the complexity of national tax expenditure. This progress reinforces its potential for replication among CIAT member tax administrations, especially when combined with indicators of effectiveness, efficiency, and equity, as well as easily accessible public dashboards that promote active transparency.

Another relevant finding is that the DIRBI contributed directly to the control and containment of tax expenditure, as evidenced by the case of the Emergency Program for the Resumption of the Events Sector (PERSE). The tool made it possible to verify the effective scope of the benefit and the anticipated exhaustion of the maximum limit established by legislation (R$ 15 billion), which led to the termination of the program 21 months before the originally scheduled deadline.

The objectivity of the declarative data and the traceability provided by the DIRBI were decisive in supporting the administrative decision and its defense in the judicial field, strengthening the legitimacy and predictability of fiscal policy.

Looking ahead, it is expected that this objectivity will contribute to keeping tax benefits within sustainable budgetary limits, in line with the established goal of reducing tax exemptions to 2% of Gross Domestic Product (GDP) in the coming years.

Likewise, the DIRBI will make it possible to design more efficient public policies, by providing accurate information on the effective cost of each incentive, its distributive impact and its social and economic return, consolidating a new paradigm of transparency, fiscal discipline, and tax responsibility.

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Data-intensive Operational Model for VAT Management: Towards a Continuous, Transparent, and Efficient Evaluation

Carlos Galberto Silva Ribeiro
Ríriton Weldert Gomes

SYNOPSIS

This article proposes an operational model for the administration of Value Added Tax (VAT) based on the intensive use of data and the continuous evaluation of transactions. This model breaks with the traditional logic of periodic tax returns and is based on electronic consumer records as a single source for tax settlement, collection, and control. It incorporates mechanisms such as the *split payment*, the automatic recognition of input tax credits and the *compliance by design*, promoting a more efficient, transparent, and equitable tax administration. Its flexible architecture allows replication and adaptation in other tax administrations around the world, constituting a global reference for the digital transformation and modernization of VAT management within the framework of Tax Administration 3.0.

KEYWORDS: VAT, Tax Administration, Digitalization, Tax Compliance, Continuous Evaluation.

CONTENTS

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INTRODUCTION

The increasing complexity of contemporary economies, coupled with the expansion of digital transactions and the demand for greater fairness and transparency in the tax system, has challenged traditional models of tax collection and supervision.

Currently, tax administration (TA) is, in essence, a data processing operation that depends to a large extent on the availability and quality of these (OECD, 2020); and VAT, adopted by more than 165 countries (OECD, 2017), plays a central role in the structure of consumption taxation, requiring more modern and flexible solutions from tax authorities.

The digital transformation of TAs is one of the pillars of the so-called Tax Administration 3.0 (OECD, 2020). This new paradigm is characterized by the convergence of advanced technologies, the intensive use of data and the integration of taxpayers' natural systems, with the purpose of promoting tax compliance automatically, in real time and with a lower administrative burden.

Traditional VAT settlement models, based on periodic tax returns, depend to a large extent on the taxpayer's good faith and ex post audit processes. This time lag between the transaction and its supervision generates a structural gap between the taxable event and the actions of the tax administration, which limits the ability to promote compliance in a timely manner and facilitates fraudulent practices.

In this context, the main objective of this article is to propose a VAT operational model based on the intensive use of data, in order to modernize tax management, simplify compliance, strengthen revenue collection capacity, and contribute to a more efficient and taxpayer-centered business environment. The proposal takes as its reference international guidelines and good practices established by the OECD, the CIAT, the IMF and the World Bank Group.

The proposal presented breaks with the logic based on periodic tax returns or closures and proposes a continuous, integrated, and automated system for VAT management. At the core of the model is DataROC, a set of relevant data for each transaction, derived from Consumer Transaction Records (ROC in Portuguese), such as electronic invoices, declarations or information of all documents or forms used to record taxable events. DataROC becomes the fundamental unit for the instant entry of tax debits and credits, for risk analysis and for extensive control tax control.

The proposed technological architecture is designed to natively integrate with taxpayers' natural systems, including enterprise resource planning (ERP) systems, payment platforms, and tax document issuers. This integration allows the information to be transmitted directly from the primary sources to the tax administration, without the need for reprocessing, manual interventions, or duplicate reporting. This significantly reduces compliance costs and increases the quality and consistency of the data used for VAT management.

It should be noted that a large part of these ideas was submitted for analysis by the Brazilian Federal Revenue Service (RFB) during the process of designing the contribution on goods and services (CBS), within the framework of the Consumption Tax Reform, and was therefore technically validated and accepted as a reference for the drafting of Complementary Law 214 of January 16, 2025, which established the Brazilian Dual VAT, especially with regard to its operational structure.

1. CONTEXT AND MOTIVATION OF THE MODEL

The assessment and collection of taxes are traditionally conceived as an episodic process, based on periodic accessory obligations. The determination and payment of a tax follow a periodic cycle in which the taxpayer is responsible for recording transactions, calculating the tax payable and submitting the corresponding return. This process is organized in successive stages: first, the sales and services subject to the tax are documented; then, the balance between debits and credits accumulated in the period is calculated; and finally, the resulting amount is declared and paid within the deadline set by the tax authority. The operational logic is based on accounting records and formal tax returns that seek to ensure traceability and regulatory compliance.

However, this approach fragments tax information by distributing it across different documents—invoices, accounting books, declarations, and other files—that do not always maintain a uniform standard. This dispersion limits the ability of the tax administration to conduct verifications closer to the taxable events. As a result, data matching processes become more complex, the detection of inconsistencies is delayed, and audit processes require more time and resources. As a result of this system, an asymmetry of information arise between the taxpayers and the TA.

As for the credit refund and offset mechanisms, the system in several countries requires the submission of formal applications and the analysis of supporting documentation. This creates delays, increases litigation, and has a financial impact on taxpayers, who often have considerable amounts withheld, which affects their working capital or limits their investments. Moreover, the traditional model still has difficulties adapting to new digital economic dynamics, such as e-commerce, digital platforms, and instant payment methods. Thus, the tax architecture, designed for a physical and sequential environment, cannot keep pace with the speed, complexity, and fragmented nature of transactions in the digital economy, which poses challenges for VAT collection when private consumers purchase goods, services, and intangibles from suppliers outside the country of consumption (OECD, 2015).

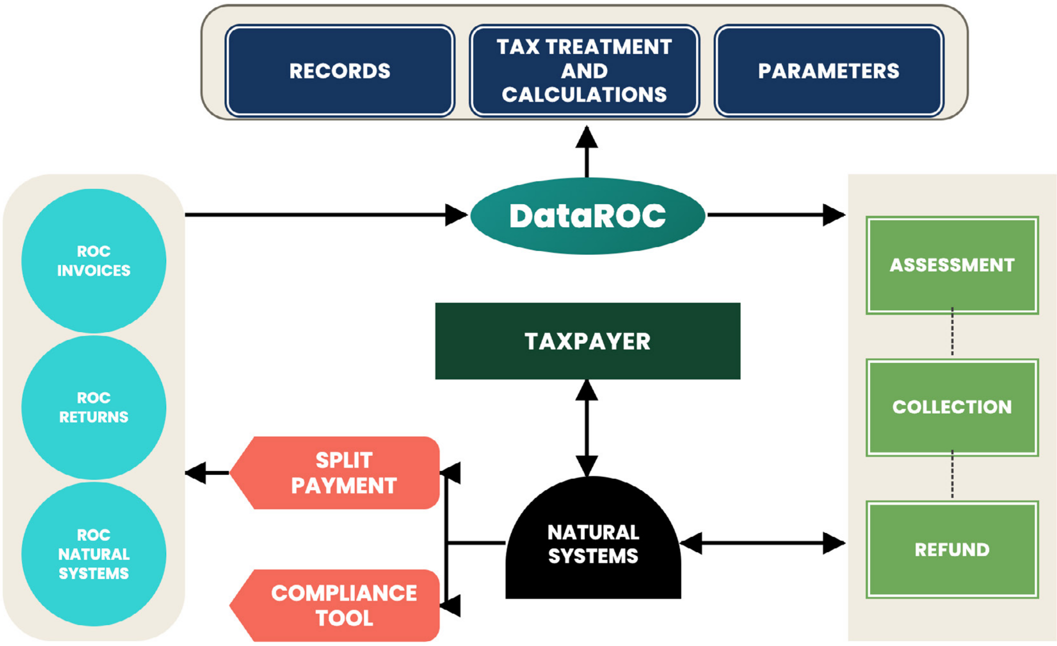
2. PROPOSED MODEL FOR THE OPERATIONALIZATION OF DATA-INTENSIVE VAT

The proposed operational model is the result of a data-intensive approach to VAT administration. This approach is aligned with the evolving vision of the role and functioning of tax administrations, presented by the OECD in its 2020 report within the framework of the FTA (Forum on Tax Administration), called Tax Administration 3.0, promoted by the OECD (2020).

The adoption of data-based tools and standards, formalized in computer language, is one of the most effective approaches for strengthening the operational efficiency and credibility of contemporary TAs, generating positive impacts both on revenue collection and on reducing the burden of tax compliance. Thus, the core of the proposal is the replacement of traditional periodic tax returns or accounting records with a continuous stream of individual records of consumer transactions, automatically generated from taxpayer transactions.

In this way, the data from these records become the basic reference for settlement, the instant calculation of debits and credits, the monitoring of taxpayer transactions along the non-cumulative tax chain, extensive control, risk analysis, inputs for intensive control, collection, and refund of VAT, thereby eliminating the need for periodic tax returns or accounting. This is how the model reduces ancillary obligations, promotes administrative simplification, and contributes to reducing tax litigation, the accumulation of credits, fraud involving the generation of VAT credits and strengthening tax compliance. In addition, this allows the taxpayers behaviors and transactions to be monitored practically in real time.

Figure 2.1
Proposed operational model



Source: Ribeiro (2025).

Data are received in real time directly from the sources that generate them (such as invoicing systems, ERP systems[1] or payment platforms), after going through compliance tools structured under the concept of tax compliance by design *(compliance by design).* This architecture allows the immediate and standardized application of legal and tax regulations, promoting legal certainty and traceability throughout the compliance process.

However, while direct interoperability with taxpayers' natural systems is promoted, the model is flexible enough to adapt to the institutional realities of TAs that maintain periodic tax returns or records in accounting books, use electronic invoicing systems or face data access restrictions, for example, due to legal limitations related to privacy. Such flexibility is essential for countries that face budgetary or technological constraints in implementing completely new solutions, or that lack the budgetary, political, legal, or technological feasibility to implement a comprehensive and ready-to-use commercial solution, known as COTS (*commercial off-the-shelf*).

In addition, the model incorporates split payment mechanisms (*split payment*) for the collection of VAT at the time of the financial settlement of the transaction. In this model, the amount corresponding to the applicable tax is automatically assigned and transferred directly to the TA, which reduces the risk of non-payment and

1 An ERP system consists of an integrated set of solutions that support the management of the business processes, which includes functions such as accounting, purchasing, project control, risk management, regulatory compliance and logistics operations.

strengthens fiscal control. This model also allows the collection of taxes by the buyer of the goods or services, which reinforces the neutrality of the tax collection and the efficiency of tax recovery, especially in sectors with a higher risk of evasion that harms the buyer.

As for the instant calculation of debits and credits, a continuous comparison is established between the two, together with direct collection from a bank account and automatic refunds. This solution eliminates the need to request refunds or offsets, which optimizes the taxpayer's cash flow and accelerates the refund of the amounts to which the taxpayer is entitled. By prioritizing automation, neutrality, transparency and integration, this model seeks not only to increase efficiency and tax collection, but also, and especially, to improve the taxpayer experience, by creating a more cooperative, predictable, and sustainable environment for tax compliance.

2.1. Data processing technology and platform

The modernization of the TA requires a technological infrastructure that goes beyond the simple digitization of processes. The proposal presented adopts an event-based technological platform, with near real-time data consumption and processing and integration with the natural systems of taxpayers.

An event-based technological development (event-based platform or architecture [EDA]) is a system architecture model in which the flow of information and the activation of processes are triggered by events; that is, by state changes detected in the system, such as the completion of a purchase, the registration of a payment, the issuance of an invoice or the receipt of external data.

Instead of operating in fixed cycles (such as a monthly data closeout), an event-based platform responds automatically when something relevant happens. Each event is treated as a unit of information that can be processed, stored, transformed, or used to activate rules, calculations, or services. The main objective of the proposed platform is to absorb, process and interpret information related to consumer transactions in real time, including data on payment methods, taxpayer identification, taxable amounts, specific rules applicable to each transaction, etc.

The architecture is based on a system of data *streaming* that interconnects and orchestrates several coupled structures (modules); these include services to receive and validate ROCs, enrich the received data, validate transactions, apply business rules using configurable rule engines, automatically calculate VAT, calculate taxpayers' tax current accounts, and provide analytical storage for audit and risk management purposes. The data that enter and are processed in real time within the platform must be sent immediately, through *streaming flows*, to the analytical environment of the TA.

The advantages of event-based development include real-time processing, which allows immediate reactions to behaviors or irregularities; scalability, ideal for environments with large volumes of data; the flexibility to add new services without redesigning the entire system; and auditability, since each event can be stored and tracked for monitoring and analysis purposes.

2.2. RECOMMENDATIONS FOR STRUCTURING THE MODEL

2.2.1. Records and unique identifier

The correct identification of the taxpayer is essential for the effective functioning of a VAT system. In a model based on non-cumulative taxation and the chain of credits and debits, characteristic of the tax in question, the TA must be able to accurately identify who performs each economic transaction. A clear and unique identification of the taxpayer makes it possible to link transactions between the different stages of the production chain, verify the consistency of tax credits and detect possible inconsistencies or fraud. As the OECD highlights (2023), taxpayer registration and identification are essential for the effective functioning of any tax system.

Thus, the adoption of a unique identifier for taxpayers and properties is proposed, which will be used in the architecture of an operational system as a reference key in all consumer transaction records, in VAT calculations and in other actions of the tax authorities or taxpayers.

In this context, the registries of natural and legal persons constitute the basic infrastructure to support this new tax logic, driven by data and systemic connectivity. The unique identification facilitates the implementation of the model objectives and benefits for taxpayers and allows the automated cross-checking of information. In addition, the updating of the registries and a reliable history of registry changes –such as changes in marital status or domicile– help the TA to combat structured fraud and tax evasion schemes. Information about residence, for example, is key to linking consumer transactions with the location of the taxable event and is relevant for the federal distribution of VAT collection, if applicable.

To increase transparency and control of transactions, accurate information from the registry allows the tracking of the income and wealth of citizens and companies. At this point, the existence of a unique identifier for properties is also proposed, as part of the control and taxation of transactions related to real estate assets subject to VAT. This registry allows a precise connection between the property, the owner and the economic transaction, eliminating overlapping registration and guaranteeing the correct tax treatment of consumer transactions. By standardizing the identification of properties throughout the taxable territory, greater transparency in transactions is promoted and cadastral fragmentation between institutions is reduced.

