

CASE STUDY: MEXICO

Tax Digitalization in Mexico: Success Factors and Pathways Forward

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TAX DIGITALIZATION IN MEXICO

Mexico has been among the forerunners in tax digitalization, starting in the 1980s when it piloted digital Point of Sale (PoS) registration and invoicing. Today, Mexico has one of the most advanced digital tax administration systems among the world's emerging economies. Over several decades, Mexico's impressive tax digitalization journey has been driven forward by the Tax Administration Service (*Servicio de Administración Tributaria*, or SAT), the national entity responsible for collecting federal taxes.

Corporate income tax (CIT) and personal income tax (PIT), and value-added tax (VAT) represent around 80% of the total revenue collected nationally each year in Mexico.¹ Through sound strategic decision-making, far-sighted reform with robust implementation, and ongoing investment, Mexico has delivered impressive results. Key achievements are set out immediately below, along with key lessons from Mexico's tax digitalization journey that could inform other countries' reform efforts. Of course, as in all countries, there remains vast potential for further digitalization to deliver even more powerful results for the Mexican people, government, and economy. This paper sets out pathways forward to realize this potential, with specific recommendations as summarized below. This is the result of a broader study commissioned by the Better Than Cash Alliance to analyze the wider potential of digital payments across emerging economies.

SAT's digitizing tax payments and related processes can raise an additional USD 300 billion in government revenues annually in emerging and developing countries. This is equivalent to almost one-third of the USD 1 trillion funding gap, which has put the Sustainable Development Goals at severe risk. The study includes detailed case studies and comparative analysis of steps taken by other tax digitalization leaders, specifically Indonesia and Rwanda, along with Mexico. Both the broader study and this paper are motivated by a spirit of knowledge-sharing and continuous improvement, for the benefit of people, prosperity, and planet. It is the authors' hope that they can serve as both a catalyst and a guide for other countries as they pursue their tax digitalization journeys.

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Key achievements IN MEXICO'S TAX DIGITALIZATION JOURNEY

From 2010 to 2016, Mexico increased its overall tax revenue and social security contributions by about **95%**, to MXN 3.3 trillion/USD 139.44 billion.

Mexico's tax-to-GDP ratio rose from 12.6% to 16.2% between 2012 and 2017, driven largely by a **48% increase in revenue** from tax on goods and services after e-invoicing was made mandatory in 2014.

Between 2012 and 2016, **total tax evasion fell from 35.7% to 16.1%** as a result of changes in the tax structure for income tax, VAT, and Mexico's production and services tax. Total tax evasion in 2016 represented 2.8% of GDP or one-sixth of all non-oil-related government revenue.²

As of 2019, 83% of surveyed taxpayers thought it was likely they would be sanctioned if they failed to comply with their tax obligations.³

SAT reduced the cost of tax collection by **57%** between 2006 and 2018.

Revenue generated by audits increased by **117%** over the last five years.⁴

Increases in the tax base, which has grown by around 150% since 2010, are also linked to digitalization and have contributed to increased tax revenues. Digitalization has caused a ripple effect. For example, larger businesses have pushed their smaller providers to use e-invoices and formalize their operations. In this way, e-invoicing has brought an estimated 4.2 million micro-enterprises into the formal economy.⁵



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Key lessons

FROM MEXICO'S TAX DIGITALIZATION JOURNEY

Securing flexible and long-term financing – Support from Congress and the e-Mexico trust fund provide SAT with access to longer-term financing (not tied to annual budgeting processes) to invest in technology and deliver a multi-year transformation process.

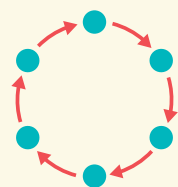
Crafting a compelling vision and strategy – Starting in the early 2000s, SAT set out a clear vision and strategy in which it identified digitalization as an essential enabler of change. It then implemented its strategy over almost two decades and under six different heads of SAT.

Leveraging data to continuously improve – SAT's digitalization strategy included the core principle that robust data is the key determinant in meeting its reform objectives. From an early stage, SAT designed its digital tax system to maximize the benefits of data to improve internal operations and customer-facing services.

Recommendations TO DRIVE FURTHER PROGRESS



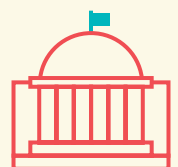
Promote digital payments in the broader economy to build a broader digital payments ecosystem. Despite strong progress, digital tax payments remain relatively low, reflecting relatively low digital payments overall in Mexico. Building on its efforts to incentivize non-cash payments for transactions over MXN 2000/USD 84.51, SAT could work with fintechs, banks, and mobile money providers to expand digital payment methods and channels, including greater mobile banking.



Continue to simplify tax processes. To maximize the benefits from new technologies, SAT should ensure that they are easy to use, for instance, by addressing the confusion among some taxpayers about which systems to use in which circumstances.



Build trust and connectivity with taxpayers by improving communications. Because of a lack of trust or understanding of digital platforms, some taxpayers reported going to their tax offices in person to be certain that they were meeting their obligations correctly. This undercuts the benefits of digitalization. Expanding multi-channel, targeted communications can help SAT to keep improving how it interacts with taxpayers, and harness the full potential of digitalization.



Collaborate with regional and municipal tax authorities. Building greater cooperation between levels of government – particularly by aligning digitalization efforts – will improve outcomes for governments and taxpayers alike.

THE BIGGER PICTURE: TAX DIGITIZATION'S USD 300 BILLION DIVIDEND FOR EMERGING ECONOMIES

This paper is the result of a broader study commissioned by the Better Than Cash Alliance to analyze the wider potential of digital payments across emerging economies – a study that delivered the landmark finding that digitizing tax payments and related processes can raise an additional USD 300 billion in government revenues annually in emerging and developing countries. This value is equivalent to almost one-third of the USD 1 trillion funding gap, which has put Sustainable Development Goals at severe risk.

The study included detailed case studies and comparative analysis of steps taken by other tax digitalization leaders, specifically in Mexico and Indonesia, along with Rwanda. Both the broader study and this paper were motivated by a spirit of knowledge-sharing and continuous improvement for the benefit of people, prosperity, and planet. It is the authors' hope that they can serve as both a catalyst and a guide for other countries as they pursue their tax digitalization journeys.



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2. TAX DIGITALIZATION IN MEXICO

COUNTRY CONTEXT

With an economy of USD 1.2 trillion in 2019, Mexico is the world's 15th-largest national economy and the second-largest in Latin America.⁶ It is also a member of the G20. Its increasing prosperity has been driven by a sound macroeconomic framework, a large market size based on the number of consumers and economically active market participants, and robust foreign trade, among other factors. Between 2013 and 2017, the proportion of Mexico's GDP represented by foreign trade increased by one-fifth. Domestic demand and household consumption have steadily increased over the past decade.⁷

Economic development and many key social indicators have advanced hand-in-hand. Mexico's human development index has risen consistently over the past two decades and is now categorized as 'high.' Between 1996 and 2016, national poverty rate⁸ fell by 35%.⁹ During the same period, child mortality rates fell by 57%.¹⁰ However, inequality remains a challenge; when accounting for inequality across the socioeconomic spectrum, Mexico's human development index sits in the 'medium' category.¹¹ To that point, in 2016, Mexico's Gini Coefficient – a ratio of income distribution within a country where 0 represents perfect equality and 1 inequality – was 0.46, the second-highest among OECD countries and well above the OECD average of 0.32.¹²

Rapid advances in digital technology have opened up many opportunities in Mexico, including in digital government, in e-commerce, and in the growing ICT services sector. Technology adoption has risen sharply in recent decades and is being increasingly harnessed by both public and private sector actors.¹³ As of 2018, 65.8% of the Mexican population self-define themselves as internet users, and 73.5% of the population owned mobile phones (with nine out of ten owning smartphones).¹⁴ In 2014, it was estimated¹⁵ that by 2025, digitalization could annually add USD 240 billion to the country's GDP. In response, the federal government launched the National Digital Strategy, with digital government transformation as one of its main objectives.¹⁶ Private sector investment in digital technology has also continued to rise, with the ICT services sector expanding at an 11% compound annual growth rate (CAGR) between 2012 and 2018, and the e-commerce sector expanding at a 48% CAGR between 2009 and 2015.¹⁷

However, rising digital penetration in Mexico has not fully translated into a corresponding increase in digital payments. Only 31.7% of the adult population made or received digital payments in 2018 compared to an average of 45.1% across Latin America and the Caribbean.¹⁸ This is largely attributable to a persistent cash culture and low levels of access to mobile money and to financial institutions.^{19,20} The banking sector in Mexico has historically been highly concentrated, with eight banks representing about 80% of the market. The recent growth of

METRIC	OVERALL
Population	123.5 million ²¹
Adult population	90.2 million ²²
Country income category	Upper-middle income ²³
Average annual growth rate of the economy (Real GDP) 2000–2018	2.1% of GDP ²⁴
% employment informal economy	~40% ²⁵
% of adults with a financial account	36.9% ²⁶
% of adults with a mobile money account	5.6% ²⁷
Telecom subscriptions	114.3 million ²⁸
Internet users	74.3 million ²⁹
Adult literacy rate	95% ³⁰

fintech enterprises is expanding the options to access lower cost financial services, and driving more competition in the sector.³¹ As of 2018, only 5.6% of the adult population had access to a mobile money account and only 36.9% had access to a financial account of any kind. These levels are well below regional averages of 54.5% reporting access to a mobile money account and 73.1% reporting access to a financial account of any kind.³²

Inequality, economic fragmentation, and high rates of informality have contributed to lower-than-expected average GDP growth of 2.1%³³ since 2000. Economic activity and growth are concentrated in the largest cities, as well as in the north and center of the country. This results in significant disparities in access to digital products and services. In 2018, 73% of the urban population over six years of age³⁴ used the internet, compared to 41% of those in rural areas.³⁵ Additionally, as is common throughout Latin America, the Mexican economy is highly fragmented, and an estimated 60% of the employed population works in the informal economy.³⁶ The informal economy accounts for 20–30% of Mexico's GDP³⁷ and comprises 98% micro-enterprises.³⁸ In general, small and micro-enterprises have limited access to financial products and services. In 2014, only 11% of micro-enterprises had access to finance compared to 40% of medium enterprises.³⁹ This contributes to the high failure rate and low productivity of micro-enterprises.⁴⁰

México Digital was launched by the Federal Government in 2013 with support from the President of Mexico. This initiative committed to drive innovation in digital services through the democratization of public spending – expanding the universe of public sector providers of digital services, creating more competition in public spending and promoting the participation of SMEs. This strategy reflected the culmination of over 15 years of efforts to centralize government payments through a Treasury Single Account, to digitize government revenues and expenses as part of a modern financial management (PFM) system used by the Ministry of Finance and the government more widely, and to increase financial inclusion. As a result, it has been estimated that the Mexican government now saves around USD 1.27 billion annually, or 3.3% of its combined spending on wages, pensions, and social transfers.⁴¹

In 2014, it was estimated that by 2025, digitalization could annually add **USD 240 billion** to the country's GDP. In response, the federal government launched the National Digital Strategy, with digital government transformation as one of its main objectives.

The male labor force participation rate of 79% is almost double the female rate of 44%.

This gap narrows for employment in the formal economy alone – 42% of men participate compared to 37% of women.

There remains a large gender equality gap in employment outcomes and in access to financial services. The male labor force participation rate (79%) is almost double the female rate (44%),⁴² although this gap narrows for employment in the formal economy alone (42% of men participate compared to 37% of women).⁴³ The proportion of women with an account at a financial institution or with a mobile money service provider fell from 39% in 2014 to 33% in 2017; however, among men this rose from 39% to 41% over the same period.⁴⁴ The gender equality gap in adult literacy and internet usage is much narrower. As of 2016, 94% of female adults were literate compared to 96% of males.⁴⁵ Still, 19% of women (compared to 11% of men) identify ‘literacy and skills’ as the most significant barrier to their ownership of mobile phones.⁴⁶

TAX LANDSCAPE

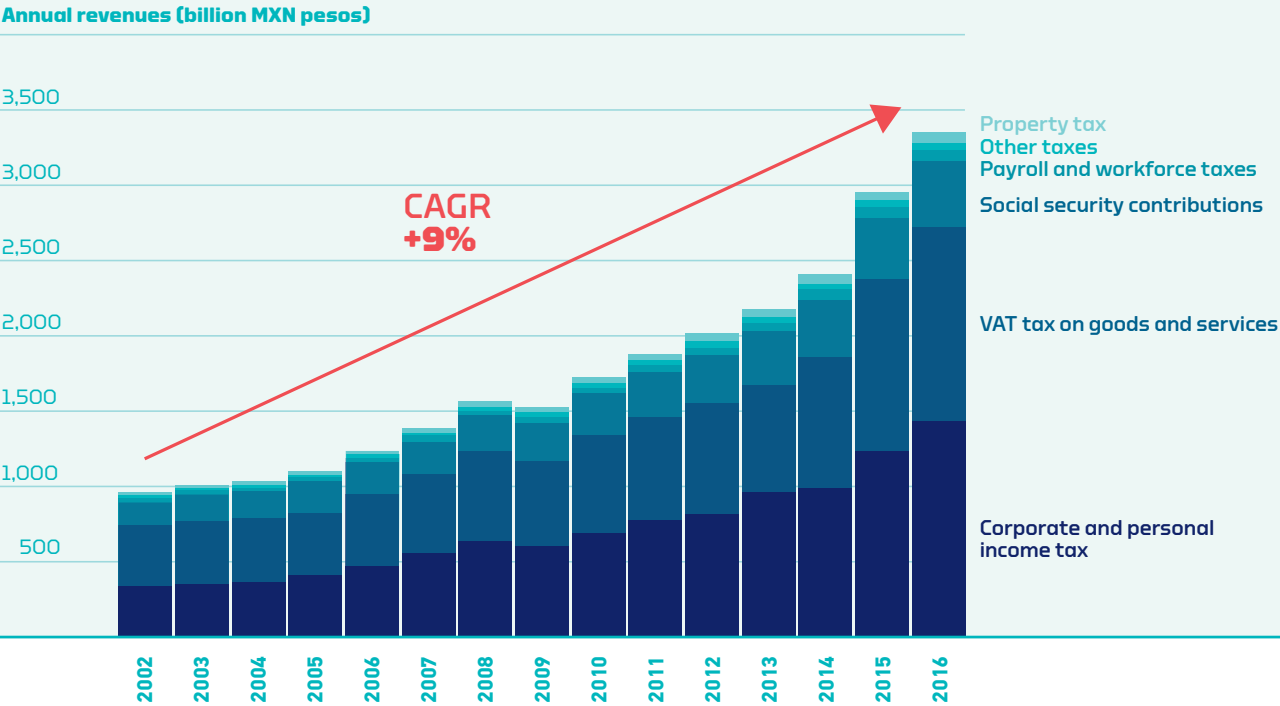
The Servicio de Administración Tributaria (Tax Administration Service, or ‘SAT’) is the national entity responsible for collecting federal taxes in Mexico. It is a semi-autonomous body, established in 1997, funded by the Secretaría de Hacienda y Crédito Público (Secretariat of Finance and Public Credit, or ‘SHCP’). The SAT was designed as a separate entity with the aim of decoupling tax policy from tax administration and collection. As such, SAT’s role is limited to collecting tax and applying federal fiscal and customs laws. SAT does not define the country’s broader fiscal policy.⁴⁷

SAT collects corporate and personal income taxes, as well as value-added taxes. These represent about 80% of the total revenue collected nationally.⁴⁸ The remaining revenue – primarily local taxes and social security contributions– is collected by other entities such as state and municipal governments, the Mexican Social Security Institute, and the Institute of the National Housing Fund for Workers.

In 2016, the last confirmed data-point of the OECD, Mexico collected MXN 3.3 trillion/USD 139.44 billion from overall tax revenues and social security contributions. This represented an increase of around 95% from 2010 (Figure 1). Increases in the collection of VAT and income tax, which in 2016 represented 39% and 43% of government revenue, respectively, were the biggest contributors to these increases.

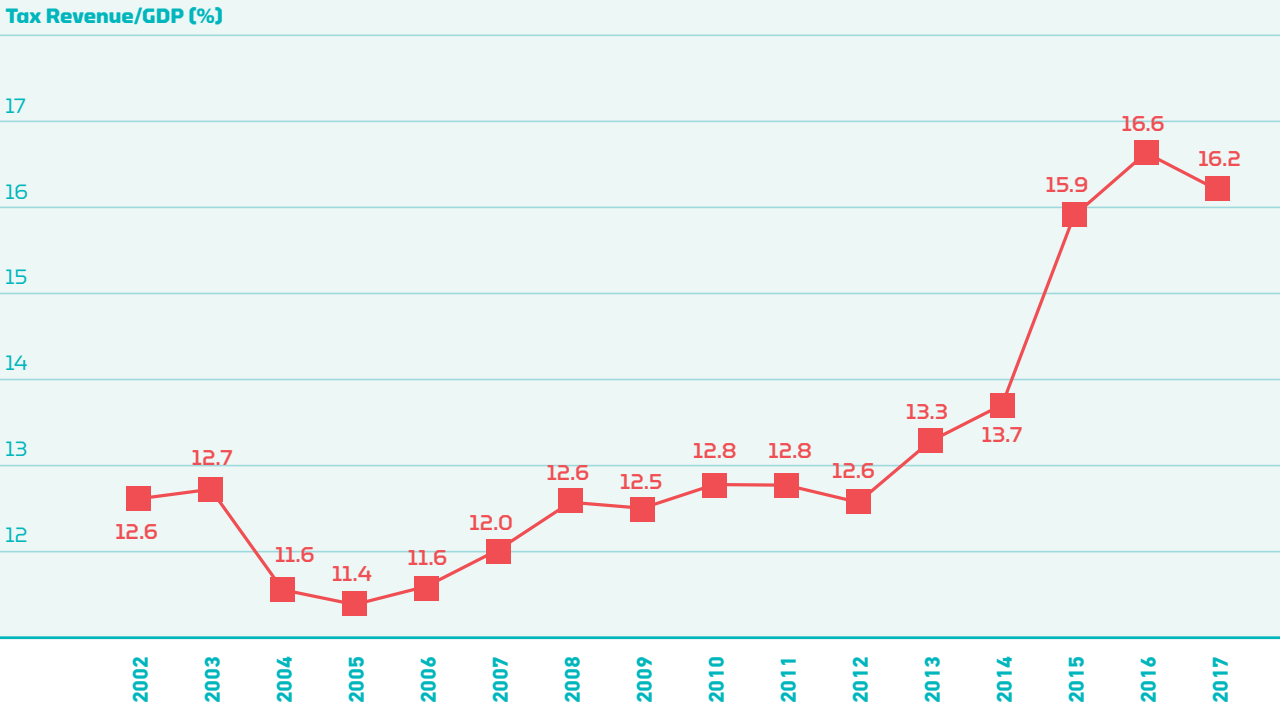
Mexico lags global averages in the collection of state and municipal taxes. A significant fiscal imbalance results in vertical fiscal imbalance in which most taxes are collected at the federal level and then distributed to the states where subnational tax authorities have limited incentive or political will to improve their tax collection. For instance, property tax collection by the subnational authority in Mexico represents 0.3% of GDP. This is six times lower than the OECD average of 1.8%.⁴⁹

FIGURE 1
Annual Mexican nominal revenues from all taxes and social security contributions⁵⁰

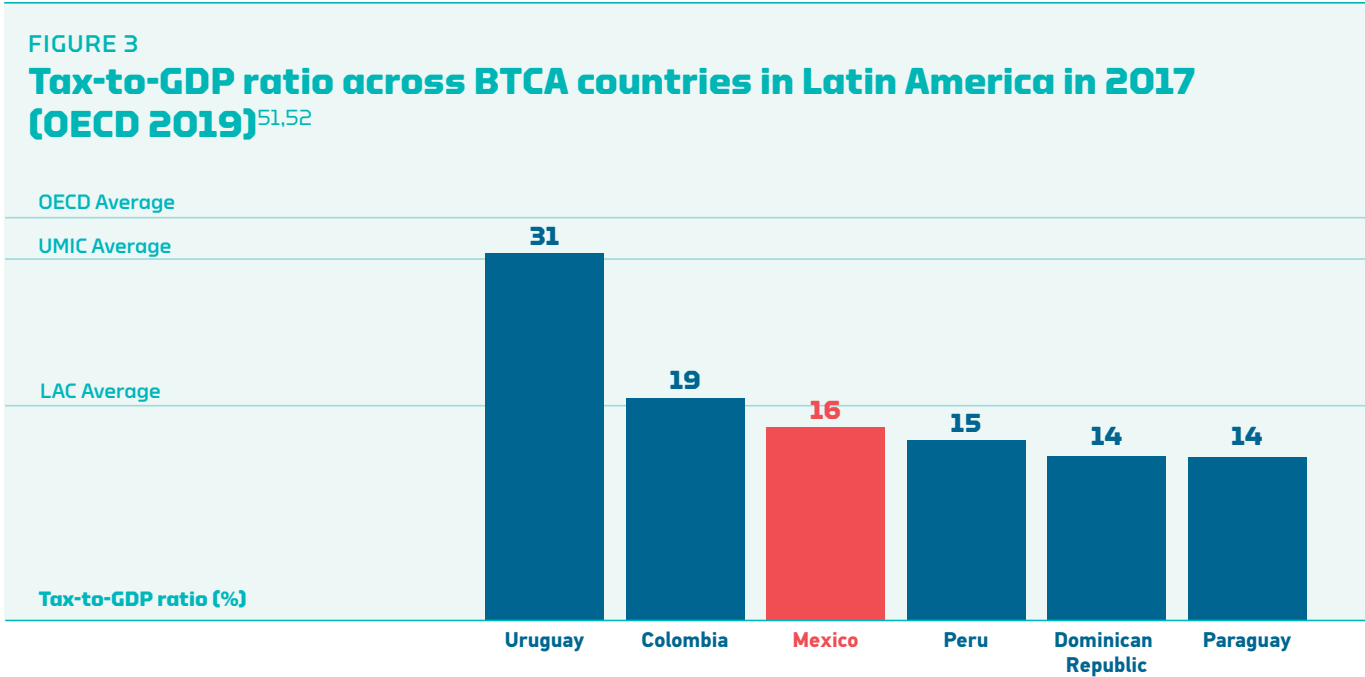


Since 2012, Mexico’s tax-to-GDP ratio has risen by 3.6 percentage points to 16.2% for the period between 2012 and 2017.

FIGURE 2
Tax-to-GDP ratio for Mexico from 2014 to 2017



Despite this impressive rise, Mexico’s tax-to-GDP ratio of 16.2% is still below the averages for Latin America and the Caribbean (LAC) and OECD (Figure 3).



Personal income tax structures which are regressive in key aspects, a corporate tax rate of 30%, and confusion among citizens about how to use the Mexican fiscal system contribute to the size of the informal economy and result in a relatively low tax base.

TAX CHALLENGES

Structural, administrative, and tax policy barriers contribute to many of Mexico’s tax challenges:

- The large informal economy, estimated at 60% of the employed population in Mexico, accounts for 20–30% of Mexico’s GDP.⁵³
- Personal income tax structures which are regressive in key aspects,⁵⁴ a corporate tax rate of 30%, and confusion among citizens about how to use the Mexican fiscal system contribute to the size of the informal economy and result in a relatively low tax base.
- SAT faces a number of internal issues, as discussed later in this case study, which limit administrative tax enforcement and increase compliance costs for taxpayers. This creates incentives for tax evasion – currently estimated to equal approximately 3–4% of GDP, although overall tax evasion in Mexico has fallen sharply in recent years.⁵⁵
- As a result of administrative barriers such as how to engage with the tax administration to comply with their requirements, the average time to complete a corporate income tax audit in Mexico is 87 weeks. This is well above peer countries such as Peru in which the average completion time is 30.6 weeks.⁵⁶ These barriers are highlighted in the World Bank’s Paying Taxes Report.
- Tax policy issues result in erosion of the tax base and, thereby in substantial revenue lost to tax expenditures.⁵⁷ In 2018, lost revenue from corporate income tax (CIT) was equivalent to around 1% of GDP.⁵⁸

Through its digital transformation strategy, particularly over the past five years, SAT has prioritized two key messages to taxpayers: **complying with and correcting their tax returns is easy, and noncompliance will have consequences.**

INTRODUCTION TO THE DIGITALIZED TAX SYSTEM

To tackle some of the challenges surrounding revenue collection, especially administrative and structural issues, SAT has prioritized voluntary tax compliance-improving activities that drive enforcement, such as the efficiency of audits and policies that allow tax exemptions to large corporates, largely through the use of technological solutions. SAT recognizes that to increase revenue, it must change how taxpayers perceive the tax system and interact with it. Through its digital transformation strategy, particularly over the past five years, SAT has prioritized two key messages to taxpayers: complying with and correcting their tax returns is easy, and noncompliance will have consequences.⁵⁹ In parallel, SAT has sought to develop efficient and effective technological solutions that support these two messages.

Today, SAT has one of the most advanced digital tax administration systems among emerging economies.