2.2.2. Recognition of credits only with the collection of taxes

Non-cumulative taxes operate according to a logic that seeks to tax only the value effectively added at each stage of the economic chain. Instead of taxing the entire income obtained in each transaction, this type of tax allows the taxpayer to deduct the amount of tax already paid on previous purchases. In this way, taxation falls only on the difference between the sale value and the purchase value of goods or services, thereby avoiding the accumulation of charges.

One of the main vulnerabilities of traditional VAT models and other non-cumulative taxes lies in the fragility of the tax credit mechanism, which is based on self-reporting and voluntary payment of taxes by taxpayers. This structure, present in various tax systems, has been exploited by practices such as the issuance of fictitious tax documents to generate accounting credits, persistent non-payment, and structured fraud schemes, such as the so-called “carousel scheme” in Europe.

The proposal defended here is to link the right to the VAT credit with the effective collection of the tax, and not only with the issuance of the ROC. In this way, the aim is to combat fraud through the generation of improper credits, reduce judicial and administrative litigation, make better use of administrative resources currently used to identify fraudsters or collect taxes, reduce unfair competition in the market derived from credits generated but not collected, and strengthen the control and security of the non-cumulative system.

In fact, a data-based TA model, with real-time data processing, continuous assessment and automatic refund, linked to credit recognition and effective collection, allows the secure release of credits, strengthens tax compliance, automates the information verification process, and prevents the accumulation of inconsistent credits, which fuel administrative and judicial disputes (Oliveira, 2022).

The link between the recognition of credits and the digital confirmation of tax collection allows a series of institutional advances. Firstly, it allows automated mechanisms to continuously and reliably validate the credits generated in transactions, avoiding the accumulation of inconsistent or unrecoverable credits, which often fuel tax litigation. In addition, data-based automation for tax compliance is strengthened, promoting a predictive TA model based on verifiable data, which contributes to reducing litigation and increasing transparency in the relationship between tax authorities and taxpayers.

These automated mechanisms, applied in an extensive control context, allow the immediate identification of anomalies in consumer transactions conducted by specific companies, generating real-time alerts or even automatic corrective actions. This early detection capability contributes to the efficient targeting of audit programs, enabling the TA to adopt intensive control measures based on objective criteria and concrete data.

2.2.2.1. Collection by the buyer

The implementation of the model proposed in this document presents challenges. One of the main legal risks is the alleged violation of the principle of non-cumulability, especially when the acquiring taxpayer lacks the means to control or guarantee the payment by the supplier, who is ultimately responsible for the payment. Therefore, tax credits would not be generated in a business-to-business (B2B) transaction, even if the purchaser already bear the financial burden of the full payment of the transaction (the value of the good or service plus the tax).

Under this scheme, when a VAT system establishes that the right to tax credits along the supply chain only becomes effective after the collection of the tax, situations arise in which the acquiring taxpayer, despite assuming the full value of the transaction, depends on the regularity of the supplier's tax payment for the credit to be recognized.

In theory, there would be uncertainty in the business environment regarding pricing since a company would have to evaluate the fiscal reliability of the supplier and the risks associated with compliance and timeliness in collection. When questioning the proposal to use VAT credits only at the time of actual payment, it is worth asking how a taxpayer could set the price of services or goods without the certainty that their supplier will settle the corresponding tax (Maciel, 2020).

Therefore, in the model proposed here, the adoption of a mechanism that allows the direct collection of the tax by the buyer, regardless of who is legally responsible for its management, must be implemented in an integrated way with the conditional credit recognition system. This measure is essential to prevent the buyer from being harmed by the supplier's non-compliance; this allows, regardless of who is formally responsible, to guarantee income to the tax authorities and preserve his right to the tax credit. The payment of the tax by the buyer is automatically registered in his tax account. It should be noted that the buyer only needs to collect the VAT to qualify for the tax credit if the tax has not been paid by the supplier or when there is uncertainty about its effective payment by other means.

2.2.3. Registration of Consumer Transactions as Recognition of Tax Debt

An accessory tax liability may give rise to tax liability recognition when, on the taxpayer's own initiative, information proving the existence of an accrued tax is provided to the TA, even if the payment has not been made at the time of filing. This voluntary act implies a formal recognition of the debt and produces full legal effects. For the VAT operational model proposed in this document, the ROCs become the instrument for recognizing the tax due on the transaction and, consequently, the consumption transaction itself.

The recognition of a tax debt through this system is legally equivalent to an extrajudicial recognition of debt, which is sufficient to establish the credit in favor of the Administration. Therefore, it is a situation in which the ancillary obligation, by providing information about the occurrence of the taxable event and the corresponding amounts, generates the same effects as a principal obligation, since it allows the TA to establish the debt without the need for additional administrative procedures.

As for the proposed model, it considers the ROC as a recognition of the taxes owed for each transaction, thus eliminating the need for the taxpayer to prepare a subsequent return to establish the tax liability. Thus, at the end of a period or after each transaction, a comparison is made between the transactions that generated credits and those that generated debits to initiate the collection of the amount due and activate all the legal effects of enforcement.

2.2.3.1. Recognition of the Tax Due and its Respective Collection

Unlike cumulative taxes, VAT, a typically non-cumulative tax, requires more than a simple recording of each transaction to determine the amount to be paid. Although the electronic registration with tax effect represents a recognition of the tax applied to the individual transaction, determining the final tax liability requires a comparison between the debits related to sales and the credits of purchases or acquisitions.

However, even if transaction taxes have been recognized by ROCs, a comparison between the taxpayer's sales and purchase transactions is required to collect the tax. This moment, which occurs at the end of a period or at the end of each transaction, is particularly important, as it is considered the moment from which the legal deadlines related to VAT tax credits begin to run, such as the statute of limitations, the exercise of appeals or challenge procedures, and the possibility of registration as a chargeable debt. Therefore, this is a fundamental step in defining the tax obligation and its enforceability over time.

In that sense, the ROC recognizes not only the debts of taxpayers, but also their credits from previous transactions in the chain. In this way, an electronic invoice, by itself, recognizes the amount of VAT accrued per transaction.

2.2.3.2. Advantages of Considering the Tax Document as a Recognition of Tax Debt in a Data-Based VAT Model

The allocation of the effects of the recognition of tax debt to the ROCs submitted by taxpayers is a key tool for improving the efficiency of the TA. This measure contributes not only to the agility of administrative procedures, but also to the consolidation of a more transparent, impartial, and data-based tax model. In addition, the reception of these recognition records in real time reduces the lag between the taxable event and the responsiveness of the TA, allowing a more precise control of transactions. This means that tax management, such as the use of credits by taxpayers and the refund of amounts, can be conducted based on the continuous flow of data from the registered transactions themselves.

This creates an information ecosystem that continuously and seamlessly feeds the essential functions of the TA: collection, settlement, inspection, invoicing, refunds, and reimbursements. This approach improves tax risk management and the automated selection of audit cases, optimizing resources and prioritizing situations of greater relevance or indications of inconsistency. In addition, this creates a traceability chain that allows immediate measures to be taken to assess, collect and monitor taxpayers based on objective evidence.

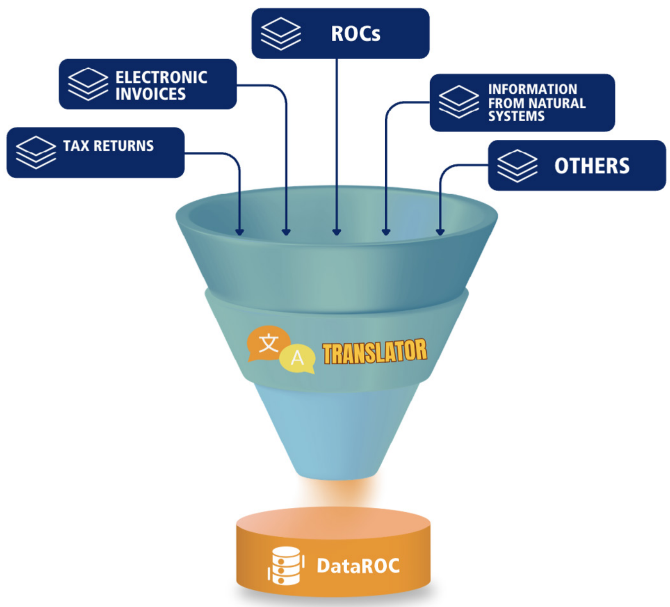
2.3. Data Capture Tool for ROC – DataROC and Operational Platform

The proposed model for the operational implementation of the VAT is based on the development of a continuous data flow platform capable of consuming and processing information from ROC in real or near real time, **beginning with the transmission to the TA immediately after issuance.**

Essential information must be extracted from each registry for the various functions related to tax management, such as VAT calculation, the application of special regimes, risk management, transaction monitoring, extensive or intensive controls, collection processes, refunds, registration validation, among other activities that, directly or indirectly, contribute to good VAT governance by the TA, in addition to facilitating compliance with tax obligations and **taxpayer business management**. This set of extracted and structured data is called DataROC.

Thus, in operational terms, DataROC is a data abstraction layer responsible for organizing, standardizing, and making the ROCs available for multiple uses within the platform or any other solution. This standardized data forms the basis for generating tax intelligence and automation, and acts as a translator between all ROCs and the operational platform.

Figure 2.2
DataROC



Source: Ribeiro (2025)

This approach allows a harmonious coexistence with the current ROCs of consumer operations. The objective of using DataROC is to minimize the impact on the already established structures and practices of the tax system.

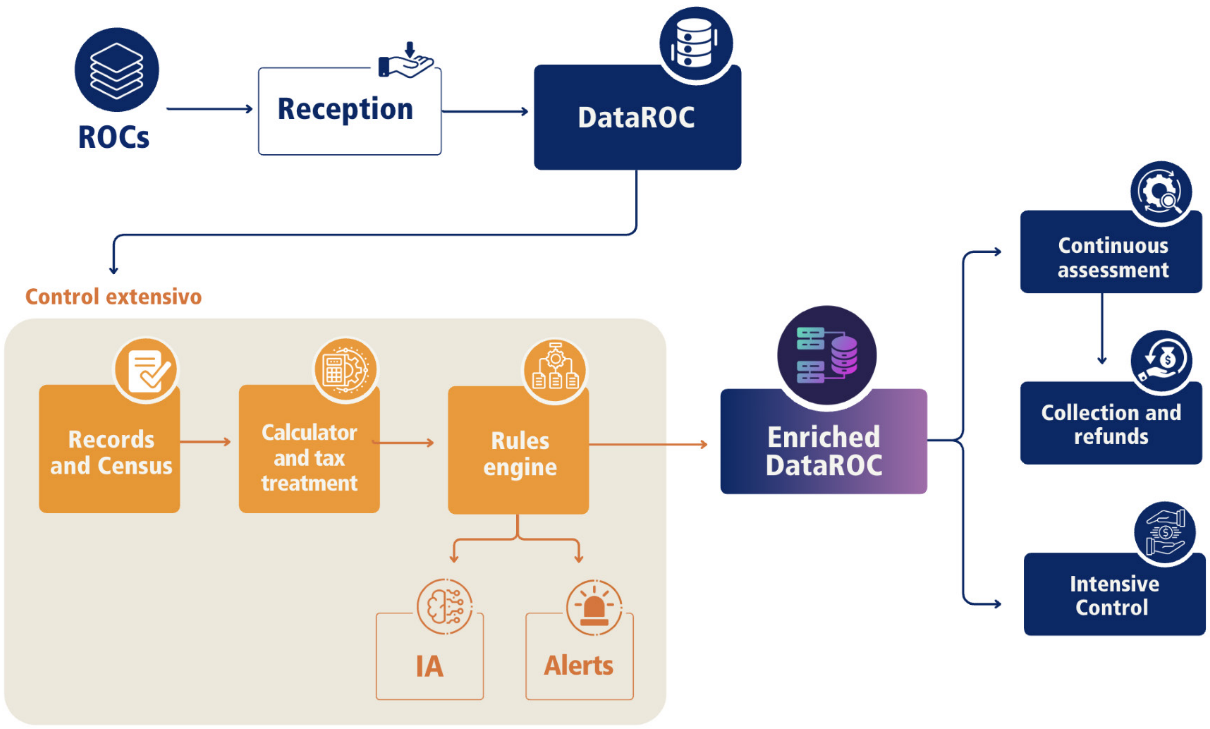
Thus, the proposed VAT implementation platform has as fundamental premises the consumption of data in a continuous flow, standardization, performance, scalability, traceability, portability and flexibility in the transmission and consumption of data, especially due to the complexity and volume of information related to consumption operations.

2.4. Extensive DataROC control and enrichment

Based on the concept of extensive control, an automated approach can be applied to ROCs, subjecting them to a series of automatic checks based on predefined criteria of integrity, quality, and risk. This process makes it possible to identify inconsistencies, incomplete data, or indications of non-compliance with tax obligations; it also makes it possible to enrich them with other registry data, census or tax registry information, and information about discrepancies in the calculation of VAT and the tax treatment of the transaction, without the need for manual intervention.

In this way, the DataROC is enriched with qualified information, such as risk indicators or indicators for intensive supervision based on selection criteria, as well as results of algorithms or AI solutions. Once the DataROC is established, all events related to the transaction-triggering event—whether they occur before or after the issuance of the ROC—they are linked to it. This includes data related to advances payments or returns of goods.

Figure 2.3
Enrichment of DataROC



Source: Ribeiro (2025).

2.4.1. Validations and enrichment cadastral

ROC validation processing and DataROC enrichment contribute to data quality and are performed in sequential steps, starting with the registry information. Based on a unique taxpayer identifier, information is cross-checked with multiple official databases of the TA or of third parties, such as business registries, population registries, property registries, data from special or simplified regimes and economic activity authorizations. It is possible to enrich the data with the current status of the registry (active, suspended, deregistered), the taxpayer's tax compliance history, indicators of possible fraud or taxpayers under audit, their status as beneficiaries of public policies, and foreign trade activities. This enrichment is automatically incorporated into DataROC.

2.4.2. Tax treatment of the operation and calculation of VAT

The proposed model also provides for the use of a tool to validate the tax treatment and calculate the accrued tax. This solution is based on the conversion of legal norms into machine-executable code, which allows the automated validation of the tax classifications, the verification of calculations and the comparison of the data provided by the taxpayer with the applicable regulations.

Among the main functionalities, the automated rules for the tax treatment of the transaction stand out: verification of the type of transaction (taxable, exempt, not taxed or zero-rate taxed); identification of the nature of the transaction (national, interstate, international, export); determination of the tax base and the tax rate; application of tax reductions and benefits; validation of compatibility with the tax codes for goods and services; analysis of the correct application of rate reductions, if applicable; calculation of the accrued tax based on configurable parameters and definition of the possibility or prohibition of the approval of tax credits. Accordingly, the tax treatment and VAT calculation tool includes in the DataROC of each transaction the identified results, including any VAT discrepancies and the amount considered correct by the tax administration.

2.4.3. Compliance engine: parameters

This model proposes a solution called ***Compliance Engine***, with parameters and functionalities that use the DataROC from each consumer transaction. The main objective of the tool is to externalize the business rules applicable to the tax treatment of consumer transactions. This solution increases the flexibility and traceability of the automated decision-making process, allowing for continuous monitoring and control of the information received and the immediate application of legal, fiscal, and operational validations that do not directly involve the verification of the calculation or the tax treatment of VAT.

This solution processes the DataROCs in real time to enrich them for various purposes in VAT operations. Therefore, in addition to the parameters included in the solution itself, the tool can be integrated with solutions that include external analysis models, machine learning algorithms, peer analysis of tax behavior, AI solutions derived from transactional systems, data matching in analytical environments, etc.

2.4.4. DataROC as a tool for Compliance by Design and Implementation of the Rules as Code

The DataROC constitutes the functional core of the data-intensive operational model, representing the connection point between the real economy and tax liability. Each ROC acts as a digital record of the economic transaction – identifying the parties, goods or services, values and taxes involved – and automatically generates the corresponding VAT debits and credits. Integrated under the principle of *compliance by design*, the ROC turns tax rules into executable rules (*rules as code*), applied directly in the invoicing, payment, and accounting systems of taxpayers.

This design ensures uniformity of criteria, reduces administrative discretion, and reinforces the transparency and auditability of the process. In addition, by automating regulatory validation within the data flow itself, the ROC creates a coherent and reproducible tax architecture, which combines operational simplification, legal security, and automatic compliance, consolidating a continuous and reliable control environment.

2.5. Integration with natural systems for ROC

Taxpayers' natural systems are the set of interconnected elements through which they interact with clients, other companies, third parties and their own accounting solutions (OECD, 2020). In other words, they correspond to the technological solutions that companies and individuals usually use to manage their accounting and financial activities. These systems include accounting software, ERP systems and other digital solutions aimed at controlling income, expenses, and tax obligations.

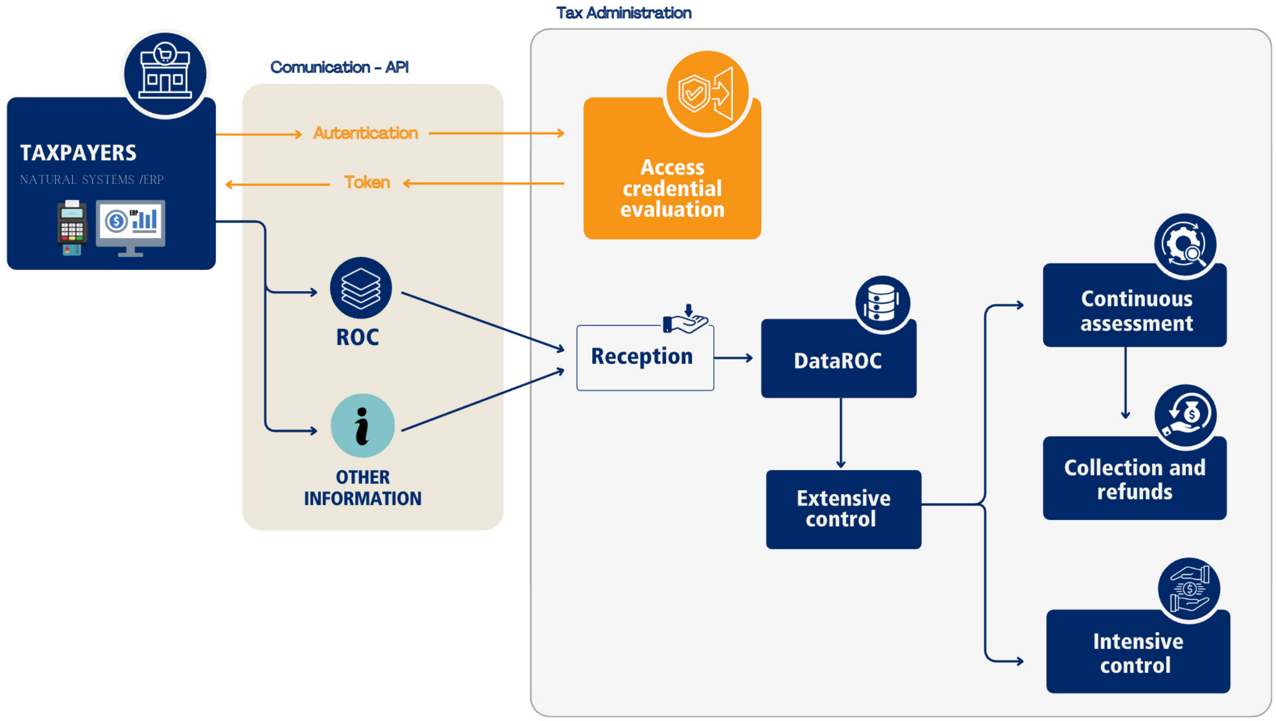
Increasingly, TAs have sought to integrate their tax services and requirements with taxpayers' natural systems. This approach favors tax compliance, reduces administrative burdens, and frees up time for entrepreneurs to expand their businesses (OECD, 2021).

Although the introduction of electronic invoices in VAT management systems, such as a ROC, has led to significant advances in recent decades, here we propose a model for sending information directly through taxpayers' native systems, in order to eliminate, in many cases, both the issuance of traditional electronic invoices and the submission of periodic tax returns. The new format eliminates the requirement for digital signatures on the ROC (or electronic invoice) and adopts lighter and more efficient data structures than conventional XML files, which favors simplification, scalability, and automation of the tax compliance process.

This approach is especially advantageous in situations where the file size containing transaction data is extremely small or the volume of transactions is very high and high frequency, such as in transactions of digital platforms and services with a significant volume of transactions, financial services, or vehicle toll records.

In contrast to traditional models based in electronic invoices, an authenticated communication channel is established between the taxpayer's system and the TA platform, which is duly protected and digitally signed at the transmission channel level. This architecture preserves the essential requirements for the validity of a ROC, such as authenticity and the principle of non-repudiation, since the authenticated channel ensures that the transmitted data originate from an authorized taxpayer and have not been altered.

Figure 2.4
Integration with natural systems for ROC



Source: Ribeiro (2025)

The operational flow begins when the taxpayer's system connects with the TA through APIs or web services, using an authentication mechanism based on digital tokens. These tokens perform a function similar to that of digital signatures on electronic invoices, ensuring that each transmitted datum maintains its integrity, identifiable origin, and non-repudiation.

Once the channel credentials have been validated, the transaction data are sent in real time, at the exact moment of their recording in the taxpayers' natural systems and are received by the VAT operational implementation platform. A unique identifier (ID) is assigned to each received and validated transaction, thereby converting this ROC into a DataROC, which is subsequently integrated with the VAT platform for tax assessment and control.

This DataROC is enriched with metadata, risk parameterization, and automated verification criteria. From this system, processes such as the registration of debits and credits, the calculation of taxes, the automatic generation of refunds, the monitoring of compliance and the confirmation of tax collection are activated. In case of an error in the transmission or validation of data, the TA system immediately returns a structured error message, which allows the taxpayer to correct and resubmit the data.

In situations where it is necessary to combine several records to define the taxable base, this information transmission mechanism does not hinder the definition of the corresponding VAT. The composition of the tax base for the application of the tax can also be submitted by the taxpayer or calculated by the TA itself.

The adoption of a VAT model based on the receipt of the data available at the time of the transaction, without depending on the traditional issuance of electronic invoices or periodic tax returns, represents an advance in the simplification, automation, and efficiency of tax compliance. The elimination of formal tax returns and documents reduces the complexity of the system and facilitates the integration of tax compliance into the operational processes of companies. In addition to simplification, this model strengthens tax compliance by allowing the TA to act preventively and provide guidance. With continuous access to information, the TA can identify inconsistencies in an extensive control close to the occurrence of the taxable event, which encourages taxpayers to self-regulate even before the tax liability is established. This logic replaces the traditional ex-post model with a just-in-time approach, aligned with international best practices in risk management and tax compliance.

In this context, the traditional process of individual authorization of each operation ceases to be the central axis of control and is replaced by a model based on the assessment of the taxpayer's overall compliance. Instead of reviewing each tax document in isolation, the TA goes on to validate the taxpayer's operational capacity through a continuous analysis of taxpayer behavior, compliance history, quality of the transmitted data and consistency of taxpayer records.

Once this evaluation has been passed, the company obtains automatic authorization to operate and transmit its transactions freely, maintaining that permission as long as it remains within acceptable risk parameters.

The taxpayer or the company's customer maintains full and permanent access to the transaction data through the natural systems used to generate them—such as their ERP system—, or through a unified portal or a query API that allows them to verify, in real time, the status of each linked ROC. The taxpayer has a complete and updated view of his tax current account and can reconcile it with internal records.

For a VAT model with data transmission available at the time of transactions, the architecture must balance performance, security, standardization, and auditability, with an emphasis on scalability, interoperability, and low integration costs for taxpayers. Thus, a design based on the integration between the taxpayers' native systems and the TA via API is recommended, using serialization protocols such as Protobuf, or an equivalent solution, with binary coding that is more compact and faster than text-based data formats such as JSON or XML, which reduces bandwidth usage and processing time. For authentication, tokens like OAuth2 or JWT may be used, with a digital signature applied to the channel.

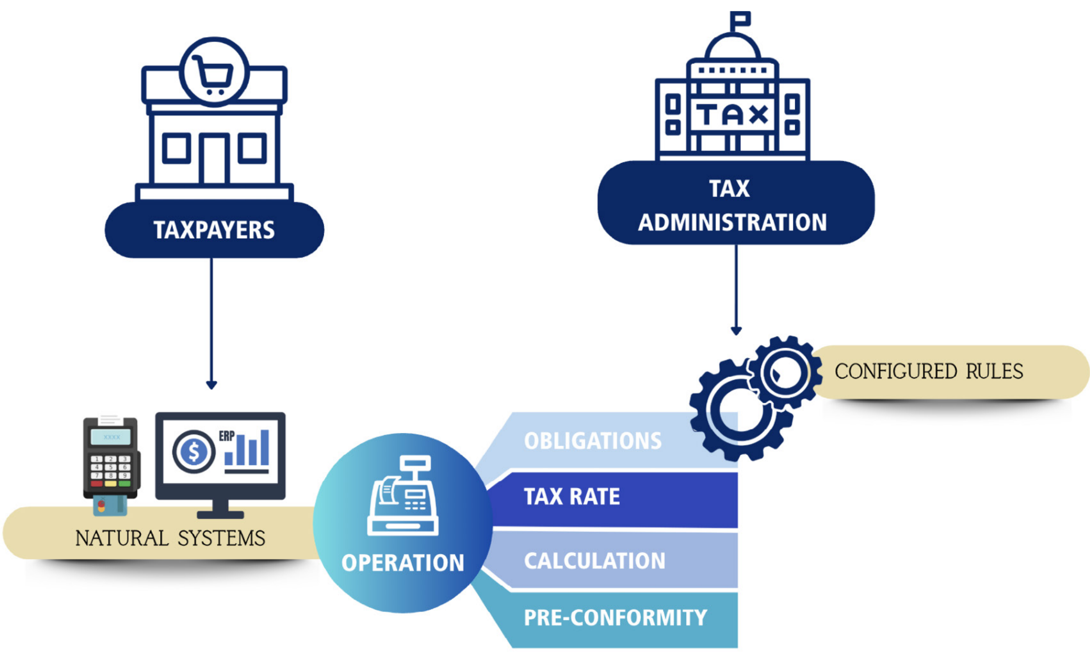
In addition, solutions such as Apache Kafka and Apache Flink can be used for continuous data transmission and processing. These technologies ensure scalability, reliability, and interoperability with the various technological environments that taxpayers use.

2.6. Taxpayer compliance tool

The increasing complexity of tax laws and the need to promote a more transparent, efficient, and reliable business environment are driving TA to adopt digital solutions that automate and simplify the fulfillment of tax obligations. The process of implementing VAT, as with other taxes, requires taxpayers to comply with the reporting requirements and the correct collection of the tax, while ensuring compliance with the regulations. This translates into significant costs for all companies, and it is often considered onerous to comply with requirements, monitor and adapt to regulatory changes (OECD, 2020).

In this sense, promoted by the OECD, a Moderna TA significantly transforms the role of tax authorities, which begin to make the rules and technical parameters directly available to taxpayers. This makes it possible to integrate compliance with tax obligations into the systems that taxpayers already use in their daily activities, promoting greater fluidity, accuracy, and compliance in the relationship between taxpayers and the TA (OECD, 2020).

Figure 2.5
Taxpayer compliance tool



Source: Ribeiro (2025).

In this context, this operational model proposes the development of a data-based tool to validate tax treatment, calculate VAT and support compliance. This tool can be made available to taxpayers, which would allow this data to accelerate the validation of tax rules, reduce repetition of tasks and automate critical steps in the tax process. This perspective highlights the importance of guaranteeing compliance from the beginning of the process, prioritizing preventive actions with early measures that encourage voluntary compliance and avoid non-compliance, instead of relying solely on subsequent corrective actions (OECD, 2014).

In addition to the parameters included in the solution itself, the tool can be integrated with solutions that include data analysis models, machine learning algorithms (peer-to-peer analysis), AI solutions, among others, by integrating with the TA. Designed to be decoupled from the TA infrastructure, allowing for its autonomous use by taxpayers. By providing applicable calculation rules and aliquots in a service format, such as API or *software* as a service (SaaS), the solution can be integrated directly into taxpayers' systems, including *software* proprietary (closed source), or that of the open source.

2.7. Penalties for using the taxpayer compliance tool

If taxpayers choose, in good faith, to use the compliance tool provided by the TA itself, it is understood that they should not be penalized for any substantial errors made by the official solution, such as errors in the calculation of VAT or in the classification of transactions. This position is based on the principle of legitimate expectation, according to which the taxpayer cannot be held responsible for failures attributable to the administration itself, especially when acting in accordance with the guidelines and technical resources provided by it.

It should be noted, however, that the absence of penalty does not exclude the right of the TA to collect the correct amount of any omitted tax, maintaining the enforceability of the tax credit for the amount resulting from the error of the tool. Therefore, the objective is to balance the legal certainty of the taxpayer with the integrity of the tax collection, encouraging the use of official solutions and promoting a collaborative compliance environment.

2.8. Continuous calculation of VAT

The method of calculating value added is one of the main distinctions between the different VAT models. For continuous calculation, the proposed method is known as the debit and credit system, or debit against credit system, in which the tax payable at each stage is calculated as the difference between the tax collected on sales and the tax paid on purchases; that is, the added value is not calculated directly for each transaction or product (Gascón, 2025).

The proposed continuous VAT settlement model, supported by greater data availability and minimal latency, breaks with the traditional settlement paradigm. A continuous settlement model, similar to the operation of a bank current account, allows both the taxpayer and the TA to operate with greater accuracy, transparency, and efficiency.

In this way, the model proposes to eliminate the usual mechanism of the declaration cycle, even with declarations prefilled by the TA, by replacing it with a system of automatic and synchronized entries of debits and credits derived from each economic transaction relevant for tax purposes. In the case of consumer transactions, for example, these immediately generate entries in the taxpayer's "fiscal current account", where the amounts of the tax to be paid (debit) and the credits subject to use or refund are recorded, practically in real time.