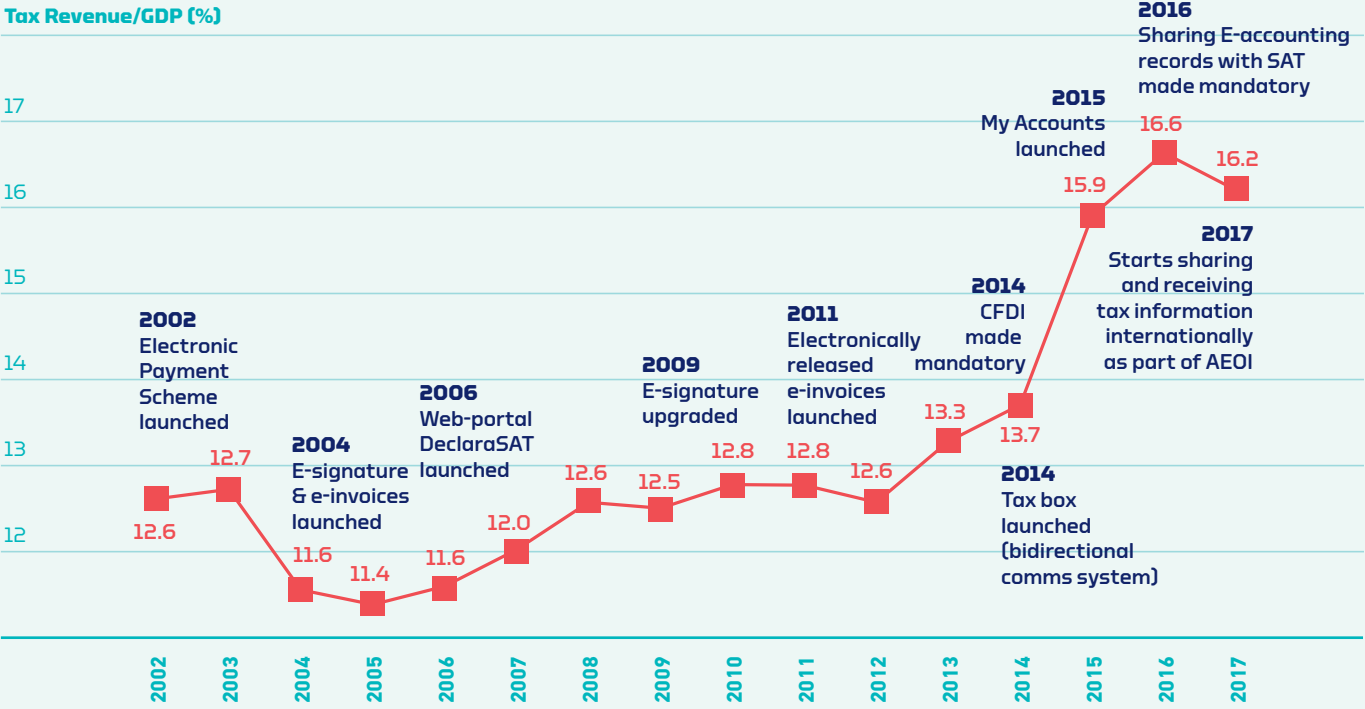
This system is a result of using technology to gradually improve SAT’s operations and help meet its objectives. The first efforts started in the early 2000s and involved the digitalization of the early stages of the tax cycle (notably, e-invoices)⁶⁰ with the primary aim of increasing oversight of large and medium-sized enterprises to reduce tax evasion in a cost-effective way. These efforts responded to requests from a private sector-led Electronic Invoice Committee which advocated for this technology to be included in the legal tax framework to make taxpayer compliance easier.⁶¹ As Mexico’s digitalized tax system matured, SAT’s objectives expanded to respond to broader business digitalization trends and increased globalization. SAT now aims to use new technologies to expand the tax base, to effectively tax the digital economy, and to reduce tax avoidance by multinational companies with complex international structures.

Currently, most components of the federal tax cycle are digitalized, and the system allows for streamlined data sharing and analytics. Digitalization across all aspects of tax administration makes interactions between tax authorities and taxpayers much more efficient, effective, and safe. Additionally, efforts towards interoperability between SAT’s tools and software and those of other tax authorities – as well as private third parties – have set the stage for advanced data analytics to transform key business processes. SAT’s digital tax system is designed to comply with the OECD’s CRSs. This allows it to engage with international tax authorities (such as the Internal Revenue Service of the United States) and respond to evolving international and digital business practices.

TABLE 1
Timeline of major steps in SAT's digitalization journey

YEAR	RELEVANT STEPS REGARDING TAX DIGITALIZATION
Pre-1990	A tax digitalization strategy and vision first emerges with the piloting of PoS registration and e-invoicing
1990s	45 companies affiliated with the Mexican Association of Standards for Electronic Commerce (AMECE) create the Electronic Invoice Committee and ask tax authorities to include this technology in the legal tax framework ⁶²
1995	DecAnual is launched as the first version of an electronic portal for individual tax return calculation and filing
1997	SAT is established as a semi-autonomous federal tax administrator
2002	A new Electronic Payment Scheme is launched to facilitate digital payment of taxes
2004	Simple e-signature is launched
2004	Digital e-invoices are launched (optional use)
2006	DeclaraSAT replaces DecAnual as portal for electronic tax returns
2009	E-signature is upgraded to an advanced version
2011	Electronically released e-invoices (Comprobante Fiscal Digital por Internet, or 'CFDI') are launched, and distributed by authorized third-party certificate providers
2014	CFDI is made mandatory for all taxpayers
2014	Tax Inbox (Buzón Tributario) is launched as a two-way electronic communication system between SAT and taxpayers
2015	My Accounts (Mis Cuentas) is launched by SAT as an app tailored for small and micro-enterprises to facilitate e-accounting and e-invoicing
2016	The sharing of e-accounting records with SAT is made mandatory
2017	Mexico's SHCP and SAT start exchanging tax-relevant financial information with other OECD country signatories of the Multilateral Agreement between Competent Authorities on Automatic Exchange of Information or AEOL using Common Reporting Standards (CRSs) ⁶³
2019	Santander is the first commercial bank authorized by SAT to use e-signatures as part of their business processes ⁶⁴
2019	SAT launches a withholding scheme for eight major digital companies (including Uber and Cabify) to simplify payment of their taxes ⁶⁵

FIGURE 4
Timeline of major steps in SAT's digitalization journey



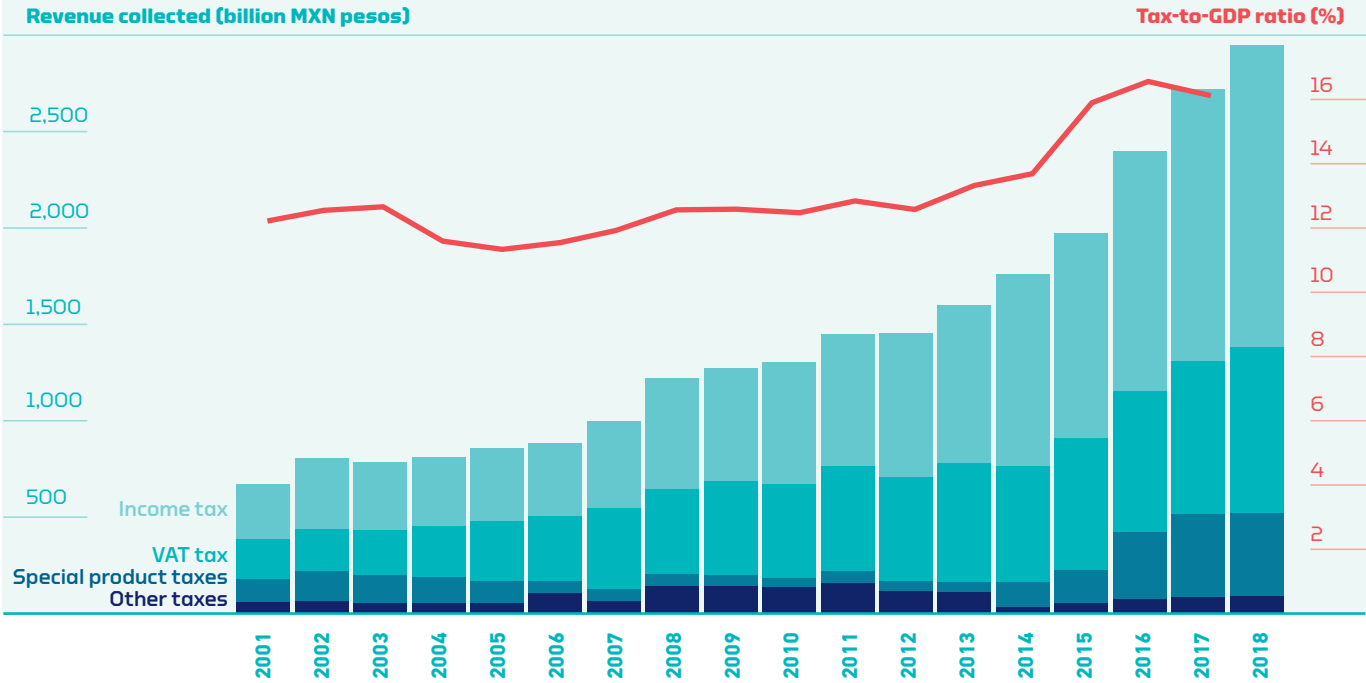
IMPACT OF TAX DIGITALIZATION

It is worth noting that, as tax digitalization occurred in parallel with other fiscal reforms, such as changes in taxpayer data requirements and tax structures, it can be challenging to measure the exact impact of digitalization by itself. However, several consistent trends emerge from SAT's digitalization efforts.

Government

In the past two decades, digitalization improved the effectiveness of tax collection by SAT. Notably, the tax-to-GDP ratio rose 2.9 percentage points in the two years following 2014, when e-invoicing was made mandatory. This was largely the result of a 48% increase in tax revenue on goods and services from MXN 880.1 billion/USD 37.19 billion in 2014 to MXN 1.3 trillion/USD 54.93 billion in 2016.⁶⁶ By providing improved and real-time transparency over national economic activities, e-invoicing and e-accounting are the policy interventions that likely delivered the greatest direct impact on revenue collection. Other digital interventions have been essential in enabling effective implementation of these measures, for example e-signatures which serve to validate the authenticity of e-invoices, and are hence vital to their implementation.

FIGURE 5
Trends in the effectiveness of SAT revenue collection (2001-2018) (OECD 2018)⁶⁷



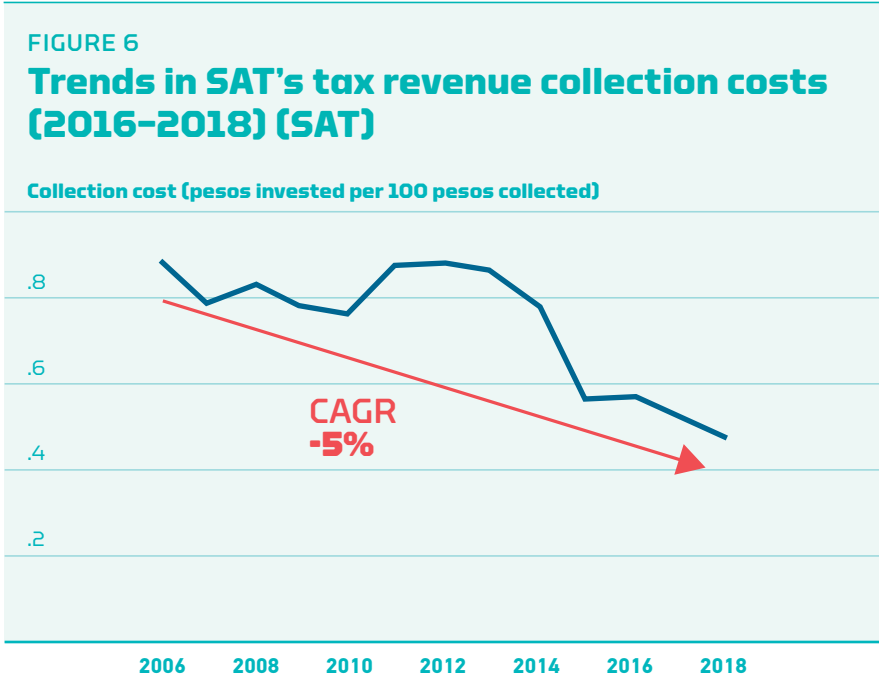
E-invoicing brought an estimated **4.2 million** micro-enterprises into the formal economy.

Increased tax revenues have partially resulted from lower tax evasion and noncompliance, which can be directly and indirectly linked to digitalization. Between 2012 and 2016, tax evasion fell by an estimated 20%.⁶⁸ Digitalization provides tax authorities with almost real-time data on economic transactions carried out by registered taxpayers. This has directly improved tax collection and made auditing more precise.⁶⁹ Digitalization has also changed taxpayers' perceptions of SAT and, thereby, indirectly contributed to improvements in taxpayers' compliance and interactions with SAT. For instance, taxpayers have increasingly recognized the risk of penalties from non-compliance, making voluntary compliance more likely. As of 2019, 83% of surveyed taxpayers thought that it was likely or very likely that they would be sanctioned if they failed to comply with their tax obligations.⁷⁰

Increases in the tax base, which has grown by around 150% since 2010, are also linked to digitalization and have contributed to increased tax revenues. Digitalization has caused a ripple effect. For example, larger businesses have pushed their smaller providers to use e-invoices and formalize their operations. In this way, e-invoicing brought an estimated 4.2 million micro-enterprises into the formal economy.⁷¹

CHANGES IN TAX ADMINISTRATION EFFICIENCY

Since the adoption of tax digitalization, SAT has significantly improved its internal administrative efficiency and cut the cost of collection by 57% between 2006 and 2018. In 2006, SAT spent MXN 1.11 for every MXN 100 collected. This cost had declined to just MXN 0.54 by 2018 (Figure 4). Digitalization has brought this change about by enabling automation and improved resource allocation. Among other

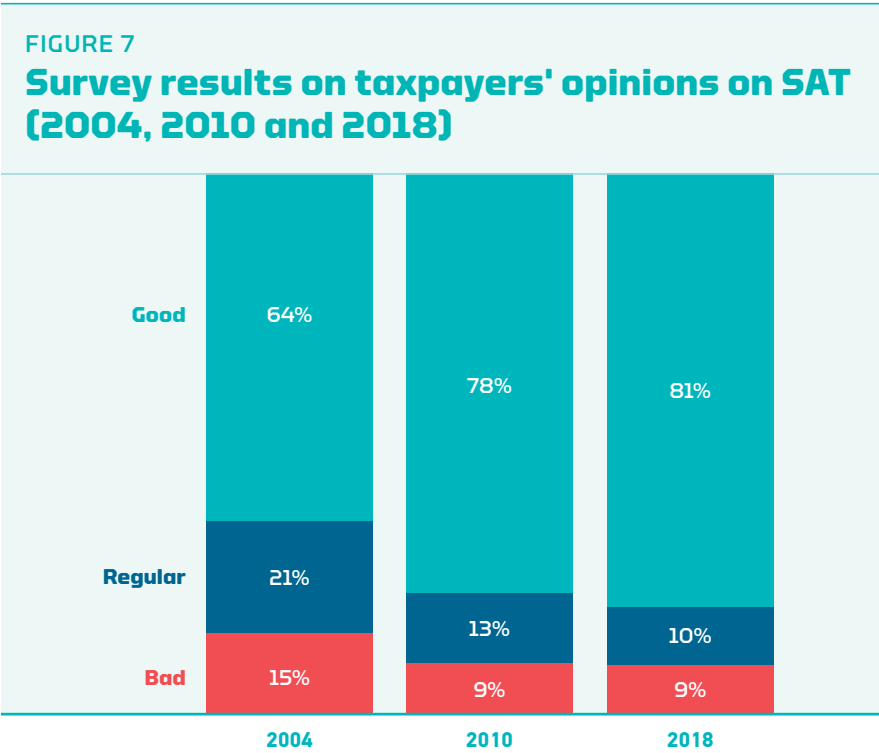


Rising public trust in SAT could support a longer-term cultural shift towards greater compliance and strengthen the relationship between taxpayers and government institutions.

advances, the tax revenue collected per SAT employee increased by 10% between 2005 and 2018. Improvements driven by digitalization are also evident in SAT's auditing process where greater oversight over business operations has cut audit costs by 11% and lifted auditing revenue by 115% over the last five years.⁷²

BROADER BENEFITS OF DIGITALIZATION

Although it is difficult to make a direct correlation between digitalization and taxpayers' perceptions, key policy interventions since the early 2000s have run parallel with improvements in perceptions of SAT. For instance, since digitalization efforts were strengthened in 2004 with the introduction of e-invoices, the proportion of taxpayers with a good impression of SAT increased by 25% (Figure 7). Additionally, between 2010 and 2019, SAT's honesty indicator for service experience improved from 8.9 to 9.4. The maximum value in the scale is 10 – described as the average rating on the honesty of products and services provided to taxpayers. This is particularly relevant in Mexico, given the high levels of public distrust of government institutions and the low compliance culture at a national level. Historically, some have considered that there have been limitations in the state enforcing the laws. This has, in some ways, de-legitimized norms and rules resulting in an inability to generate a sense of obligation among citizens and taxpayers. Rising public trust in SAT could support a longer-term cultural shift towards greater compliance and strengthen the relationship between taxpayers and government institutions.



Mexican taxpayers have benefited from the digital changes implemented by SAT, with Mexico's score in the World Bank's Paying Taxes index improving from 62 to 73 (out of 100) between 2010 and 2015. As of 2020, the score is 65.8.

Taxpayers

Mexican taxpayers have also benefited from the digital changes implemented by SAT, with Mexico's score in the World Bank's Paying Taxes index improving from 62 to 73 (out of 100) between 2010 and 2015.⁷³ As of 2020, the score is 65.8.⁷⁴ Specifically, digital platforms such as DeclaraSAT and the Tax Inbox have slashed taxpayers' compliance time and cost by allowing them to report taxes and communicate with tax authorities digitally. Additionally, e-invoicing has cut taxpayers' compliance costs associated with issuing, delivering, and storing physical invoices. Digitalization has also provided opportunities for taxpayers to increase efficiency through operational changes and opportunities to automate, such as through accounting upgrades, supplier payment systems, and inventory management products.

However, increased fiscal obligations have diluted some of the benefits for taxpayers offered by digitalization. For instance, digitalization means businesses are required to report 'proof of payment' following invoices to SAT, and must also share the complete electronic accounting with SAT. This was not required previously. This development increases administrative obligations to comply with the requirements of the tax administration.

It is also worth noting that the relative impact of tax digitalization has varied depending on the characteristics of the taxpayer in question. The number of invoices issued by the taxpayer monthly, their education and digital literacy levels, and their operating capital all influence the relative costs and benefits of adopting tax digitalization.

The benefits of tax digitalization for large businesses with complex operations have been particularly high, although digitalization has required significant internal changes. Multinational companies like Walmart approached SAT as early as 2002, advocating for e-invoices. At the time, Walmart Mexico had 8500 stores in 15 countries and commercial relations with over 16,000 suppliers. By way of background, Walmart Mexico and Central America is an independent company, part of the Walmart group. Every month, Walmart Mexico was receiving over 1 million invoices and issuing over 5 million to its customers.⁷⁵ The migration from paper to digital significantly lowered this administrative burden. The investment necessary for such a large company to adapt to the digital tax system is relatively low. However, the internal changes to how it operates can take one or two years to be implemented and require several iterations with the Proveedores Autorizados de Certificación or ACP Authorized Certification Supplier in English facilitating the transition. Suppliers and customers also have to adjust to the new systems.

Medium-sized enterprises also benefited from tax digitalization, but their relative investment costs during the transition were higher because of their initial lack of ICT resources. An analysis of three medium-sized enterprises in the city of Puebla provides some indications of the relative merits of digitalization,⁷⁶ particularly in terms of more efficient invoicing and lower compliance time. One company, a supplier for the automobile industry, noted they previously suffered long delays at customs waiting for legal invoices; however, automation ensured that when merchandise left their warehouse, it was accompanied by all the necessary documentation. Despite such examples, most mid-sized companies, defined as those with 20–500 employees, depending on the industry by the National Institute of Geography and Statistics, reported incurring sometimes burdensome investment costs of over MDX 100,000 (or USD 8000 in 2010 at the time the data were compiled). The experience of the technology holding company SIGSA transitioning to a digitalized tax system (see Box 1) illustrates other challenges, such as exposure to increased scrutiny, resulting in a 20% increase in the size of its accounting department.

BOX 1
Marcos Saules - SIGSA

SIGSA is a technology holding company founded in 1980. It currently employs about 400 people. SIGSA has an in-house accounting team and manages its operations with third-party software and a PAC for e-invoicing.

SIGSA's Administrative and Financial Manager Marcos Saules views the main benefit of tax digitalization as the introduction of the Tax Inbox, which greatly reduced the need for in-person interactions with SAT.

"The online portal has really simplified our tax compliance processes, from how we submit our tax return and how we make tax payments to how we manage post-filing communications with SAT. The agility of the process means everything takes less time. We used to have a team member go to SAT and spend three to four hours there several times per month."

SIGSA first started sending e-invoices and declaring their accounting electronically in 2014 and 2015, respectively, when these practices became mandatory. Although the company incurred certain costs during the transition, it also allowed them to make some significant operational improvements.

"We now pay USD 400-500 per month for our updated ICT system, which is compatible with SAT's requirements. Additionally, the increased scrutiny from SAT means we have increased our accounting team by 20% to ensure that everything is in line. However, these investments have allowed us to integrate our accounting across the different business units, which were previously managed independently. Consolidation used to be a cumbersome process that was often delayed. Nowadays, almost real-time information about our financial status is helping us make smarter decisions about resource allocation across the firm."

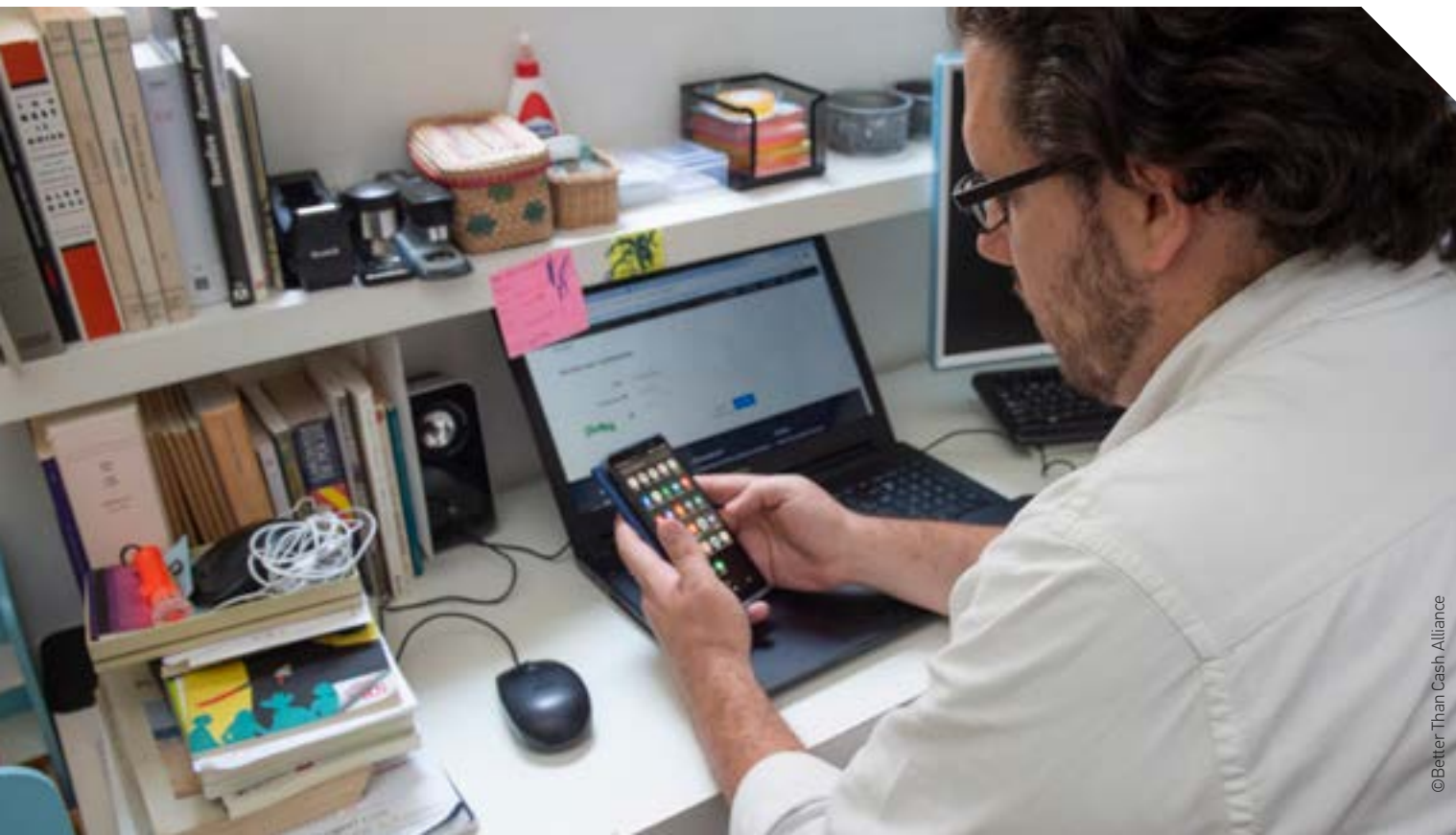
Going forward, SIGSA believes SAT could improve by better targeting its data requests and further simplifying tax processes, helping to reduce the cost of compliance for enterprises.

"Some of the information included in the e-invoices is excessive, and businesses don't understand what value they derive from it, with some tax compliance processes remaining very complicated."

For small and micro-enterprises, digitalization has lowered tax compliance time and, in some instances, compliance costs. Many small businesses that once relied on accountants to file their tax returns can now do so themselves online with little prior knowledge of the tax system (Box 2). However, for some, compliance costs have risen as a result of lack of access to SAT ICT support centers as these tend to be in cities, meaning such businesses must invest in their own IT systems.⁷⁷

Ongoing changes in the digital tax system have impeded uptake by small and micro-enterprises, especially those owned by women. Changes in the digital tax system require ongoing education of taxpayers so they can adapt. It is not always viable for business owners to invest in such efforts, particularly women who may have more domestic obligations, less time, and fewer financial resources available to them (see Box 3). Improved and targeted communication – particularly for women – about new developments in the tax digital system will be important to drive further updates.

Notably, important secondary benefits of tax digitalization, such as financial inclusion or access to credit, often do not reach small and micro-enterprises. This limits the extent to which tax digitalization has incentivized formalization. Going forward, SAT may need to collaborate more with private sector entities to provide services to small and micro-enterprises. Such collaborations would be well served to recognize that women are more likely to be employed in the informal sector and in small and micro-enterprises.⁷⁸ Opportunities exist for innovations that would overcome gender-specific constraints that hold back business growth in these sectors.



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BOX 2

Lourdes Palomo, Podologist

Lourdes has been a podologist for over 20 years. Seven years ago, she opened her own clinic in Tepetzotlán in Mexico State. She recalls that, when she was in Podology school, her professors had stressed the importance of formalizing one's business. When she launched her own practice, Lourdes registered with the tax and health authorities, and takes great pride in keeping her administrative affairs in order.

"Since I was educated on the importance of paying taxes and contributing to the national economy, I never once hesitated to register with SAT."

SAT's digitalization and support services have allowed Lourdes to manage her taxes independently, thereby avoiding monthly expense of hiring an accountant.

"When I first registered with SAT, I hired an accountant to manage my taxes. Every month she would look through my books and prepare my tax return. Digitalization means that I only need to submit my accounting and invoices, and then the system calculates my tax obligations for me. Therefore, I started managing my own taxes."

Now, every two months, she goes to the SAT office to submit her tax return and generate e-invoices.

"Since I don't have a computer at home, I go to the SAT office and use their computer room. Initially, I didn't know how to navigate my way around the computer or the SAT system, so the support staff taught me how to do it. Now, I understand it better, but still, I ask for their help to make sure I am doing things correctly."