It is important to note that the ROCs submitted by the taxpayer, as detailed in the proposed operational model, are considered a recognition of transactions and information made available to the tax authorities.

However, the continuous VAT calculation, fed with DataROC data, considers all transactions. In short, if the continuous comparison between VAT credits and debits yields a negative balance, this indicates a tax liability; if the balance is positive, it may result in a refund or an accumulated credit. The timing of the balance consolidation for the calculation of the tax payable or the refundable credit can be defined flexibly. The frequency of settlement –that is, the period from which the tax balance is calculated– it can be daily, weekly, or even continuous for each registered operation.

Once balance consolidation has been completed, if the taxpayer does not respond after a certain period of time, the registered transactions and the calculations made by the TA are considered tacitly accepted, with the same legal effects as a formal tax return. Even if a model based on tacit acceptance is adopted, it is possible to provide, in accordance with the legal system, for subsequent corrections within the legally established deadlines.

If there is a credit balance, the corresponding amounts should be automatically transferred to the taxpayer's bank account or other designated account. Alternatively, the taxpayer can choose, by default, to use this credit for debts arising after the aforementioned cut-off date. In this case, it is not necessary to request a refund. With the adoption of this system, it is proposed that the available credits will be used primarily to settle outstanding debts. This measure helps to reduce the number of debts subject to the statute of limitations.

Figure 2.6
Continuous VAT calculation

Continuous VAT Settlement

type	Description	status	Value
Credit	Lorem ipsum dolor sit amet	Collected / available	**+ 89,90**
Debit	Consectetur adipiscing elit	Paid	**– 450,00**
Credit	Sed do eiusmod tempor	No recaudado / no disponible	– 399,99
Credit	Ut enim ad minim veniam	Suspended / not available	+ 3.800,50
Credit	Duis aute irure dolor	Recaudado / disponible	**– 120,00**
Credit	Excepteur sint occaecat	Suspended / not available	+ 9.999,90
Debit	Velit esse cillum dolore	Not paid	– 2.750,00
Credit	Eu fugiat nulla pariatur	Not collected / not available	+ 59,00
Debit	Sunt in culpa qui officia	Not paid	– 15.000,00
Debit	Deserunt mollit anim id est	Paid	**– 456,06**

see more

debit/credit – 5.226,75

Source: Ribeiro (2025).

The continuous calculation of VAT can automatically identify any discrepancies between the amounts and tax treatment declared by the taxpayer and those calculated by the tax authorities based on the data received, allowing for the timely identification and correction of inconsistencies. If the taxpayer accepts a discrepancy, it should be corrected preferably by adjusting the ROC of the transaction or the payment information associated with the financial transaction. In this way, transaction cancellations, when accepted, are automatically reflected.

Therefore, the tax authorities encourage taxpayers to make the corrections themselves. If the discrepancy persists due to the taxpayer's failure to adjust the amount, the debt may be subject to intensive monitoring and collection and, where appropriate, may facilitate the recording of outstanding debts.

The calculation of VAT based on real-time data eliminates the need for traditional periodic tax returns and represents a paradigm shift for the TA. In addition, it provides greater administrative efficiency by eliminating redundancies in the fulfillment of accessory obligations. Since the necessary data for the calculation of the tax are already available in the ROCs, this simplification translates into a reduction in compliance costs. Likewise, the quality of tax information improves significantly because the data is extracted directly from structured and standardized systems, which reduces the risk of human error or intentional manipulation.

This greater transparency, in turn, strengthens compliance and promotes greater predictability and legal certainty in tax relations, thereby increasing confidence in the tax system enhancing perception of tax fairness. Likewise, this type of assessment contributes to the reduction of tax litigation, by being based on objective data. This reduces the scope for divergent interpretations regarding taxable events, tax bases, deadlines, and other elements of the tax obligation, reducing litigation and promoting greater legal stability.

In addition, automatic information symmetry between the parties involved in the transaction should be guaranteed, and the recognition of credits only at the time of payment of the tax, if so provided, should be transparent for the taxpayer.

The full adoption of the continuous VAT calculation model presented here poses challenges that require technical, legal, institutional, and operational attention. From a regulatory perspective, despite the legislative changes required for operational implementation, such as the elimination of consolidated statements of operations by taxpayers, transparency in calculation criteria and the traceability of automated decisions should be guaranteed to taxpayers. Operationally, the TA must adapt to a more proactive approach, by replacing the reactive logic of tax return review with a data-driven approach and continuous monitoring.

The advantages identified include, among others:

- Tacit acceptance of settlements in the absence of a response from the taxpayer.
- Real-time visualization of the complete tax return.
- Automatic use of available credits to settle debts.
- Direct transfer of credits to the taxpayer's bank account.
- Automatic identification of discrepancies and inconsistencies.
- Promotion of spontaneous corrections by the taxpayer.
- Greater predictability for the taxpayer's financial planning.
- Direct link between transaction, credit, and collection.

2.9. Automated collection and return in the continuous evaluation model

In several countries, tax collection is conducted through the banking network by means of a collection document issued by the corresponding TA. Tax administrations have made progress in diversifying and expanding the electronic payment methods available to taxpayers, encouraging their widespread use. This improvement contributes not only to reducing the operational costs of the tax authorities, but also to increasing timely collection and reducing delinquency, by offering greater accessibility and a more efficient and simpler payment experience for the taxpayer (OECD, 2023).

As for the refund process, the tax and customs field is usually complex. The scarcity of resources in some countries prevents the manual review of this large volume of requests. Even a quick manual review is practically impossible with this volume of applications (OECD, 2023).

In that sense, the Brazilian Federal Revenue Service (RFB), responsible for federal taxes (excluding subnational taxes), has a portfolio of more than 3.5 million refund, reimbursement, and compensation requests for all taxes. In one of the taxes levied on consumer transactions, almost BRL 200,000 million is registered (approximately 1.7% of Brazilian GDP in 2024).

Together with the continuous assessment model, tax collection is perfectly integrated with the dynamics of the taxpayer's tax account, eliminating the need to issue collection documents and strengthening the principles of automation, simplification, and transparency in tax compliance, in addition to collection by split payment at the time of the transaction.

In this proposed model, the collection of taxes is conducted automatically by direct debit to a bank account, or similar instrument, such as an instant payment system, previously registered by the taxpayer and authorized for this type of transaction. Likewise, the amounts to be refunded are paid directly to the same account or to another, at the taxpayer's choice, which eliminates the need for formal requests and streamlines the process of tax collection and refunds.

In the case of VAT, if the taxpayer chooses not to receive the amounts corresponding to the credits accumulated after the balance calculation deadline, the taxpayer may express in advance the decision to waive the immediate refund of the tax, keeping the credit available for future offsetting against subsequent debts.

2.10. Integration into Taxpayer's natural systems

The implementation of APIs in the development of digital solutions in the TA has been consolidated as an essential strategy to promote greater integration, efficiency and transparency in the public sector, and their use contributes to improving the provision of services to citizens (European Commission, 2018). Through direct connections between systems, it is possible to eliminate redundancies, speed up the delivery of responses and customize services. This reduces the manual workload and the costs associated with repetitive activities.

In this way, TA processes are being progressively integrated with the systems that taxpayers already use in their personal and professional lives, which favors the automation of various stages of the tax process, promotes greater fluidity and less interference in users' processes, and allows for a substantial reduction in administrative burdens over time (OECD, 2020). Thus, the data integration approach is based on the principle that, by incorporating mechanisms for collecting, transmitting, and exchanging information directly into the operational flows already used by taxpayers and companies, it is possible to automate the flow of data between systems, even in real time. This makes it possible to structure tax compliance in a progressively automated way, in order to integrate it into the business processes themselves (OECD, 2022).

The basic services that should be available in a VAT system based on continuous assessment include access to processed data, the linkage between payments and credits, the updated tax balance, and transactions subject to split payment. It should also be possible to access the ROCs and discrepancies in calculations or treatments applied, as well as receive notifications regarding generated ROCs, associated events—such as cancellations—and possible defaults, including insufficient balance in the current tax account. The system should also allow the challenging of specific transactions, the verification of amounts refunded and the identification of beneficiaries of social programs linked to the model.

2.11. Split payment

Split payment is a mechanism for the collection (or advance collection) of taxes. In the case of VAT, the amount corresponding to the tax applied to a certain business transaction is allocated and transferred directly to the tax authorities. The primary objective of this VAT collection model is to mitigate the fraud risk associated with the non-remittance of collected tax, a common practice in fraud schemes used to generate tax credits for the purchasers.

2.11.1. Proposal for the implementation of split payment based on Payment Transaction Data (fixed percentage, Reduced Percentage, and Immediate Refund)

The split payment mechanism goes beyond the simple anticipation of tax collection; it allows the TA to gain qualified access to information that describes the taxpayer behavior based on financial transactions. Thus, even if a minimum split payment percentage is applied to financial transactions, the resulting abundant information can be used for various purposes, such as real-time risk management, supervision, assessment of the impact of governmental or tax decisions, evidence-based public policy formulation, and the improvement of the tax system.

More specifically, the integration between business transaction records and financial data allows for a number of analytical cross-checks that expand the ability to detect inconsistencies. With this data, the TA can analyze consumption patterns by social group, economic sector, or geographical location, more accurately assess the distributional effects of consumption taxes, measure the degree of regressiveness of the system, and review tax benefits based on evidence.

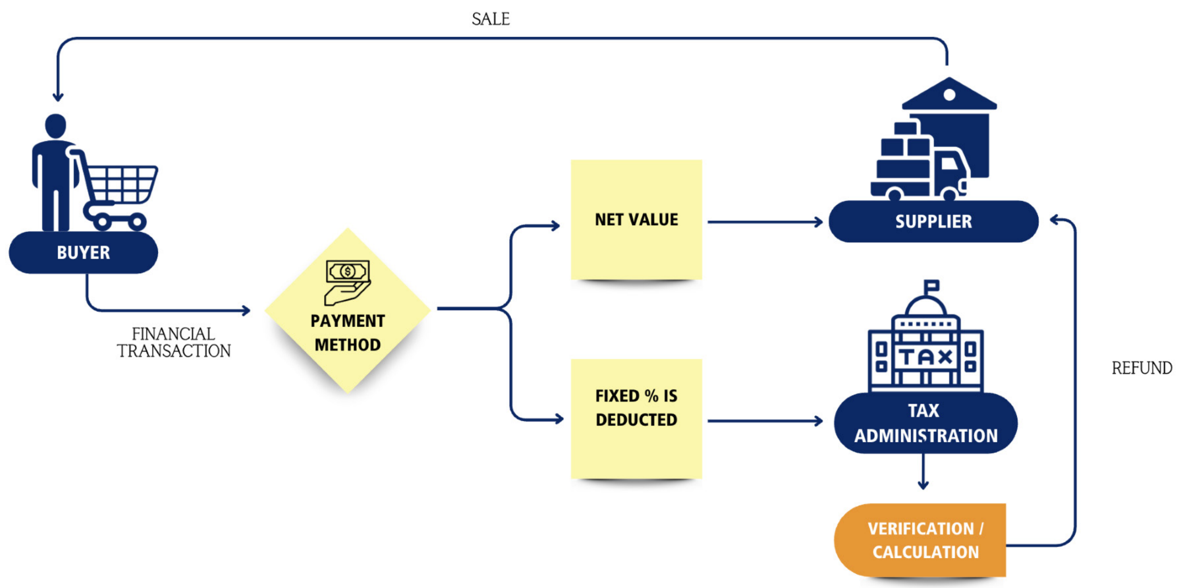
Defining the percentage applied at the time of payment segregation in the split payment model is key to the efficiency and practical viability of the system. To do this, several alternatives may be considered: applying the full tax rate; applying the full tax rate with automatic deduction of tax credits at the time of the financial transaction; applying estimated tax rates individualized by taxpayer or economic sector; and applying a fixed tax rate, independent of the tax actually accrued. Each of these approaches, and others that may exist, presents distinctive characteristics from legal, tax, operational and technological perspectives.

Considering the challenges faced by countries that have implemented split payment mechanisms for transactions subject to VAT, the complexity of the calculations, the technological requirements involved, the risk of impacting transaction flows, the participation of multiple agents (payment institutions, financial institutions and digital wallets), and the potential responsibilities of these operators, the proposal of this model is to initially apply the withholding of a fixed and reduced percentage of the transaction value, with the resources allocated directly to the tax entity, without these amounts passing through segregated accounts of the taxpayer.

This represents a viable alternative with a lower impact for those involved, as the focus is on reducing the impact on the cash flow of companies, while retaining the essential features of the split payment system. In this way, the implementation would be accompanied by the automatic refund of any overpaid amount, immediately after receiving the information and completion of the calculation by the TA.

Figure 2.7

Split payment – fixed and reduced Percentage



Source: Ribeiro (2025).

In the event that a tax collected by split payment for a consumer transaction exceeds the accrued amount, the difference must be refunded to the supplier immediately through the adoption of accelerated refund mechanisms.

Another viable alternative for the refund of excess amounts collected is the continuous assessment (a topic that is covered in a specific section), by comparing VAT debits and credits of all transactions and quickly allocating the credits to the taxpayer. Likewise, validated credits that have not been used can be automatically returned to the taxpayer, which guarantees greater agility and transparency in the management of tax amounts.

This split payment format helps to reduce compliance costs, minimize calculation errors at the time of payment, preserve the cash flow of economic agents and free payment method operators from tax calculation responsibilities, which favors a simpler, safer, and more transparent business environment. Considered in the proposed model as the methodology to be applied initially, other more complex models can be combined with it and incorporated according to technological availability, adjustments to payment and tax systems, and the low risk of impact on the business environment.

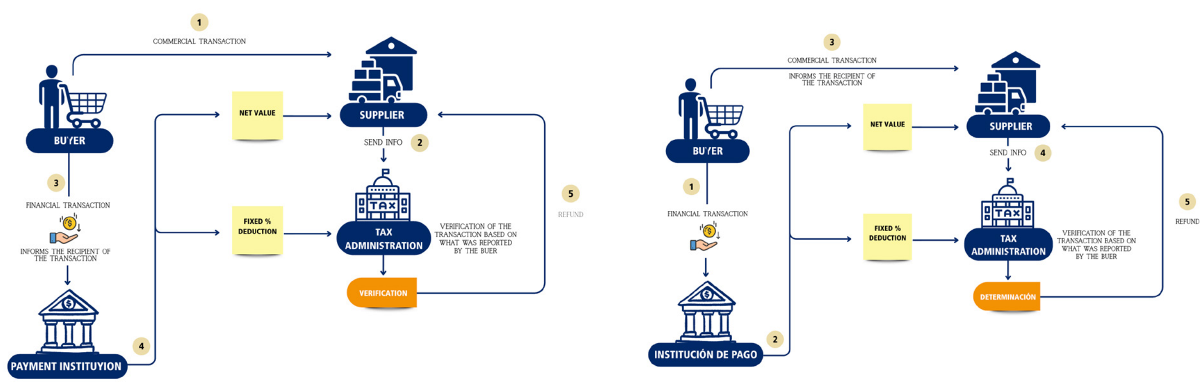
In this constantly evolving environment, payment institutions play a fundamental role by providing the necessary infrastructure to conduct financial transactions electronically and securely. Their operations support a wide range of operations, from card purchases to transfers through mobile applications, making them technological intermediaries between various economic agents. In this way, their role is intensified under models such as split payment, in which the value of the transaction is automatically divided. In this type of system, payment institutions are responsible for processing transaction data, automatically segregating amounts, and making transfers in accordance with the rules defined by tax legislation. This model helps to reduce regulatory compliance costs and improves the ability of tax authorities to monitor and control transactions in real time. As a result, these entities cease to be mere transactional agents and become strategic partners for the application of VAT.