"A tool in which I can record my company's transactions, and which automatically calculates my stock and finances would be fantastic! If, in the meantime, it also helps me comply with my tax obligations, all the better."

BOX 3

Andrea Acosta Sandoval, School Supplies Store Owner

Thirteen years ago, Andrea resigned from her administrative support job at a hospital for health reasons. Together with her husband, she decided to open a school supplies store in Cuatitlan Izcalli, and despite having no previous business experience, their store has been operating ever since.

Andrea engages an accountant – a close friend who has helped with taxes for years. While Andrea does not question the need to pay taxes, she would like to understand how her money is being spent by the government.

"We all need to contribute our part, but we do it because we want a better life, so I would like to know how money is being used in my community."

About 18 months ago, Andrea attended a SAT workshop at ProMujer, a leading regional women's empowerment organization that has provided credit to Andrea over the years. During this session, the SAT team demonstrated how to use the digital platform so that women could comply with their tax obligations independently. Andrea was able to do so for a while until an update to the system changed the relevant process, such that she no longer knew how to use it. She then went back to using her accountant.

Although she understands how the digital tax system operates and is generally confident in her digital skills, Andrea thinks there is an opportunity to improve the way SAT communicates changes in its digital processes.

"Every once in a while, [SAT] changes the system slightly, and I'm no longer sure how it works. This means I need to ask for help from the support services staff and learn how to do it again, which I don't always have the time to do. SAT could communicate better on what changes they are making so it is easier for me to learn to adapt to them independently. I wish they had more courses that were easily accessible to me."

Subnational tax authorities

Some state governments and municipal tax authorities have followed SAT's example and pursued similar digitalization efforts, which have yielded positive results. For instance, Puebla city's municipal government used digitalization to almost double its property tax collections over a four-year period (Box 4). However, these subnational efforts have usually occurred in isolation and often failed to seize the benefits of compatibility with SAT's system.

BOX 4
Digitalization of the property registries/cadasters for property tax collection⁷⁹ - Puebla Municipality, Puebla, Mexico

Since 2011, the municipality of Puebla has prioritized increased collection of property taxes. It anchored its strategy in the use of technology to update local cadasters. Poorly maintained cadaster records in Mexico can lead to valuations being, on average, 30% lower than actual commercial property market valuations, resulting in tax collections that are lower than they should be.⁸⁰

Following a diagnosis that highlighted discrepancies between the geographic information registered in the maps and the information in the government database used to collect taxes, the municipal government invested in a comprehensive digital system linking the different components of the cadaster. This process exposed inconsistencies in the data determining the calculation and collection of property taxes. In 2012 alone, cadaster management identified 36,000 accounts that had failed to declare construction work that increased the market value of the property.

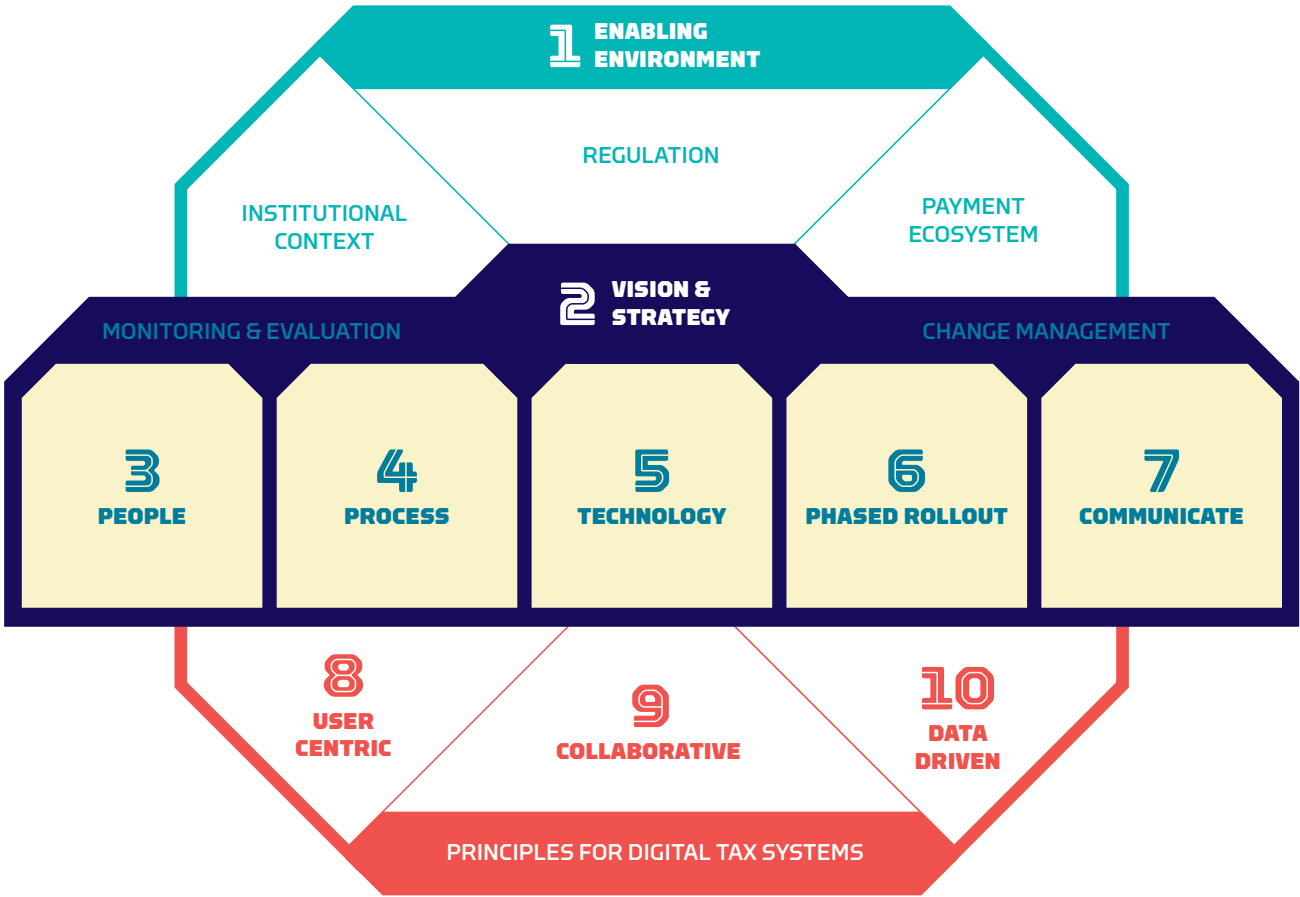
Along with other policy interventions, such as efforts to educate local communities about the importance of tax collection and compliance, the digitalized cadaster increased municipal property tax revenues by 83% between 2010 and 2015. Between 2011 and 2015, the number of tax-paying property owners grew by 75%.

Moreover, tax processes became more efficient, with the average compliance and processing time falling by 85% between 2010 to 2015. Digitalization has also strengthened civil protection, environmental and land regularization, and land risk management, among other areas, for example by using the improved cartographic information used by other entities in the local government.

HIGHLIGHTS FROM MEXICO'S DIGITALIZATION EFFORTS

A number of useful insights arise from SAT's digitalization success. These largely center around four elements:

- 1 the enabling environment
- 2 the vision and strategy
- 3 decisions made during implementation
- 4 the principles underlying the digital tax system.



Enabling environment

A strong institutional design improved Mexico's tax digitalization journey. At its inception, SAT was empowered with the autonomy and financial resources necessary to manage a long-term digital transformation. Its designation as a semi-autonomous federal body enabled the separation of political and operational aspects of the tax system, and enabled SAT to drive forward the changes needed to optimize tax administration. It also gave SAT the authority to make independent decisions regarding internal organizational changes.

“Initially, tax collection fell under the auspice of the Secretariat of Finance and Public Credit. However, aligned with global trends moving towards decoupling policy from administration, the Tax Administration Service was given autonomy to control its own operations regarding tax but also tariffs and duties. With autonomy came responsibility and accountability to improve and modernize revenue collection. This provided the incentives required for SAT to push forward with the digitalization efforts.”
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Juan Pablo de Bottón Falcon, Head of SAT's General Administrator of Communications and Information Technologies (2018-present)

While the tax code and fiscal law are outside SAT's scope, the organization has been able to collaborate closely with SHCP and Congress on regulatory changes that support the implementation of its digitalization strategy. In 2006, SAT and SHCP worked closely with Congress on a reform to the Federal Tax Code that modified more than 100 articles and opened the door for the digital transformation process.⁸¹ SAT has worked to ensure tax digitalization is delivered in concert with regulatory changes that protect taxpayers' confidentiality and data (see Box 5). Notably, challenges to regulatory reforms often arise in areas outside fiscal policy. For instance, although SAT has long advocated for a change in banking regulations that would allow tax payments to be executed through intermediaries other than banks, currently, tax payments can only be made through banks.

BOX 5
Tax digitalization and taxpayers' rights⁸²

As digitalization increased SAT's investigative powers, SAT and other national entities established a minimum standard and best practices to ensure the protection of taxpayers' rights. These are enshrined in the Mexican Tax Regulation and, among other tenets, include:

The right to access and correct the information held by tax authorities

- Although SAT pre-populates tax returns, taxpayers still have the right to amend them (and other information related to their tax obligations) before submission.

Regulation of cross-border procedures

- Taxpayers are to be informed when cross-border requests are made for banking information or FATCA exchanges (although in cases of automatic exchange, no previous notice is required).
- Domestic law applies to cross-border exchange of information under specific and detailed conditions, strengthening protections and legal certainty for taxpayers.
- Mexico is a global leader in the standards it requires in relation to encryption, protection, and security of exchanged information.

SAT's access to sustainable and flexible financing has been instrumental to its success. The Ministry of Finance's special agreement with Congress allows agencies – including SAT – to draft multi-year investment schemes to fund e-government agendas. This ensures that SAT's financing does not depend on annual congressional budget approvals. Additionally, the Federal government through the office of the Presidency established an e-Mexico trust fund in the early 2000s, which allowed SAT to apply unused ICT funds to subsequent fiscal years. These flexible funding arrangements have allowed SAT to overcome budgetary rigidities that have hindered digitalization in other government departments and in other countries.⁸³

Mexico's payment infrastructure has enabled digitization of tax payments and laid the foundation for more widespread digital payments later down the line. The inter-bank electronic payment system (Sistema de Pagos Electrónicos Interbancario, SPEI), developed and operated by Mexico's central bank (Banco de México), was launched in 2004 to provide interoperability between banks. SPEI allowed the general population to make almost instant electronic payments, via banks, the internet, or mobile banking services.⁸⁴ This system bolstered SAT's launch of digital tax payments. More importantly, SPEI's advanced and real-time settlement system laid the foundation for later development of a robust digital-payment ecosystem. While mobile money is still emerging in Mexico, SPEI enabled Banco de México to develop CoDi. CoDi is a payment system designed to make free payments online or in person through smartphones using QR codes. By targeting small and micro-enterprises as well as individuals, it aims to drive formalization and expand

the benefits of digital payments on a national scale. By creating a traceable electronic record of transactions, CoDi represents an opportunity for SAT to tap into a broader taxpayer base.⁸⁵ Already, SAT has implemented several initiatives to promote the uptake of digital payments (see Box 6).

BOX 6
SAT initiatives to promote digital payments

Regulatory changes

In 2014, SAT successfully advocated for a regulation change establishing that payments above MXN 2000/ USD 84.51 made with cash would not be VAT-compliant. New regulations also mandated that all payments for the purchase of fuels for sea, air, and land vehicles be executed through the banking system (cards or checks). In 2018, following a crackdown on tax evasion in the medical profession, SAT also successfully advocated for legislation requiring that medical bills must be paid by digital means to be VAT-deductible.

Demand generation

In Mexico, a 2004 presidential decree established FIMPE, a private trust fund to expand use of electronic payment channels. Through FIMPE, lotteries were organized with prizes such as cars, where any consumer making a purchase with a credit card instead of cash were entered. According to FIMPE, a national trust aimed at spreading the benefits of the electronic payment infrastructure more widely across Mexican society. As a result, transactions at PoS increased 167% between 2003 and 2006, and one out of five people surveyed said they increased their card use.⁸⁶

Supply generation

Through the trust fund, free PoS devices were provided to merchants who did not have them, and merchants were offered fixed monthly fees up to a certain transaction volume. The program also included a national media campaign to inform merchants of the payment card acceptance at PoS. As a result, according to FIMPE, the PoS network increased by 96.3% in terms of individual users between 2003 and 2006.⁸⁷

Despite progress, ecosystem barriers continue to impede the uptake of tax digitalization, particularly digital payments.

In key respects, Mexico’s banking sector has the features of an oligopoly – where, at times, pressure has been exerted to limit non-bank competition. This poses barriers to financial inclusion and the expansion of digital payments. According to the National Banking and Securities Commission, approximately 70% of the financial market is concentrated in just four banks.⁸⁸ Moreover, the entire market is composed of only around 50 banks.⁸⁹ This is low, particularly compared to markets like the United States, which has over 7000 banks. Lack of competition has allowed banks to charge high rates of lending interest while offering clients low-interest rates on their deposits. This reduces incentives to participate in the banking system, and hence hinders financial inclusion.⁹⁰ As a result, credit to the private sector represents around 35% of GDP, a figure far below both developed countries (150%) and other Latin American countries (60%).⁹¹ Moreover, financial account ownership remains low and has stagnated since 2014.⁹² Other barriers to the uptake of tax digitalization include ‘luxury’ taxes imposed on internet access of 3%,⁹³ the high cost of spectrum access for mobile service providers, and difficulties, such as the lack of coverage of internet services across the country.⁹⁴

Vision and strategy

Starting in the early 2000s, SAT identified digitalization as a key component of its long-term vision and strategy, which it maintained over nearly two decades and through six changes in SAT’s leadership.

SAT’s first strategic plan was released in 2004, followed by three subsequent multi-year plans. The role of tax digitalization was envisioned in the first plan (see Box 7); however, given the long-term nature of digital transformation, the actual implementation strategy evolved over time. Each strategic plan set out key objectives, provided the rationale behind proposed changes, defined specific programs through which the objectives would be met, and specified metrics against which SAT could measure success.⁹⁵

Sound management was key to executing SAT’s strategic plan and transforming its vision into effective action.

After the strategic plan 2004–2008 was drafted, it was translated into an organization-wide implementation agenda setting out interim outputs and implementation plans. SAT then underwent an internal realignment to the strategic roadmap of each department. Specific programs and initiatives were co-designed among the different groups to give effect to the desired changes.

A robust monitoring, evaluation, and learning (ME&L) platform allowed SAT to effectively adapt digital implementation strategies based on interim outcomes.

In the early 2000s, SAT started using Balanced Scorecard (BSC), an online site which monitored and analyzed the performance of SAT’s strategic management. In addition to its function as a ME&L platform, BSC functions as a repository of past activities and results. Depending on their positions, staff could input recommendations into the system related to specific objectives and indicators. Decisions at the managerial level were then informed by these inputs and recorded in the system. This added an extra level of accountability and incentivized decision-makers to engage in the appropriate follow-up with the staff responsible or internal teams.

“For over 12 years, all of the SAT governing bodies were promoting initiatives related to the digitalization of the tax cycle. This was facilitated by the presence of a clear overarching vision that enabled leadership to move forward and continue in the direction set by their predecessors.”

Osvaldo Antonio Santín Quiroz, Head of SAT 2016-2018

BOX 7
Excerpt from the 2004-2008 SAT Strategic Plan framing digitalization as an enabler⁹⁶

“Based on the mission and vision, SAT must seek a balance between two fundamental aspects: provide all the facilities to taxpayers so that they fulfill their fiscal and customs obligations responsibly and opportunely, but in turn, exercise control and sanction measures, in strict accordance with the law...”

“...as part of this, technological platforms and information systems will be modernized to ensure an agile and efficient operation that responds with versatility to the demands of the environment, and that has the necessary inputs for timely decision-making.”

Implementation steps

PEOPLE

SAT developed a robust change management plan that outlined the internal human resource changes needed to deliver its digitalization vision and strategy. The plan identified the staff, skills, capabilities, and incentives required. The use of change management frameworks helped staff to develop new models for business operations, and thus underpinned organizational changes. SAT was originally divided into independent departments according to different steps of the tax cycle. However, digitalization entailed greater interdependence and so required greater collaboration. Vertically siloed job categories gave way to horizontally configured workgroups.⁹⁷ SAT also created new teams, such as the Administration of Digital Payments team, which works with banks to enable digital tax payments. Simultaneously, SAT offered exhaustive, in-person and remote training programs to teach staff new skills so they could thrive in the changing digital environment.

PROCESS

SAT streamlined its external and internal processes before starting the digitalization process. The Integral Solution (Solucion Integral) and Platform Project (Proyecto Plataforma), implemented by SAT in the late 2000s, anticipated complete implementation of digitalization. Among other purposes, these initiatives conceptualized how digitalization could simplify and improve SAT’s internal and external processes. The head of SAT at the time, José María Zubiría, wrote, “Change processes must always begin by rethinking the way in which tax administration is related to the taxpayer. Administrators must enhance resources and capabilities internally, and must utilize process integration to facilitate compliance.”⁹⁸ For example, the change from multiple payment forms to a single federal tax form with multiple input lines gave SAT better control over the payment and processing of taxpayers’ tax obligations.

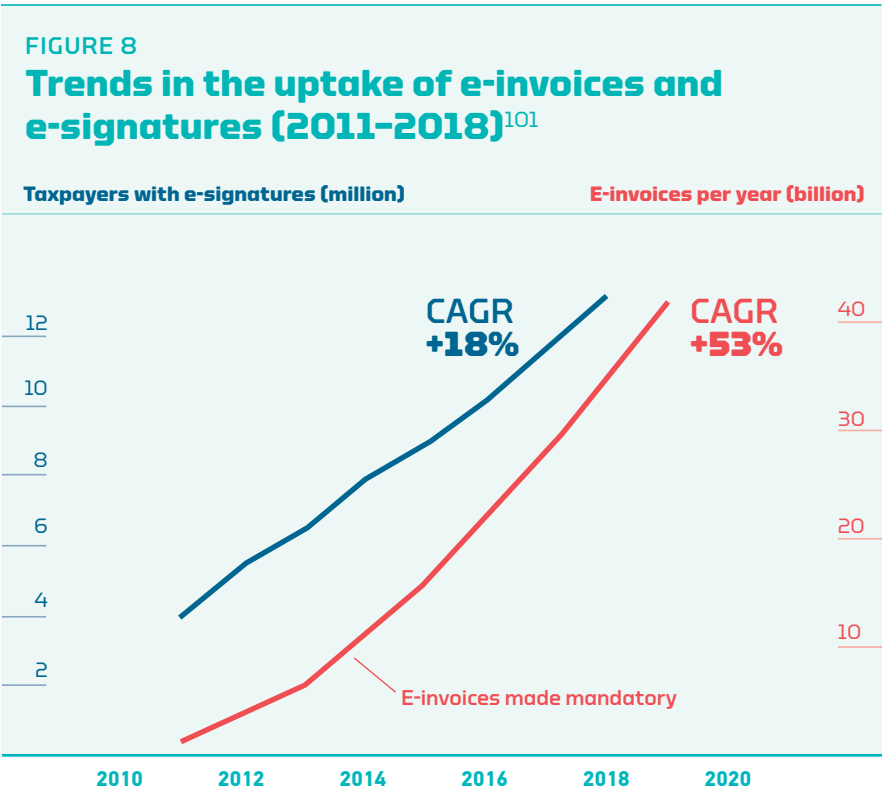
TECHNOLOGY

SAT developed a common technological standard which provided ICT teams with flexibility during procurement and development. This common standard underpinned an integrated digital system designed to vastly improve information-sharing. During the initial phases of the digitalization process, separate components of the ICT system were designed independently, eventually resulting in issues with interoperability. This not only increased the total cost of the ICT system, but also created operational difficulties. For instance, it was reported that, at certain points, specific SAT platforms could only be accessed using specific web browsers. To address these issues, SAT’s ICT department drafted technological standards for all ICT systems. These standards included product requirements, user requirements, and program and product information for each ICT component. In this way, rather than mandating how technology should be

developed (e.g. whether it is open-source or not), SAT establishes output requirements for all relevant technologies. These parameters offer working groups the flexibility to procure and develop technology in the most cost-efficient way while also ensuring that the components will be interoperable.

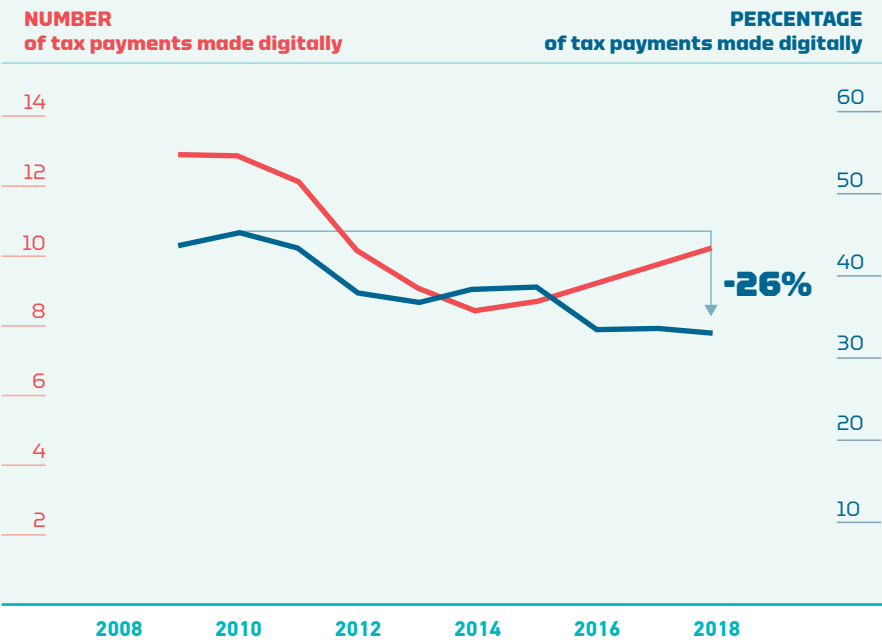
PHASED ROLLOUT

SAT’s gradual and iterative approach has helped deliver sustainable digitalization uptake. SAT pilots most changes to its digitalization system. It then deploys them with large companies before mandating them for all taxpayers. For example, the e-invoice was piloted in the early 2000s with 45 businesses.⁹⁹ It was instituted for large taxpayers in 2011, and for all taxpayers in 2014.¹⁰⁰ This process allowed SAT to adapt the e-invoices over multiple iterations to best suit taxpayer needs. It also provided a realistic timeframe for the development of third-party service providers – such as the services of accounting or IT firms that provide tax support to companies that need to be aligned with the SAT requirements. Overall, SAT’s iterative approach to e-invoicing has been instrumental in driving sustained uptake that had multiplied by a factor of nearly 23 compared to 2011 (Figure 8). Taxpayers’ adoption of downstream components, such as digital tax payments, has been less successful. The proportion of tax payments carried out digitally fell by 26% between 2010 and 2018 (Figure 9). This decline in digital tax payments partially reflects deterrents in the broader economy. A lack of competition in the banking sector impedes financial inclusion and incentivizes the use of cash. In addition, limited channel options for digital payments has made it more difficult for SAT to develop and execute a more comprehensive strategy.



SAT uses social media to engage with Mexico's rapidly growing tech-savvy customer segment. Using its Twitter account, SAT publicizes achievements in areas like tax collection, the expansion of the tax base, or uptake of digital components under the hashtag #SATaccomplishments (#LogroSAT).

FIGURE 9
Trend in the percentage of tax payments made digitally (2011-2018) (SAT)



COMMUNICATE

SAT supports its digitalization strategy with extensive efforts to improve communications with taxpayers. Although SAT and taxpayers can communicate in-person, through online chats, or by phone, all official communication must go through the Tax Inbox (Buzón Tributario). This portal provides individual taxpayers with easy access to information about their unique fiscal obligations and statuses. Recognizing the diversity of its tax base, SAT developed different communication strategies for each user segment. For instance, SAT uses social media to engage with Mexico's rapidly growing tech-savvy customer segment. Using its Twitter account, SAT publicizes achievements in areas like tax collection, the expansion of the tax base, or uptake of digital components under the hashtag #SATaccomplishments (#LogroSAT). In 2014, alongside its digitalization push, SAT created tax support centers in 26 educational institutions. At these centers, SAT trains university students about tax issues so that, through supervised internships, they can offer free assistance to low-income individuals and small and micro-enterprises to help them navigate online tax portals.¹⁰²

Estimates show that SAT could collect more than **USD 1.3 billion annually** if it started applying VAT to digital companies, such as Uber, Netflix, Spotify, and Apple.

Principles

A DATA-DRIVEN ORGANIZATION

Founded on the core principle that information is the basic resource dictating the effectiveness of a tax authority, SAT designed its digital tax system to derive the maximum benefits from available data. SAT ensured that taxpayers' data was captured in a standardized way so it could be shared internally, cross-checked, and analyzed. To do this, SAT assigned unique tax identification numbers to each taxpayer account. SAT also collaborated with other government entities to facilitate data sharing. Currently, SAT regularly shares information with, among others, the financial intelligence unit of the Secretariat of Finance and Public Credit, the Mexican Social Security Institute, the Institute of the National Housing Fund for Workers, the National Banking and Stock Commission, the Ministry of Economy, and local governments.

Given the increased role of multinational companies (MNCs) in Mexico and the growth of the digital economy, SAT has prioritized capturing, analyzing, and sharing high-quality data to improve tax collection. Since 2014, the Mexican government

has signed agreements with 68 countries to share tax-relevant financial information of MNCs through the OECD's Common Reporting Standard (CRS) and Foreign Account Tax Compliance Act (FATCA).¹⁰³ These exchanges provide SAT with data on resources that Mexican taxpayers maintain abroad, thereby enabling oversight of MNC tax obligations. This is particularly important for Mexico, given that it has been identified as one of the countries most affected by tax avoidance schemes.¹⁰⁴ Additionally, following a parliamentary bill to establish a tax on digital services, SAT renewed its efforts to tax the digital economy, especially transportation and food delivery services. Estimates show that SAT could collect more than USD 1.3 billion annually if it started applying VAT to digital companies, such as Uber, Netflix, Spotify, and Apple.¹⁰⁵ This would require comprehensive data on their transactions, in addition to international agreements on taxation of these business models. SAT's data-driven approach to digitalization has proven essential to the design of pilot projects whereby digital platform providers are required to withhold VAT and income tax from the pay of 'gig economy' workers who use their platforms.