Despite the possibility of using segregated VAT accounts for split collection in VAT regimes, where the portion of tax collected in each transaction is immediately segregated and directed to a bank account owned by the taxpayer, but with restricted use and controlled by the TA, this operational model argues for the use of the direct allocation of split-payment amounts, at the time of payment to the account of the tax authority. Thus, the amounts can be made available to the TA for the immediate refund of the overpaid amounts.

2.11.2. Linking Financial Transaction Data with Consumer Transaction Data

The link between the data associated with the payment method used and the corresponding ROC is essential for refunding excess split payments, ensuring the integrity of tax information, strengthening fiscal control mechanisms and calculate the accrued tax. In addition, this contributes to transparency and legal certainty for taxpayers, through transaction traceability, which provides greater clarity about the origin of the tax debits and credits generated.

Figure 2.8
Split Payment Before and After the ROC



Source: Ribeiro (2025).

When the payment transaction occurs after its registration, the registration of the payment transaction must contain a commercial transaction identifier that links the payment with the corresponding consumer transaction. In this case, the TA cross-checks the data to record the amount collected and any VAT debit or credit. On the other hand, if the financial transaction is made before the ROC, a payment identifier must be included in the transaction record itself to link it to the previously made payment.

In cash financial transactions (or other transactions with limited traceability), the automatic allocation of VAT amounts is not conducted. In these cases, the tax authorities lose the direct connection between the amount indicated on the invoice or sales receipt and the payment amount. Therefore, the non-application of split payment in financial transactions directly compromises the allocation of VAT credits. In this situation, the taxpayer would depend on alternative mechanisms for crediting and collecting the tax, which would increase the risk of non-payment and weaken the security and efficiency of the non-cumulative settlement system.

Now, if it is not possible to establish a link between a financial transaction and the corresponding consumer transaction, the proportional amount of the tax should be considered an advance of the tax accrued to the taxpayer. In turn, if the transaction record does not contain the payment identifier, it should be considered a cash transaction and, therefore, should be subject to the same controls.

In the context of instalment payments, the split payment model should be adapted to ensure that the tax component is segregated in each instalment actually paid. This means that the VAT is not collected in full when issuing the ROC, but in installments, following the financial flow of the transaction. In order to facilitate this control and analysis of refundable credits or of usable VAT credits when comparing all transactions, it is essential that each partial payment is linked to the corresponding tax document, in order to clearly identify the tax base, the amount of the applicable tax and the remaining balance of the transaction. This procedure ensures that the acquirer's VAT credit and the supplier's debit are recognized consistently with the actual payment, in order to preserve the logic of non-accumulation and avoid the improper use of credits before financial settlement.

A possible alternative, although not recommended, would be to collect the full tax through the first instalment of the transaction, regardless of the proportion of the amount actually paid up to that time. While this approach could speed up revenue collection for tax authorities, it would negatively impact the cash flow of the taxpayer selling or providing services.

3. BENEFITS OF THE VAT OPERATIONAL MODEL WITH DATA INTENSIVE

A summary of the aspects and main benefits identified:

- **Continuous and automatic calculation:** replaces periodic tax returns by the ROCs, reducing the accessory obligations and bringing the taxable event closer to the calculation, collection, and actions of the TA.
- **Transparency and traceability:** it links each transaction with the corresponding credit and debit, with a continuously updated tax return and a complete overview of the transactions.
- **Legal certainty and predictability:** the use of objective and standardized data reduces the scope for divergent interpretations, which reinforces predictability for taxpayers and the TA.
- **Reduction of compliance costs:** the elimination of redundant processes and the automation of calculation and validation reduce time and costs for taxpayers and tax authorities.
- **Efficiency in tax collection:** faster and more accurate calculation and collection, which increases collection efficiency.
- **Reduction in the number of delinquent taxpayers:** automatic data capture eliminates the risk of non-filing of returns.
- **Reduction of collectible tax debt:** collection close to the taxable event reduces delinquency and the need for tax enforcement.
- **Reduction of the limitation periods for tax debt:** real-time action prevents the loss of income due to missed deadlines.
- **Elimination of the issuance of collection documents:** the automation of collection eliminates the need for manual forms.
- **Real-time monitoring of the economy and sectors:** continuous monitoring makes it possible to analyze economic and sectoral behavior, thereby supporting public policies.
- **Individualization of tax actions:** extensive control based on parameters and data crossing allows the selection of taxpayers and transactions with higher risk.

- **Reduction in the application of fines for accessory obligations:** the elimination of declaratory procedures minimizes fines for non-compliance.

- **Immediate refund and compensation of balances in favor:** agile refunds increase the capital available to companies.

- **Fight against fraud and tax evasion:** mechanisms such as split payment and the conditioning of credits on effective tax collection make illicit schemes difficult.

- **Technological integration and interoperability:** direct connection with taxpayers' natural systems, payment methods, and integration between tax entities, which guarantees a continuous flow and enrichment of data.

- **Increased availability and quality of information:** complete, standardized, and real-time data strengthens the analytical capacity of the TA.

- **Real-time risk management:** real-time analysis and alerts regarding inconsistencies enable preventive measures and the selection of cases for audit.

- **Increased confidence in the system:** the transparency and reliability of the data encourage spontaneous adoption and the perception of tax fairness.

- **Taxpayer compliance incentive:** continuous supervision and clear rules encourage voluntary compliance with tax obligations.

- **Use for income tax:** data from all transactions can be used to calculate income tax, especially in special schemes that consider income as the basis of calculation.

- **Facilitated business environment:** less regulatory and operational complexity, which stimulates investment and competitiveness.

- **Flexibility of adoption:** a structure adaptable to different levels of digital maturity and legal restrictions, allowing gradual implementation.

- **Support for digital transformation:** an event-driven, automated, and data-driven foundation, aligned with TA 3.0 (OECD) guidelines and best practices.

CONCLUSIONS

The proposal for a VAT operational model was designed to address the challenges faced by traditional consumption taxation models and was inspired by the principles of Tax Administration 3.0 proposed by the OECD and international best practices. The VAT administration model is based on the intensive use of data and is oriented towards the continuous settlement of taxes; in addition, it breaks with the traditional paradigm of periodic tax returns and is based on ROC data as the sole and sufficient basis for establishing, supervising, and collecting the tax.

In this sense, the proposal represents a significant break with the traditional logic of VAT administration adopted in most jurisdictions and in the internal management of Tax administration processes. The model replaces the episodic settlement of traditional systems with continuous settlement, allowing taxpayers to monitor their tax position in real time and in a transparent manner. Thus, ROCs replace complex and redundant accessory obligations with a continuous flow of data, which underpins the entire calculation, supervision, and collection logic.

With regard to real-time data, these eliminate the information asymmetry between taxpayers and tax authorities, which currently slows down the preventive actions of the TA and the generation of prior compliance measures. Given this, the proposal also suggests the use of mechanisms such as split payment and the linking of tax credits to actual collection. These instruments, when systematically coordinated, seek to mitigate the main weaknesses of VAT in several countries, such as the misuse of credits and tax evasion by fictitious operators. This is a concrete response to historical challenges such as carousel fraud and recurring non-compliance.

In this way, the changes in the process of refunds or compensation of credits replace the formal and documentary processes that consume a lot of time and negatively affect the working capital and investment resources of taxpayers. In addition, the model integrates perfectly with the taxpayers’ natural systems, which allows the paradigm of “taxes in motion”, in which compliance with tax obligations occurs automatically, invisibly and with minimal taxpayer intervention. Therefore, integration with taxpayer systems, rule engines and distributed compliance tools strengthen this technical and regulatory ecosystem.

For the above reasons, and despite its clear advantages, the model proposes elements such as: a reliable unique identifier, real-time transmission of ROCs, integration with payment systems and a robust data governance. Therefore, the implementation of the proposed model, which implies a break with the traditional paradigm and consolidated processes, proposes legislative changes, the redefinition of processes and a solid legal basis that guarantees transparency and legal certainty. This transformation proposes moving from a reactive model to a proactive and predictive one, with an emphasis on tax intelligence, continuous monitoring, and intensive use of data.

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Data Visualization as a Tool for Data Management

Rodrigo Gastón Giménez-Mermot

SYNOPSIS

The implementation of a georeferenced visualization system in the Uruguayan Tax Administration (DGI) constitutes a case study on Data-Driven Management applied to the collection of the Primary Education Tax. The solution addressed data fragmentation and quality issues, using an agile Python-based architecture, geospatial libraries and open-source web platforms. Beyond the strategic allocation of resources, the experience evidences the relevance of data visualization as a key tool for analysis, allowing the detection of inconsistencies, classification errors and opportunities for improvement, significantly optimizing the quality and cleansing of information.

KEYWORDS: Data Management, Data Visualization, Heat Maps, Geospatial Analysis, Data Governance.

CONTENTS

AUTHOR*

Specialist in data analysis, holding a Bachelor`s degree in Economics, a postgraduate degree in Data Science and candidate for a Master's degree in Economics, with extensive experience in the development of advanced analytics applications. His professional approach combines the development of algorithms in Python with a solid command of Frontend and Backend technologies such as JavaScript, CSS3 and HTML5, React, Python, R, Flask, REST, APIs, SQL, allowing him to create interactive and dynamic solutions for data visualization and processing.

* The views expressed in this paper are solely those of the author and do not necessarily reflect the official position of the Uruguayan Tax Administration (DGI). The author wishes to express his sincere gratitude to Marcelo Pereyra Bardazan for his invaluable contributions to the development of the solution.

1. INTRODUCTION: PUBLIC MANAGEMENT IN THE ERA OF DATA

1.1. Context and challenge

The **Directorate General of Taxation (DGI)** of Uruguay, as a key agency of the Ministry of Economy and Finance, has the essential mission of administering and collecting taxes, guaranteeing equity and fiscal efficiency. One of the recent and specific challenges addressed by the DGI was the optimization of the **Primary Education Tax (IEP)**.

The collection of this tax was incorporated into the DGI in 2018, and was completely centralized in the Interior Division in October 2019. This transfer involved not only an administrative integration, but also the integration of the management of the IEP within the **Strategic Management Plan (PEG) 2020–2024**. Within this plan, two crucial indicators were established that directly reflect the operational efficiency and the soundness of the fiscal portfolio:

1. Reduction of the outstanding tax debt portfolio.
2. Reduction in tax debt prescription.

The main objective was to improve the level of IEP collection. However, the very nature of the tax, which affects a large number of properties and taxpayers, implies that the tax is inherently highly fragmented and has a geospatial relationship between properties and their location. This context demands a qualitative leap in management tools so that tax and collection efforts are distributed efficiently and effectively.

1.2. The Paradigm of Data-Driven Management

To effectively address the challenge posed by this highly specific tax, a new way of looking at data based on Data-Driven Management was established, seeking to transform traditional administration into informed and strategic decision-making. This new management paradigm allows the DGI to develop smarter capabilities, leverage existing data and make greater use of available statistics, achieving very good results. This implies leaving behind the exclusive dependence on intuition or manual processes, and migrating towards an advanced analytics ecosystem. The focus on geospatial visualizations was an important step in this process.

Consequently, the use of the Heat Map enables the transition from manual to digital processes, from the intuitive to the quantifiable.

1.3. Visualization and customized tools as pillars of quality

Prior to the development of the solution, assessments were conducted to identify some of the problems that directly affected the data quality and, therefore, impacted the level of collection of the IEP. To overcome the data quality problem and improve the way the data were managed, a solution called **Heat Map** was developed (an advanced analytics product).

Although there were already some **manual controls on maps** in risk assessment, the experience with these, combined with the technical ability to explore different tools of **georeferencing tools**, led to the conception of a key objective: **to display property records with their outstanding liabilities on a digital map interconnected with the internal analytical systems**.

This initiative transformed an operational need into a powerful **data quality tool** and an instrument for improving **operational efficiency**. The development of the tool called Heat Map, being a custom-built solution with a geographical focus, allowed:

1. **Visual Validation:** Easy identification of inconsistencies and property records that should be updated or granted tax-exempt status.

2. **Targeting:** To give quick visibility to the most indebted properties, allowing efforts and resources to be concentrated on high impact cases.

In this way, the Heat Map is a clear demonstration of how **data visualization** and **customized tools** are the driving force behind improving **data quality** thereby optimizing public management.

2. DIAGNOSIS AND STARTING POINT: THE CHALLENGES OF DATA QUALITY

Despite the shortcomings of the system, the risk assessment also identified the existence of **established controls** including some **manual map-based controls**. This previous experience, although limited and manual, demonstrated the inherent value of spatial visualization for the management of territorial taxes.

Taking advantage of the existing knowledge in advanced analytics, and the experience in the creation of geospatial applications, the idea of creating a system that would allow the visualization of the records with their debts on a map arose. The system also provides detailed information on each cadastral property while remaining directly connected to the administration's central information systems.

Geospatial visualization was presented as the optimal strategy to address data deficiencies and as a support to management:

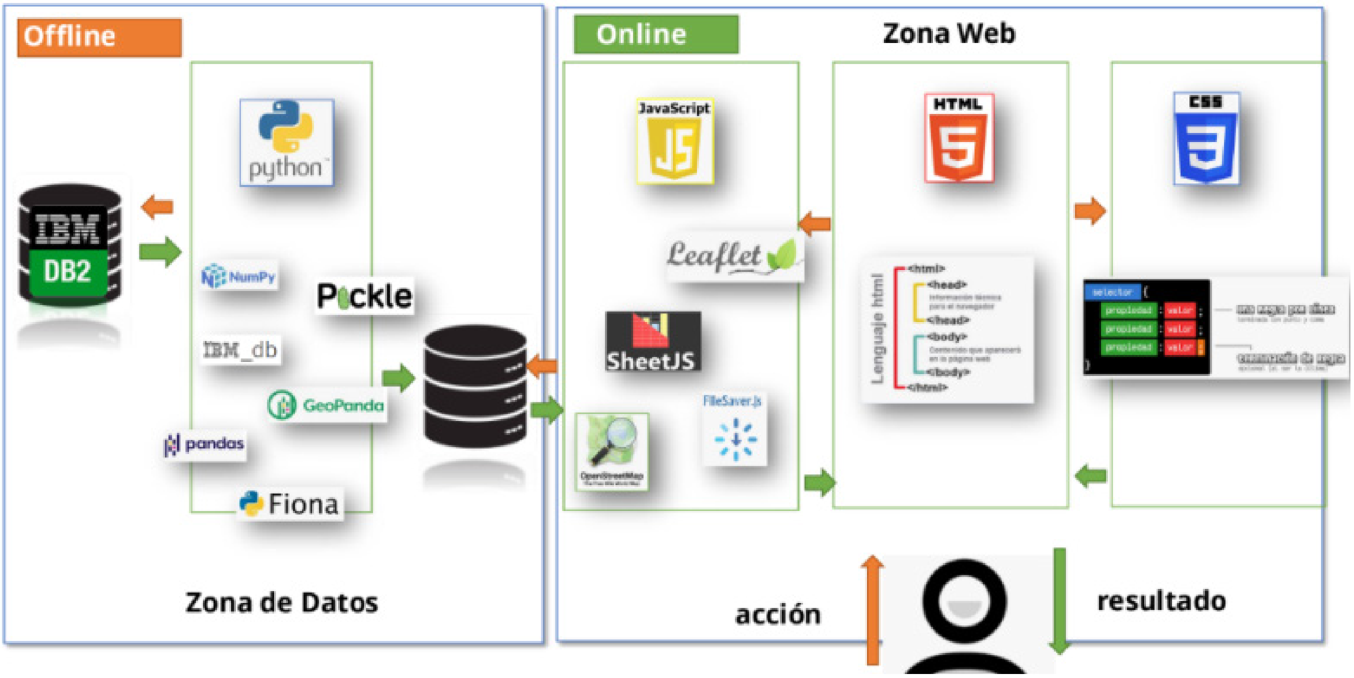
- A map allows users to detect **visually and immediately** properties that have a significant debt (the red color on the Heat Map) in contrast to their environment.
- Allows field managers **to identify inconsistencies** and classification errors (e.g. a public area or a rural field on the map without the correct exemption).