“The effectiveness of all tax administration is based on two pillars: control and simplification. On the one hand, it must have appropriate mechanisms to generate risk perception. This relates to their ability to detect noncompliance and act imminently in such a way that those who do not comply suffer the consequences foreseen in the tax provisions. Alternatively, impunity is generated, and impunity results in greater noncompliance. In parallel, the TA (Tax Administration) must seek simplification to establish mechanisms that facilitate voluntary compliance—tools that make the taxpayer feel that compliance is easy and that their needs are well attended to.”

Lizandro Nuñez Picazo,
General Administrator
of Collection del SAT
(2012-2018)

With improved analytics, SAT could identify atypical taxpayer behavior and recover 1.4% of GDP in lost tax revenues.

Since the rollout of e-invoices, it has become increasingly apparent that misrepresentation of business activities is a widespread problem. Between 2014 and 2019, SAT identified 8204 companies that misrepresented operations through false invoices. The resulting loss in tax revenue equaled approximately 1.4% of GDP.¹⁰⁶ This is believed to include only a small fraction of the companies issuing such invoices. As such, SAT could benefit from advanced tax gap analytics that identify atypical behavior. Such analytics could, for example, compare the invoicing activity of similar entity types or identify changes in behaviors over time. In addition, both routine and randomized checks on companies could assess and enforce compliance, and establish benchmarks against which to measure their activities. To this end, SAT has taken initial efforts to develop a management system for compliance risk which allows it to assess whether a taxpayer needs to be audited based on automatically generated risk profiles. Using this system, SAT sends low-risk taxpayers subtle reminders and ‘invitations to comply’, while it uses stronger methods, such as audits, to encourage compliance by those identified as higher risk. In this way, SAT can improve its efficiency and effectiveness by allocating greater resources to those taxpayers who are least likely to comply or who display questionable behavior. Simultaneously, these compliance measures increase perceptions among taxpayers that failing to meet their tax obligations will result in penalties, thus increasing voluntary compliance.

COLLABORATIVE

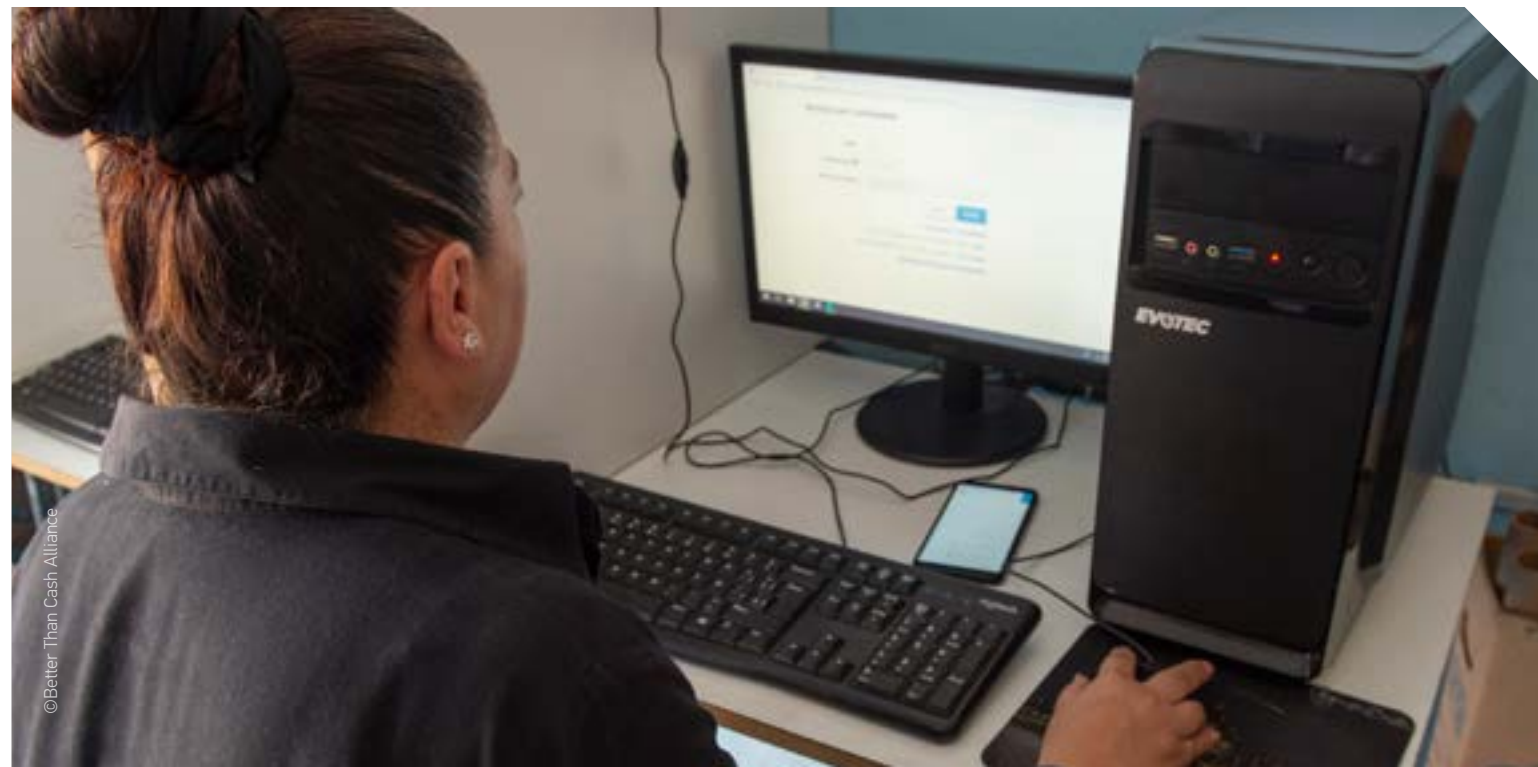
SAT consistently engages the ICT and accounting sector to identify opportunities and mitigate risks. For instance, during the design phase for e-invoices, SAT convened a ‘Committee for Fiscal Documents’ composed of the Mexican Association of ICT Industry, the Mexican Institute of Public Accountants, and the Business Coordination Council. They carried out weekly multi-stakeholder consultations to discuss how the technology could best be implemented given business needs and the capabilities and resources of the ICT and accounting sectors. Through these meetings, the committee ensured (i) that the catalogue of e-invoice products and services made business sense; and (ii) that services provided by accounting software companies and ICT developers were consistent with SAT’s operations. Similarly, close communication between SAT and Prodecon – an independent public organization established in 2006 to address taxpayer concerns and help taxpayers meet their obligations – has helped identify and address pain-points in the taxpayer experience.

SAT kept costs low and maximized the value it provided to taxpayers by delegating provision of many new services to third-party partners. SAT’s use of third-party entities, known as authorized certification providers (Proveedores Autorizados de Certificación or PACs), to outsource validation of e-invoices is a key difference in Mexico’s digital invoice system compared to systems in other countries. It has also

been a crucial factor in SAT’s digitalization success, in part because outsourcing gave rise to private sector innovation that provided added value to taxpayers. For instance, by plugging into a company’s accounting system, PACs help them monitor customer payments and automate the processes through which they send out reminders. PACs also provide data analytics providing insights into a company’s operations and identifying opportunities for the company to improve its operations. There are 77 PACs currently authorized by SAT. Although e-invoices are no longer required to be issued by PACs, in practice, 96% of all invoices issued (by both companies and individuals) are processed by PACs.

USER-CENTRICITY

SAT has put taxpayers at the center of the digitalization process. This is particularly important given the diversity of Mexico’s taxpayer landscape. However, more can still be done. As the scope of digitalization grew to include small and micro-enterprises, SAT moved to set up ICT support centers where individuals could receive training and use on-site computers. Recognizing that such businesses often would not have the resources to pay for third-party service providers, SAT developed Mis cuentas (My Accounts) and Mi Contabilidad (My Accounting), which provide low-cost and user-friendly ways for MSMEs to issue e-invoices and do e-accounting. Similarly, to drive use of digital tax components, SAT took steps to ensure that taxpayers could benefit from them outside the tax system. For instance, the e-signature developed by SAT is now used by over 100 institutions in Mexico. Some banks, such as Santander, are now using the e-signature for opening bank accounts, helping to increase financial inclusion. Overall, SAT’s efforts to ensure user-centricity are promising. However, as illustrated through the profiled human-interest stories (see Boxes 5 and 6), more can be done to effectively reach and benefit this target group.



Conclusions and recommendations

SAT’s digitalization efforts have significantly improved the tax system for both administrators and taxpayers. However, digitalization is an incremental process that cannot solve challenges overnight. Internal improvements in efficiency have been made gradually over the span of two decades. Still today, opportunities exist that could help SAT increase the benefits of digitalization, as set out below.

PRIVATE SECTOR AND REGULATORS

1 Promote digital payments in the broader economy. Low and stagnant digital tax payments reflect low digital payments nation-wide. The prevalence of non-traceable cash-based transactions drives the informal economy and limits SAT’s ability to collect taxes, leading to significant loss of government revenues. Banks, fintechs, and mobile money providers can work with SAT to broaden the use of digital payments and expand payment channels to include mobile banking. For example, the rollout of CoDi offers SAT an opportunity to increase oversight and engage with the informal economy. Meanwhile, policymakers must engage with SAT to ensure there is an enabling regulatory environment for innovation in the financial sector. Increased competition between market actors, such as banks and non-bank providers of financial services would improve financial services for MSMEs, incentivize the use of digital payments, and boost financial inclusion.

REGIONAL AND MUNICIPAL AUTHORITIES

2 Collaborate with SAT. Regional and municipal tax authorities should work with SAT to find ways to leverage its digital tax system. Doing so would help with the collection of local taxes, currently at very low levels relative to the OECD average.

GOVERNMENT

3 Align cross-governmental efforts. Other government departments pursuing digitalization should continue to align with SAT’s efforts. This will help avoid redundancies, provide opportunities to integrate services across government, and improve taxpayers’ overall experience with government.

SAT

4 Continue to simplify processes. SAT would benefit from making tax compliance more user-friendly. Some taxpayers expressed frustration at complexities added to the tax process by digitalization. For instance, although My Accounts and My Accounting were both developed to help tax compliance, there was confusion about which to use in different circumstances among interviewed taxpayers.



5 Support taxpayers in adapting to changes in the system. Although iteration is essential to digitalization, there are opportunities to better ensure that taxpayers know about, and can adapt to, changes along the way. Taxpayers expressed feelings that they were “always one step behind.” Some taxpayers even reported that uncertainty about their tax obligations led them to visit the tax office in person to ensure they were taking the correct steps. There are opportunities to improve taxpayers’ familiarity and comfort with the ever-evolving digital tools available to meet their obligations.

6 Build trust and connect with taxpayers. A number of businesses expressed frustration that they had invested in upgrading their systems to comply with tax obligations, yet tax evasion was still not being tackled effectively. By better communicating new tax evasion measures and accomplishments, SAT could help stimulate a compliance culture that is lacking in Mexico.

7 Continue leveraging value-added services. SAT would benefit from further collaboration with the private and public sectors to identify opportunities for value-added digital services. For instance, using e-invoicing or e-accounting to build credit scores for taxpayers, SAT could expand access to credit to more people, increasing formalization and financial inclusion.

ANNEXES

Comparative case study countries

			
COUNTRY CONTEXT	RWANDA	INDONESIA	MEXICO
Population	12 million	268 million	124 million
Adult population	7 million	186 million	90 million
Country income category	Low-income	Lower-middle income	Upper-middle income
Annual growth rate of the economy (Real GDP)	7.5% (2008–2018)	5.5% (2008–2018)	2.1% (2000–2018)
% employment in the formal economy	10%	30%	40%
Gender Gap Index	0.822 (rank 4/144)	0.691 (rank 84/144)	0.691 (rank 81/144)
% adult financial account	68%	49%	37%
% adult internet users	80%	76%	82%
TAX LANDSCAPE			
Entity studied	Rwanda Revenue Authority (RRA)	Directorate General Taxes (Direktorat Jenderal Pajak, DGT)	Tax Administration Service (Servicio Administración Tributaria, SAT)
Revenues collected by entity	All taxes	VAT, CIT, PIT, and stamp duties	VAT, CIT, PIT, and special taxes
Degree of autonomy	Semi-autonomous from MoF	Part of the MoF	Semi-autonomous from SHCP
Tax-to-GDP	16.6%	12%	16%
DIGITALIZATION OF TAX SYSTEM			
Digitalization efforts started in	2004	2001	1995
Registration digitalized	No	Yes	Partial
E-invoicing	Yes	Yes	Yes
E-accounting	No	No	Yes
Electronic filing of tax returns	Yes	Yes	Yes
Digital payment of taxes	Yes	Partial	Partial
Specific electronic interaction with TA	Yes	No	Yes
General electronic interaction with TA	Yes	Yes	Yes