In this way, the operational need to improve tax collection and the reality of fragmented data with quality problems were united in a single requirement: to build a Heat Map that would transform raw data into a tax intelligence tool.

3. THE TECHNOLOGICAL PROJECT: ARCHITECTURE

3.1. Tool architecture: the tailor-made technological solution

The development of the Heat Map was not based on a single tool, but on a flexible architecture that combined offline processing systems for intensive processing and online systems for interactive web visualization (on-premise).



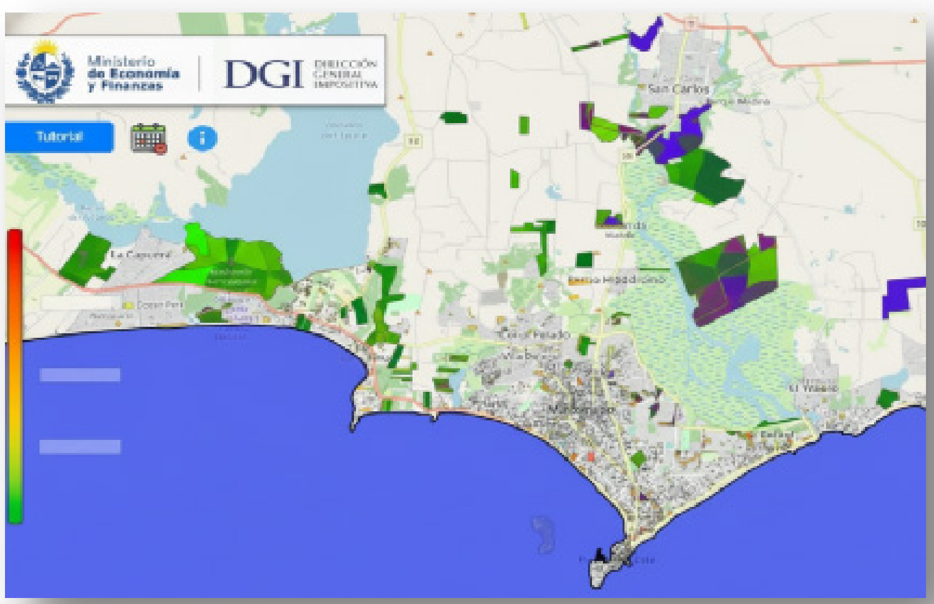
The final result, the Interactive Heat Map, was built using standard web development technologies and mapping libraries:

- **Web Structure: HTML5** (to structure the content) and **CSS3** (to define the visual appearance).
- **Interactivity: JavaScript** (a dynamic high-level programming language used to create interactive applications).
- **Cartographic Base: OpenStreetMap** (an open source collaborative project providing a free and editable world map.)
- **Mapping Library: Leaflet**, a lightweight JavaScript library, used to handle the representation of geographic data on Open Street Map.
- **Other Tools: SheetJS** and **FileSaver.js were integrated** to allow the downloading of data by users.

The integration of all these tools, particularly the processing of geographical data with Python and its visualization with Leaflet, made it possible to create a clear workflow: the **Offline (Data Zone)** executes the processing and transformation tasks, and the "**Online**" **(INTRANET Web Zone)** presents the **results to the user**, all mounted on-premise in compliance with existing security standards.

3.2. Functionality of the Tools

The implementation of this technological architecture allowed the generation of a series of **Data analytics solutions**. The Heat Map is the most advanced product, representing the geographical visualization of the total debt of the properties, segmented by **Percentiles of Total Debt** where different color ranges are determined, from green where the debt is low to red where the debt is high.



Source: Own – Heat Map Visualization[1]

1 The data presented was altered to preserve the identity of the taxpayers.

3.3. Description of the Heat Map: visual example

The following shows the system interface of the Heat Map tool:

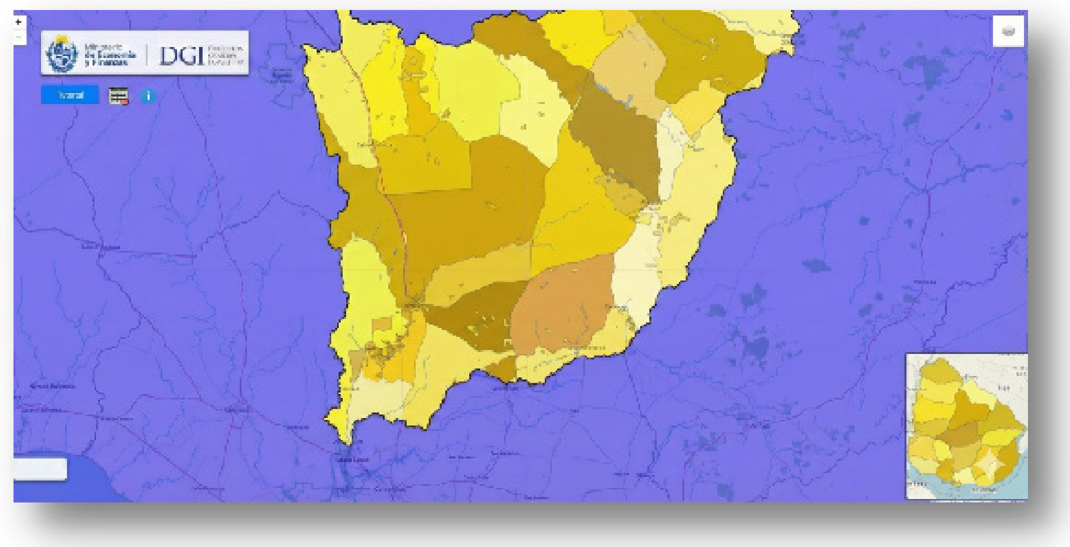
Key features:

- **Georeferencing of Property Records:** Within the departmental territory, the different polygons representing properties with outstanding debts are "drawn". These are represented in the image, in a figurative and anonymized manner to maintain the privacy of the data corresponding to **rural or urban properties** within the region.

- **Color Coding (Debt Level):** The variety of colors (a range from green to red) functions as a rating scale. Visually, this indicates the debt level of each property record; for example, warmer shades (such as red or orange) could signal a **high level of debt**, while cooler or green tones would indicate low debt level.

- **User Interface:** It has typical navigation controls (zoom, layers), an identification label for the department to be analyzed and a national reference map in the lower right corner, contextualizing the location within Uruguay that facilitating navigation between the different departments.

Purpose of Visualization: This representation serves as a **fiscal risk and management map**, allowing to quickly identify properties with irregular situations.



Visualization of the Heat Map[2]

Immediate Access to Taxpayer Information By interacting with the Heat Map, the user accesses a comprehensive snapshot of the property's tax situation. The displayed data are:

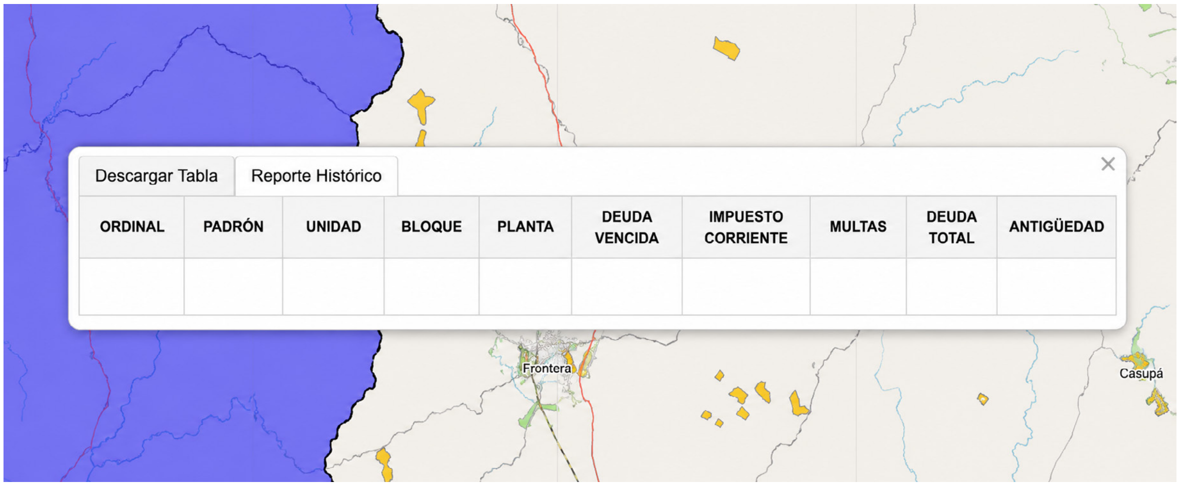
- **Property Type and Record Number:** Cadastral classification and identification number.

- **Locality:** Georeferenced location within the department.

2 The data presented was altered to preserve the identity of the taxpayers.

- **Total Debt:** Amount of the debt corresponding to the tax.
- **Number of Units:** Detail of the composition of the property record.

Visualization of the Heat Map[3]



Visualization of the Heat Map[4]

Property Record Details: The detailed query module is activated by clicking on the polygon of interest. This action opens a detailed report that includes:

- **Cadastral Identification:** Property Record, Unit, Block and Floor.
- **Debt Structure:** Breakdown between Overdue Debt, Current Tax and Accrued Penalties.
- **General Status:** Total consolidated debt.
- **Debt Aging:** Age of the debt (key to evaluate statutes of limitations or surcharges).

3 The data presented was altered to preserve the identity of the taxpayers.

4 The data presented was altered to preserve the identity of the taxpayers.

4. THE HEAT MAP AS A STRATEGIC TOOL FOR DATA QUALITY

4.1. Quick Visualization and Operational Focus: From Data to Tax Intelligence

The Heat Map is the embodiment of Data-Driven Management, using georeferencing to transform large volumes of tabular information into a quick and intuitive visualization of the Primary Education Tax (IEP) debt. The representation of the properties by color according to their percentiles of total debt allows the fiscal analyst to migrate from a reactive management to a focused and predictive management.

This tool offers immediate operational advantages that have a direct impact on efficiency and tax strategy:

- **Identification of key property records:** Allows users to quickly visualize records with more debt, facilitating the concentration of efforts on those that are representative either by size or location.
- **Delimitation of Areas of Action:** The geographical visualization allows managers to define priority action areas for the management or control personnel.
- **Access to Detailed Data:** When accessing a property record from the map, the manager can access the total data of the existing holder within DGI information systems, facilitating the collection action.

4.2. Improving Data Quality in the Field (Operational Advantages)

The most profound advantage of the Heat Map lies in its ability to act as a quality control tool for the data that feed the system, addressing data quality risks and minimizing error in management. The map allows managers to easily and visually identify inconsistencies:

- **Updating the Database and Exonerations:** The tool facilitates the updating of the database by identifying properties that may be tax-exempt. By superimposing the debt information on the map, it is possible to detect possible properties that need to be granted an exemption (e.g. a square or a public area).
- **Detection of Geographical Inconsistencies:** It allows the easy identification of inconsistencies, for example, rural properties under agricultural use that appear incorrectly in the base as if they did not have such use.
- **Management of Complex Properties:** The map allows different management approaches to be applied, visualizing cases such as a property with a single debtor unit (easy to manage) versus a property record with several debtor units (which requires a more complex and fragmented approach).

4.3. Measurable impact on management and efficiency

The use of the Heat Map has demonstrated a direct and quantifiable impact on the efficiency of the DGI in the cleansing of the debt portfolio, which is the main objective of the project.

The map allows efforts and resources to be distributed efficiently and effectively since the tax is highly fragmented. By facilitating the rapid identification of errors in the cadastral classification (such as unregistered exemptions), a proactive cleansing of the portfolio is achieved:

- **Data Cleansing Results:** Since the implementation of the tool, properties were identified and reclassified (transferred to exempt status or placed under review), representing a significant proportion of the total of properties cleansed, achieving this result in a period considerably shorter than one year.

- **Efficiency comparison**: This performance is remarkable when compared with the previous two years of combined management, where the volume of reclassified properties was only slightly higher than the volume achieved in the first months with the Heat Map. This indicates that the tool drastically optimized the detection process, resulting in a substantial acceleration of fieldwork productivity thanks to the prior intelligence provided by the data visualization.

The most important thing is not only to have the data, but how to use it. The Heat Map is not just a debt visualizer; it is a strategic *Business Intelligence* tool that strengthens the data quality and maximizes the resource-use efficiency in tax administration.

The Heat Map plays an important role in the digital transformation and Data-Driven Management of the DGI. However, it was conceived as a platform with a continuous growth potential. In addition, several key areas of improvement and expansion have been identified to maximize the utility of the tool and consolidate its tax intelligence strategy.

CONCLUSIONS

Geospatial visualization is not mere *reporting*, but rather an active data quality tool. The georeferencing of the debt on a map allowed for the simple visual identification of data quality issues. This process reverses the traditional flow, using the operational interface to provide feedback and update the database, correcting possible classification problems identified in the diagnosis.

The successful implementation of the Heat Map validates the use of an architecture based on flexible and open-source technologies (Python, OpenStreetMap, Leaflet). This strategy made possible to create a highly specialized solution, optimized for the management of geospatial data, which was absent from their traditional management systems, proving to be more agile and effective in addressing specific management risks.

Finally, it should be emphasized that the real value lies in what is done with the data. The focused approach made it possible to distribute efforts and resources efficiently and effectively.

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Electronic Case File: The Digital Transformation of the SAT to Strengthen the Transparency and Efficiency of Processes

Superintendency of Tax Administration of Guatemala

SYNOPSIS

The implementation of the Electronic Case File in the Superintendency of Tax Administration constitutes a strategic advance towards the consolidation of e- government, which applies the digital transformation to modernize the tax and customs system in Guatemala; guaranteeing efficiency in internal and external management, as well as the adoption of international best practices.

Likewise, the Institutional Strategic Plan 2026–2030 has confirmed the importance of the implementation of the Electronic Case File, as the structural axis that redefines the tax public management model in Guatemala. With this transformation, progress is being made towards a more transparent, efficient and taxpayer-friendly SAT.

KEYWORDS: Electronic Case File, Digital Transformation, Traceability, Integration and Ecosystem, Taxpayer Experience, Information Security.

CONTENTS

AUTHOR

The Superintendency of Tax Administration (SAT) is the entity responsible for administering the tax and customs system in Guatemala, guaranteeing a sustained revenue collection that allows the State to fulfill its obligations and promote voluntary compliance, with a vision aimed at being a close, innovative, and efficient administration. The SAT promotes strategic digital transformation projects, such as the implementation of the Electronic Case File, to optimize internal processes, improving the taxpayer experience, and strengthening transparency and traceability in institutional management.

"The implementation of the Electronic Case File in the SAT of Guatemala is part of the deep and far-reaching digital transformation that we are pursuing, in order to make the procedures even more transparent, simplify processes and improve services for taxpayers".

Werner Florencio Ovalle Ramirez, Superintendent

INTRODUCTION

The digital transformation in tax administrations has been consolidated as a global trend, driven by the need to modernize government institutions, optimize processes, and guarantee transparency in public management. International organizations such as CIAT, the OECD and the IMF have promoted the adoption of technologies that allow the digitalization of records, interoperability between systems and the use of tools such as advanced electronic signatures, recognizing that these practices strengthen institutional efficiency and facilitate voluntary compliance. Leading countries in tax innovation have implemented Electronic Case File models that integrate administrative processes, guarantee traceability and reduce dependence on paper, contributing to sustainability and citizen confidence in tax systems. In other words, the Electronic Case File is considered an upward trend to modernize public administration and improve the quality of services provided to taxpayers.

In this context, Guatemala has taken a decisive step with the implementation of the Electronic Case File in the Superintendency of Tax Administration (SAT), aligning its management with the best international practices. This project, initiated in 2020 and strengthened in the Institutional Strategic Plan 2026–2030, responds to a robust regulatory framework that recognizes the legal validity of electronic communications and signatures. The initiative is not limited to the digitalization of documents but constitutes a profound transformation in the way tax and customs procedures are managed, incorporating technology to guarantee integrity, authenticity and traceability.

The Guatemalan experience has been relevant because it will make it possible to integrate more than 60 procedures into a single platform (Virtual Agency), reduce response times, improve interaction with taxpayers and strengthen institutional transparency. In addition, it has faced significant challenges such as resistance to change, technological interoperability, and the need for continuous training, which have generated valuable lessons for future e-government initiatives. With this implementation, the SAT seeks to position itself as a regional reference in the construction of a modern, efficient, and taxpayer-oriented tax administration.

1. CONTEXT

The Inter-American Center of Tax Administrations reports that *"In the last decade, the digitalization of tax administrations in Latin America and the Caribbean (LAC) has advanced significantly. (...) However, it is important to highlight that digital transformation goes much further than the digitalization of documents (invoices, declarations, among others). It is a structural change that redefines the relationship between taxpayers and tax administrations through the use of emerging technologies such as data analytics, cloud computing, artificial intelligence and blockchain."* (CIAT, 2025; OECD, 2024; IMF, n.d.).

As is well known, when we refer today to the digitalization and digital transformation of tax administrations, we must highlight the concept of Tax Administration 3.0 as the goal to be achieved by tax administrations in Latin America and the Caribbean, which refers to a modern tax ecosystem based on automation, interconnectivity, and advanced *data analysis. Unlike traditional models, which rely heavily on manual intervention and bureaucratic processes, Tax Administration 3.0 relies on digital technologies to improve efficiency, transparency and tax inclusion.* (CIAT, 2025; OECD, 2024; IMF, n.d.).

In this context, it can be understood that digital transformation in tax administrations has become a strategic necessity to guarantee efficiency, transparency, and sustainability in public management. Likewise, at the international level, the implementation of electronic case files has made it possible to streamline document management processes, thereby improving taxpayer satisfaction.

To this end, there has been a need to promote the creation of laws that regulate the legal guidelines that should govern this matter, providing legal certainty regarding interoperability, while establishing data protection mechanisms as a fundamental right. The developments described above were further accelerated by the COVID-19 pandemic, which forced institutions to rethink their processes, prioritizing digitalization and the elimination of paper-based procedures in order to allow more expedited access to information and facilitate the processing of various matters, both internally within government agencies and externally with other state entities.

For this purpose, it is important to note that the Organization for Economic Cooperation and Development (OECD) states that *"Processes that originally used paper and were partly carried out manually have been progressively digitized, which has allowed for greater data exchange within the administration and government agencies, the incorporation of third-party data and the use of improved analytical tools. Although the different tax administrations are not at the same point on this path, this has been the universal direction of progress among modern tax administrations.* (OECD, 2024; Calijuri, 2024).

Within this framework, the Superintendency of Tax Administration (SAT) of Guatemala has taken on the challenge of implementing the Electronic Case File as a fundamental tool for institutional modernization.

The Electronic Case File is not only a technological solution, but a structural change that impacts the way administrative, tax and customs procedures are managed. Its implementation responds to regulatory provisions and is articulated with national laws that recognize the legal validity of electronic communications and signatures. This legal framework provides certainty and legitimacy to administrative acts conducted by digital means, strengthening confidence in the tax system.

The adoption of the Electronic Case File implies tangible benefits for taxpayers, for example: reduction of response times, complete traceability of actions, optimization of resources and improvement in the service experience, it also promotes a paper-free institutional culture. However, this process also poses significant challenges, such as organizational change management, staff capacity building, technological interoperability, and information security assurance. At the international level, some tax administrations have advanced in the implementation of electronic records, offering valuable references for the Superintendency of Tax Administration (SAT). These experiences show that technology not only improves operational efficiency. It also contributes to voluntary tax compliance, facilitation, and tax transparency.

The implementation strategy is developed in phases during the period 2025–2030, under a governance model that involves strategic, managerial and operational levels, ensuring cross-cutting coordination and sustainability over time. This comprehensive approach ensures that digital transformation is not limited to the incorporation of technology, that it translates into genuine institutional strengthening focused on taxpayer satisfaction and the achievement of the objectives established in the Institutional Strategic Plan.

In this sense, the SAT seeks to incorporate the best global practices, adapting them to its institutional and regulatory context, while promoting digital transformation that facilitates taxpayer compliance and encourages voluntary compliance. Likewise, the General Secretariat of the SAT, as the coordinating unit of the project, promotes the Electronic Case File as the axis of digital transformation, guaranteeing traceability, transparency, legal validity, facilitation and strengthening of processes, which allow positioning the Superintendency of Tax Administration (SAT), as a regional reference in e-government.

2. BEST PRACTICES

With the commitment to advancing digital transformation and addressing the complexity of implementing the Electronic Case File, a clear structure must be defined that guarantees data security, user training, the execution of testing and phased implementation, considering the involvement of the relevant departments and their routine workload, as well as the availability of the IT resources. In addition, the best international practices of those countries that already use the Electronic Case File in their Tax Administrations and that serve as a reference for the SAT should be adopted and adapted to its implementation needs. Officials and employees of the relevant agencies and departments must guarantee and be responsible for the management of electronic documents throughout their life cycle, up to their electronic archiving phase.

3. OBJECTIVES AND PRINCIPLES

The United Nations E-government Survey 2024*, "offers a comprehensive overview of e-government (e-government) development at global, regional and national levels, analyzing regional performance and identifying key trends with the UN E-Government Development Index (EGDI).".* (United Nations DESA, 2024).

Likewise, this survey indicates that the "New Digital Government Model Framework: (...)

- Presents a methodological roadmap for the "planning and implementation of digital initiatives, focused on good governance, inclusiveness, security, aligning with the SDGs", according to DESA Publications.". (United Nations DESA, 2024).

Considering the United Nations survey, the objectives and principles of the Electronic Case File in the Superintendency of Tax Administration (SAT) are determined.

3.1. Objectives

The purpose of the Electronic Case File implementation program is to consolidate the digital transformation of the Superintendency of Tax Administration (SAT) through strategic actions that strengthen institutional efficiency and improve the taxpayer experience.

First, it seeks to modernize administrative, tax, and customs management, incorporating technological tools that allow the digitalization and automation of internal processes, promoting a paper-free organizational culture. It is also aimed at strengthening institutional efficiency, streamlining processes and procedures through the use of electronic means, reducing response times and guaranteeing the traceability of administrative actions, which contributes to increasing voluntary compliance.

Likewise, it is established as a priority to guarantee the legality and validity of electronic administrative acts, ensuring that documents and actions issued by digital means have full legal certainty, through the use of the advanced electronic signature. Another essential objective is to facilitate interaction with taxpayers, allowing them to submit electronic applications, receive notifications, and follow up on their procedures efficiently through the Virtual Agency incorporated into the SAT portal.

Finally, the program seeks to promote transparency and internal control, through the implementation of electronic records that strengthen process oversight, enable more effective audits, and ensure complete traceability of actions.

Together, these objectives reflect the SAT's institutional commitment to modernization, efficiency and transparency, and fundamental pillars for consolidating a tax administration model in accordance with international best practices.

3.2. Principles

The Tax Administration recognizes as legitimate the acts conducted by computer, electronic or similar systems, as established by Article 125 of the Tax Code. This principle guarantees that documents generated, signed, and notified electronically have the same legal validity as physical documents, provided that the requirements established by law are met. This foundation allows the SAT to move towards a modern, safe, and efficient document management system, framed in a paper-free institutional culture and oriented toward digital and electronic transformation.

Likewise, Decree No. 47-2008 of the Congress of the Republic of Guatemala, the Law for the Recognition of Electronic Communications and Signatures, regulates everything related to electronic commerce and the use of new information technologies, allowing and guaranteeing to the inhabitants of the Republic of Guatemala, legal validity and legal certainty for documents that are issued and signed electronically.

4. STRATEGIC ALIGNMENT (STRATEGIC OBJECTIVES)

As part of the Institutional Strategic Plan 2026–2030, SAT seeks to incorporate the use of new technologies in the processes developed at the SAT, through its strategic pillar of digital transformation, thereby promoting the modernization of the Tax Administration with innovative digital and electronic solutions that optimize internal processes, improve the experience of taxpayers and strengthen transparency and efficiency in **e-government management.**

Table 4
Strategic objectives and principles

Objectives	Principles
• Modernize the administrative, tax and customs management functions.	• **Integrity:** ensures that the information contained in a system or document remains complete, consistent, and accurate throughout its life cycle.
• Strengthen institutional efficiency.	• **Traceability:** Allow all the actions generated within the e-case file to be verified.
• Ensuring the legality and validity of the administrative acts.	• **Accessibility:** The system must incorporate safeguards to protect information.

Objectives	Principles
• Facilitate interaction with taxpayers.	• **Compatibility:** allows different systems to interact with each other.
• Promote transparency and internal control.	• **Proper documentation and recordkeeping** maintain accurate and accessible records of procedures.

Strategic Objectives		
• Apply risk management methodologies using the Electronic Case File.	• Ensure the legal validity of administrative acts through the use of advanced electronic signature.	• Promote institutional digital and electronic transformation.

Source: Superintendency of Tax Administration (General Secretariat).

5. BENEFITS FOR THE TAXPAYER

This mechanism seeks to integrate modern technology into SAT processes. In doing so, it promotes the modernization of the Tax Administration by advancing the automation of services expanding the availability of digital procedures for taxpayers through the Virtual Agency.

Graph 1
Advantages for the taxpayer

Source: Superintendency of Tax Administration (General Secretariat).

6. TIMELINE OF THE ELECTRONIC CASE FILE AT THE INSTITUTIONAL LEVEL

The implementation of the Electronic Case File in the Superintendency of Tax Administration (SAT) is conceived as a gradual and strategic process, designed to guarantee interoperability, traceability and security in document management. This project is structured in clearly defined phases, which allow the orderly implementation of administrative, tax and customs procedures, ensuring sustainability and regulatory compliance.

6.1. Electronic Case File integration and traceability tool: initial phase

The initial phase is based on allowing the connection between systems and thereby ensuring the operation of the Electronic Case File, the sum of the actions of each unit regarding documentary support and records management. With its standardized and interconnected structure, the complexity of integrations between systems will be reduced. Thanks to the registration of all movements in the system log, it will be possible to determine which department the file is in, thus allowing clear and precise traceability.

6.2. Integration of the electronic archive

The integration of the Electronic Archive for the reception of Electronic Case File related to customs procedures will also be implemented as part of the pilot connection plan.

6.3. Standard tray

A standard tray will be developed that will allow the receipt and transfer of files, navigation between folders, and the viewing of documents for the review of the Electronic Case File, in order to facilitate the dependencies that do not need to implement their own system but still require the possibility of continuing to interact with the Electronic Case File, without interrupting the digital process.

6.4. Master viewer

Designed to be used by authorities, it allows files searches, as well as navigation between folders and visualization of documents. It will also show the Department in which the Electronic Case File is located.

6.5. Advanced traceability

It will be possible to identify the location of the file within a process or certain key activities and thus have a higher level of detailed traceability. As part of this monitoring, the **Advanced Master viewer** will be created**,** providing access to a broader range of data and enabling an overview of the status of files, facilitating tracking and identification of areas for improvement, as well as supporting the incorporation of the departmental processes.

Graph 2

Timeline of the Electronic Case File Integration and Traceability Tool

Source: Superintendency of Tax Administration (General Secretariat).

Graph 3

Timeline of the implementation of the Electronic Case File

Source: Superintendency of Tax Administration (General Secretariat).

Graph 4
Specific timeline of the current Superintendent of Tax Administration

Source: Superintendency of Tax Administration (General Secretariat).

Table 4
Procedures identified for the project

Total procedimientos identificados para el proyecto					
No.	**Órgano/Dependencia**	**Procedimientos a incorporar**	**2025**	**2026**	**2027**
1	TRIBUTA	2	0	0	2
2	Intendencia de Fiscalización	23	1	0	22
3	Intendencia de Aduanas	19	3	6	10
4	Intendencia de Recaudación	3	0	1	2
5	Intendencia de Atención al Contribuyente	3	1	2	0
6	Intendencia de Asuntos Jurídicos	12	0	5	7
Totales		**62**	**5**	**14**	**43**

Source: Superintendency of Tax Administration (General Secretariat).

7. TECHNOLOGY AND SECURITY

The IT Management Department will be the unit in charge of the architecture and technological platform that supports the Electronic Case File, according to the analysis of the regulations, procedures and definitions generated by the Departments of the Superintendency of Tax Administration (SAT), which in turn must plan the system development projects necessary for the execution and implementation.

Likewise, it will provide technological support and the required analysis to solve problems related to the computer system that contains document- management functions integrated in the corresponding and / or required procedures.

The Electronic Case File must have security measures that guarantee the integrity, authenticity, confidentiality, quality, protection and conservation of the documents and data stored, including the identification of users, access control and compliance with the guarantees of protection of personal data, ensuring an alternative backup mechanism as required by the business areas. In order to preserve the integrity, access and legibility of the electronic documents to be archived, migration and conversion operations of the electronic documents to be archived, migration and conversion operations for electronic documents may be conducted when required by document-management interoperability processes, subject to an analysis of operational feasibility.

8. RESOURCES AND GOVERNANCE

8.1. Resource

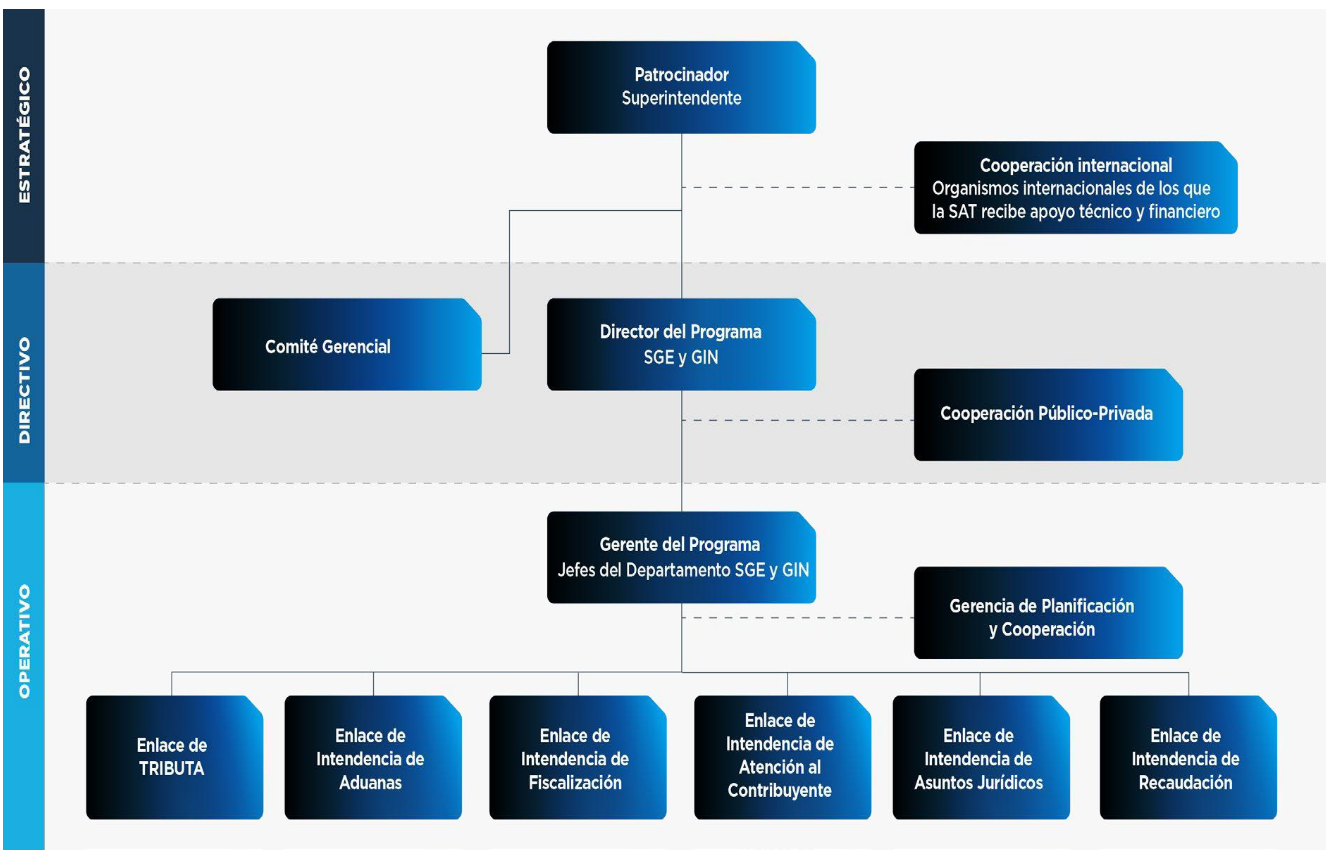
Human capital is the most important asset of any public or private institution and is the determining factor for the achievement of genuine modernization. In this sense, the implementation of the Electronic Case File requires not only technological infrastructure, but also a comprehensive approach to human talent management. Therefore, the program incorporates a specific component aimed at **capacity building**, which includes continuous training in digital competencies, the adoption of agile methodologies, and the development of skills for change management. The improvement of **working conditions** and of the organizational climate is also contemplated, promoting collaborative environments that facilitate innovation and technological adaptation. This implies the implementation of employee well-being policies, performance incentives, and recognition mechanisms that strengthen motivation and institutional commitment.

Additionally, the promotion, adoption and practice of the institutional transparency policy will be promoted, ensuring that all processes related to the Electronic Case File are developed under principles of integrity, accountability and access to information. This comprehensive approach will allow human resource not only to become a facilitator of change, but also an active agent in ensuring the sustainability of the project and the consolidation of an organizational culture oriented toward digital transformation.

8.2. Governance

In order to achieve the institutionalization and permanent and sustained execution of the program's initiatives, the Governance model has been established, through an interdisciplinary team, structured as follows:

Graph 5
Governance



Source: Superintendency of Tax Administration (General Secretariat).

9. REQUIREMENTS, OBSTACLES CONFRONTED AND LESSONS LEARNED IN THE IMPLEMENTATION OF THE ELECTRONIC CASE FILE

The implementation of the Electronic Case File in the Superintendency of Tax Administration (SAT) constitutes a milestone in the institutional digital transformation, aimed at improving the efficiency, transparency and traceability of tax and customs processes. This article summarizes the main needs, obstacles, and lessons learned during the development of the program.

9.1. Identified Requirements

- **Robust technological infrastructure:** secure, interoperable, and scalable platform.
- **Training of personnel:** Continuous Training for officials, employees and technical liaisons.
- **Updated regulations:** adjustment of procedures and issuance of regulatory guidelines.
- **Change management:** strategies to minimize resistance to change, both internally and externally.
- **Information security:** guarantee integrity, authenticity, and confidentiality.
- **Human and financial resources:** capacity building and budget allocation.

9.2. Obstacles faced

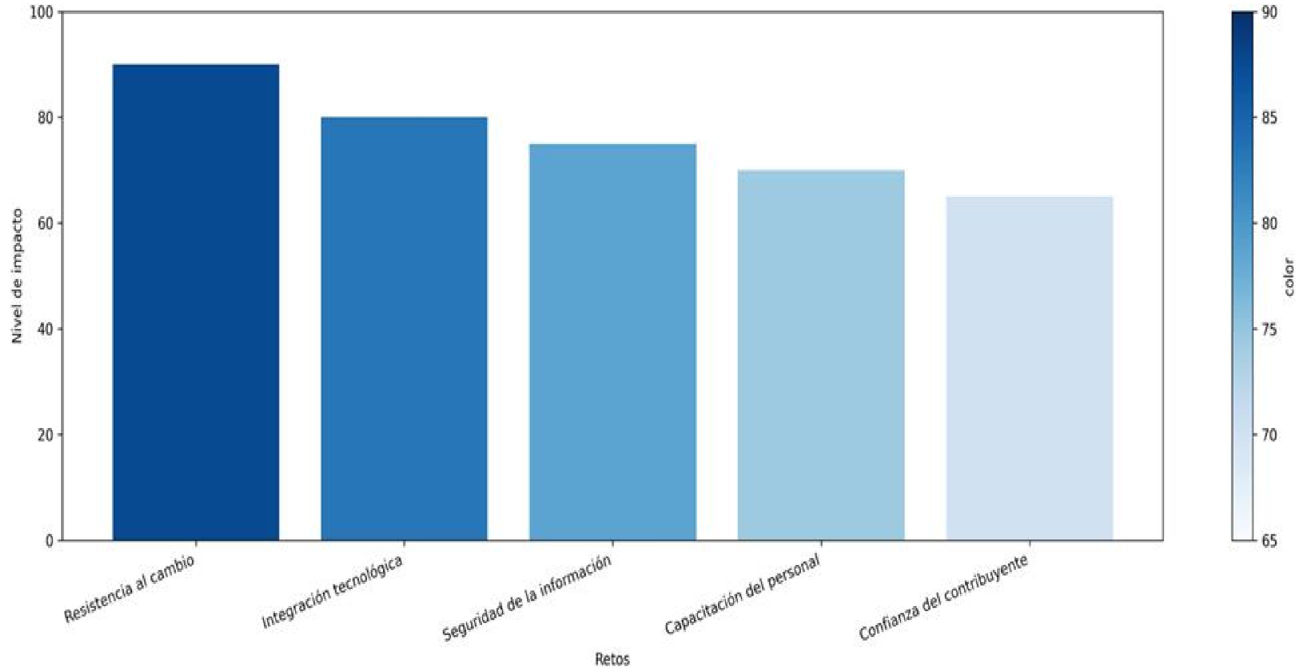
- **Resistance to cultural change:** breaking paradigms associated with traditional procedural logic.
- **Initial technological limitations:** integration of heterogeneous systems.
- **Operational workload of the departments:** gradual incorporation in phases.
- **Ensuring legal validity:** implementation of advanced electronic signatures and electronic notifications.
- **Taxpayer confidence:** Building trust in the digital system.
- **Compliance with security standards:** protection of personal data and traceability.
- **Interoperability between institutions:** not all State institutions have technological tools or legal provisions that allow them to implement the Electronic Case File.

9.3. Lessons learned

- **Phased planning is key**: it avoids overload and allows progressive adjustments.
- **Strong governance**: the interdisciplinary committee ensures strategic coordination.
- **Effective communication**: internal and external communication reduces uncertainty.
- **Adoption of international best practices**: references from leading countries.
- **Continuous training**: essential for the sustainability of the project.
- **Regulatory and technological flexibility**: adaptation to changes and contingencies.

Under this framework, it can be noted that the implementation of the Electronic Case File for the Superintendency of Tax Administration (SAT) has not been an easy task, since it is a complex process that requires strategic vision, adequate resources and institutional commitment. Therefore, the lessons learned will serve to strengthen future digital transformation initiatives.

Graph 6
Level of impact of institutional challenges



Source: Superintendency of Tax Administration (General Secretariat).

10. LEGAL FRAMEWORK

10.1. Legal Framework

The implementation of the Electronic Case File in the SAT is based on a solid regulatory framework that guarantees the legal validity of administrative acts performed by digital means. Among the most relevant provisions are some that are considered important:

10.1.1. Decree Number 1-98 of the Congress of the Republic of Guatemala, Organic Law of the Superintendency of Tax Administration

This provision states that the Superintendency of Tax Administration (SAT) is the institution responsible for administering the tax regime, as well as the customs system of the Republic, and for facilitating foreign trade. Likewise, it provides that taxpayers must be given the tools necessary to fulfill their obligations, and that processes and procedures should be simplified via technological means, mechanisms, and instruments that contribute to achieving these objectives.

10.1.2. Decree Number 47-2008 of the Congress of the Republic of Guatemala, Law for the Recognition of Electronic Communications and Signatures

This law regulates the use of communications, transactions and legal acts performed by electronic means, both in public and private, national and international spheres. Excluded are the obligations of the State derived from international treaties and the printed warnings required by law on risky products. The State and its institutions are authorized to use electronic communications and signatures. In the private sector, the parties may freely agree on the mechanisms that guarantee the authenticity and integrity of their communications, provided that the rights of third parties are not affected. The provisions of this Law apply without prejudice to the rules on notarial contracts, obligations and functions, which retain their validity and scope in accordance with the current legal system.

10.1.3. Superintendency Resolution Number SAT-DSI-1009-2020, Administrative Provisions for the Implementation of the use of the Electronic Case File in the Superintendency of Tax Administration

This resolution establishes that all Organs and Departments must adopt the electronic case file gradually, as provided by the Superintendent of Tax Administration. This implementation should prioritize the strategic objectives defined in the Institutional Strategic Plan, as well as its incorporation into the Annual Operational Plan.

To do this, the Organs and Departments must plan, supervise and control the activities involved in the process, under the guidance of the respective regulatory areas, in addition, they must develop and keep updated the administrative procedures, considering that their nature corresponds to administrative procedures according to the functions they perform.

Likewise, the aforementioned norm refers, in its article 2, that the Electronic Case File “Is the technological process linked to a computer platform or system through which electronic and/or digitalized documents are incorporated in an orderly and sequential manner, forming a single documentary unit for the processing and management of applications submitted to the Superintendency of Tax Administration by taxpayers, responsible parties, and interested persons...” (Decree Number 47-2008 of the Congress of the Republic of Guatemala, Law for the Recognition of Electronic Communications and Signatures, 2008).

10.1.4. Superintendency Resolution Number SAT-DSI-491-2019, Administrative Provisions for the Use of Advanced Electronic Signature in the Superintendency of Tax Administration

This resolution establishes the Administrative Provisions for the Use of the Advanced Electronic Signature in the Superintendency of Tax Administration (SAT), in compliance with Decree Number 47-2008 of the Congress of the Republic of Guatemala, Law for the Recognition of Electronic Communications and Signatures, and its regulations.

Additionally, the Law for the Recognition of Electronic Communications and Signatures defines an Electronic Signature as: “The data in electronic form recorded in an electronic communication, or attached to or logically associated with it, that can be used to identify the signatory in relation to the electronic communication and indicate that the signatory approves the information collected in the electronic communication. The Law also recognizes the legal validity of electronic communications and signatures in all types of acts and transactions, public or private, national and international, with exceptions such as obligations arising from international treaties and printed warnings required by law on hazardous products. The State and its institutions are expressly authorized to use such communications and signatures.

CONCLUSIONS

- The implementation of the Electronic Case File in the Superintendency of Tax Administration (SAT) constitutes a strategic milestone in the modernization of tax and customs management. This project is not limited to the digitalization of documents as it happens in other countries. Rather, it represents a profound digital transformation in the way the institution interacts with taxpayers, manages its internal processes, and guarantees transparency in its actions.

- The success of this initiative depends on two fundamental pillars: human resources and institutional governance. Human capital, as the most important asset, requires investment in specialized training, the development of digital competencies, and strengthening of the organizational climate to ensure the effective adoption of new technologies. At the same time, the governance model designed by the SAT, based on strategic, managerial and operational levels, guarantees cross-cutting coordination, accountability, and the long-term sustainability of the program.

- This effort is aligned with international best practices and responds to the global challenges of digital transformation, promoting a more efficient, secure and taxpayer-oriented tax system. The consolidation of the Electronic Case File not only optimizes processes and reduces costs but also strengthens public trust and positions the SAT as a benchmark in the construction of a transparent and modern e-government model that promotes voluntary compliance.

- The Tax Administration is strongly committed to the combination of technology, human talent and solid governance, which will allow us to move towards an administration model that guarantees efficiency, legality and quality service, contributing to institutional development, strengthening taxpayer confidence and the country's sustainable economic development.

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