State of Mexican digital tax system¹⁰⁷

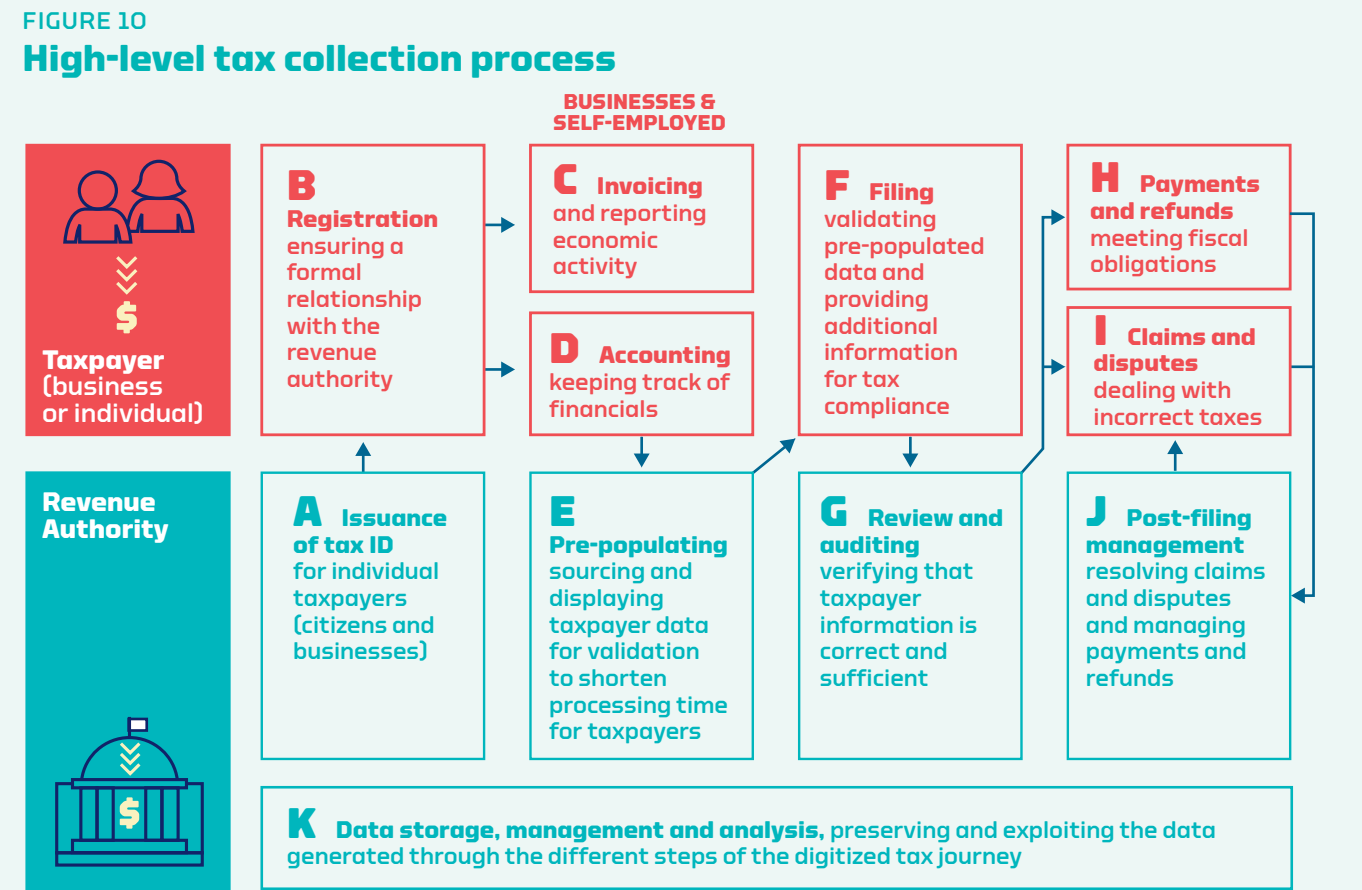
GREEN = COMPLETE ORANGE = IN PROGRESS RED = NO ACTIVITY

PARAMETERS ¹⁰⁸	MATURITY	OBSERVATIONS
Digitalized stages in the tax cycle		
Registration	<div></div>	In-person visit to SAT office required
e-invoicing	<div></div>	Mandatory
e-accounting	<div></div>	Mandatory, with some exceptions for individual taxpayers or MSMEs using My Accounts
Electronic filing of tax returns	<div></div>	Can be done through Tax Inbox (DeclaraSat)
Digital payment of taxes	<div></div>	Payment is possible through bank electronic transfers. Mobile money payment is not available. Digital refunds or credits are available for Government-to-Person (G2P) or Government-to-Business (G2B) payments
Specific electronic interaction with tax authorities regarding audit, complaints, and tax return issues	<div></div>	Can be done through Tax Inbox
General electronic communication with tax authorities regarding queries	<div></div>	Can be done through online chat services and hotlines offered by SAT
Functionality of software and tools implemented by tax authorities		
Standardization of data gathering	<div></div>	Can be done using standard computer formats
Exchange of information between tax authorities (local, regional, federal) or other government agencies	<div></div>	Currently includes information exchange with several federal and regional entities such as the Mexican Social Security Institute, the Institute of the National Housing Fund for Workers, the National Banking and Stock Commission, the Ministry of Economy, the Financial Intelligence Unit, and regional governments
Exchange of information at the international level	<div></div>	Currently, SAT exchanges automatic information (AEOI) under three agreements: i) Foreign Account Tax Compliance Act (FATCA), financial account information exchanged for tax purposes (United States only); ii) Common Reporting Standard, CRS that is part of the AEOI framework developed by OECD financial account information exchanged for tax purposes (more than 60 countries); and iii) MCAA, part of the AEOI structure and, through which the Country-by-Country (CBC) reports that contain information from multinational companies are exchanged (more than 58 countries)
Reconciliation of historical data	<div></div>	For example, previous years' filing, reconciliations, and exchange of information related to outliers with taxpayers
Data analytics		
Pre-population of tax return forms	<div></div>	This is available for some taxpayers
Automatic generation of calculation and/or penalties	<div></div>	This is available for individual taxpayers and MSMEs
Generation of outliers/compliance risk management	<div></div>	A nascent compliance risk management system (currently being updated) is used by the General Administration of Collection, Audit, Large Taxpayers, and Foreign Trade within SAT
Audit trails with external data	<div></div>	
Audit trails with internal data	<div></div>	

Digitalization across the tax collection process

Tax digitalization involves several tax processes and tax types. Each country’s path will vary in terms of the order and extent of digitalization of individual processes. For instance, Mexico enabled digitalized tax payments in 2002, almost a decade before introducing e-invoicing in 2011.¹⁰⁹ Rwanda requires e-invoices to be sent within a month of the transaction, Spain requires daily invoice submissions, and the Hungarian revenue authority requires ‘live’ reporting of e-invoices.¹¹⁰ In the city of Kananga in the Democratic Republic of Congo, property tax was the first digitalized tax, while many other countries have started by digitalizing VAT.¹¹¹

To identify the opportunities and potential risks of digitalization, it is important to understand the main steps that are involved. The framework below provides a high-level tax collection process applicable to a wide range of taxes across countries. Of course it should be noted there is no uniform solution that will automatically deliver optimal results in every country or jurisdiction; as always, best practices and common approaches should be considered in the context of domestic conditions and adapted to local circumstances as needed.



A Issuance of tax ID

Issuing a tax ID, whether to a citizen, business, or other organization, is the first step to establishing a formal relationship between the taxpayer and the revenue authority. Importantly, the tax ID is used in all tax processes and for all tax types.

Digital tax ID automates the process of issuing a tax ID. This reduces mistakes, increases security (i.e. by replacing paper files), and allows for automated ID matching.

B Registration

When registering with the revenue authority, taxpayers provide all the necessary information to formalize their tax status.

At registration, several digital identification methods might be adopted, including the e-signature, the e-password, and the e-stamp for businesses. These tools allow taxpayers to identify themselves online and comply with their tax obligations digitally without having to interact with tax officers in person. In countries with limited digital infrastructure and capabilities, e-signatures might be excessively complex, so online registration and e-password settings may be preferable.¹¹²

C Invoicing

Invoicing is critical for taxes, such as value-added tax (VAT) and corporate income tax (CIT), which target businesses and people who are self-employed.

The e-invoice is an electronic file that contains tax information of a commercial transaction involving the sale of goods and services. Prior to e-invoices, this record was created by means of a paper invoice. The invoice is generated electronically and transmitted in real-time by the taxpayer to the tax administration.

E-invoicing digitally notifies authorities of economic transactions. In this way, it can reduce the time for authorities and businesses to process invoices. It also enables businesses to classify types of invoices (e.g. by using alphanumeric online codes).¹¹³ E-invoicing can reduce the likelihood of corruption by boosting transparency, eliminating cash transactions, and automating internal processes. In countries like Mexico, companies can issue their own e-invoices or use third-party providers for such services.

D Accounting

Revenue authorities require accounting reports from businesses in order to properly calculate their CIT obligations, among other taxes.

Electronic accounting is often introduced with three goals: (i) to provide better information to tax authorities, (ii) to improve internal knowledge for businesses, and (iii) to improve management of internal resources. E-accounting makes information immediately available to auditors and thereby allows for faster and more frequent audits.¹¹⁴ Tax authorities may use e-accounting to increase information requirements and reporting frequency for businesses.

E Pre-populating

Pre-populating returns can provide substantial benefits but requires extensive collaboration with third parties.¹¹⁵ Third-party agents can provide relevant data about taxpayers (e.g. firms can provide salary information for employees). This information can then be used to pre-populate tax forms. Pre-population is particularly popular and effective for personal income tax (PIT) because it dramatically reduces the time needed for individuals to file their tax returns.

Digitalization allows for automatic pre-population. It can reduce the administrative time and cost of pre-population while minimizing the likelihood of mistakes.

F Filing

By filing tax returns, taxpayers provide the required information for tax compliance and, if applicable, validate their pre-populated forms.

E-filing allows taxpayers to provide the information requested online. Digital accounts can be developed in online portals for taxpayers to review and meet their obligations.

G Review and auditing

Tax authorities confirm the tax obligations of taxpayers by reviewing and auditing tax returns.

Digitalization allows for an algorithmic selection of which tax returns to audit. Senegal is currently experimenting with a data-driven selection mechanism to identify which taxpayers to audit.¹¹⁶ Additionally, digitalized reviews may allow for automated alarms (reminders) to be sent to specific groups of taxpayers, including those identified as high-risk by data-driven selection mechanisms.¹¹⁷

H Payments and refunds

Digital payments allow taxpayers and revenue authorities to shorten processing times. Some countries have authorized credit card payments for tax collection (e.g. Mexico). Additionally, because they eliminate cash transactions, digital payments can potentially mitigate corruption and theft risk.

- Digital payments are currently incipient in most low and low-middle-income countries, where they represent, on average, only 16% of received tax payments.¹¹⁸

I Claims and disputes

Claims and disputes allow taxpayers and tax authorities to settle tax disagreements. Digitalized claims are submitted electronically, eliminating mailing time and allowing fluid communication between taxpayers and tax authorities.

J Post-filing management

Post-filing management refers to the work tax authorities perform after taxpayers file tax returns.

Digitalized post-filing management allows tax authorities to rapidly validate payments and automatically identify payment delays. Digitalized refunds can be automatically approved and paid back to the taxpayer digitally. Digitalized claims are generally processed and resolved faster because they can be more easily categorized and dealt with systematically.

K Data storage, management, and analysis

Data storage, data management, and data analysis are key for tax authorities to achieve the greatest impact from tax digitalization. Data storage and management must satisfy the conditions of cost-efficiency and security. Data analysis matches and validates information, and distills insights from millions of aggregated data points, making it a key component of automation.

Digitalization of key taxes

Tax digitalization can impact all types of taxes. Each digitizing step has an impact on total revenues, overall complexity, and efficiency gains. For most emerging economies, revenue collection is the top priority, so digitalize taxes focuses on this objective. Some countries concentrate early efforts on VAT because it presents a substantial source of revenue.¹¹⁹

The complexity of digitalization varies between taxes, even when similar processes are being digitalized. For example, pre-population is easier for PIT than for CIT because of third-party reporting (i.e. companies can directly report employee salaries). Efficiency gains from digitalization are likely to vary between taxes, depending on the local context and existing regulations.

Africa, Latin America and the Caribbean, and Asia collect more taxes on goods and services while OECD countries rely more on PIT.¹²⁰ In both Africa and Latin America and the Caribbean, VAT is the largest source of tax revenue for governments, with taxes on goods and services representing roughly half of all government revenues.

Understanding the main features of each tax type can help tax authorities prioritize and orientate their digitalization journey. Figure 11 summarizes the high-level features of the most popular taxes across countries. Critically, policymakers must consider who is liable for each tax, how it is paid, which taxpayer base it affects, and with what frequency it is paid.

In addition to these general features, each tax has particular characteristics that affect its digitalization. Set out below are some of the relevant features that policymakers should recognize and incorporate into strategies when digitizing each type of tax.

FIGURE 11
Overview of the high-level features of main taxes

	VALUE-ADDED TAX	CORPORATE INCOME TAX	PERSONAL INCOME TAX	PROPERTY TAX
Who is liable?	Business	Business	Individual	Individual
How is it paid?	Withheld from businesses	Done by taxpayer	Employer for wage-earners (who then declare) / Done self-employed	Done by taxpayer
What's the tax base?	All sales for consumption	Business' profit	Workers' gross income	Property's value
What's the typical payment frequency?	Monthly	Quarterly / Yearly	Monthly	Yearly

Value-added tax (VAT)

Tax digitalization can increase VAT compliance by enabling reported transactions to be matched, and by cutting the cost and time it takes to process invoices. VAT evasion can be one-sided, meaning only one party involved in a transaction reports it to the revenue authority, or two-sided, meaning both parties collude to underreport their transactions.¹²¹ E-invoices can significantly reduce one-sided evasion since they allow for the automated matching of reported transactions. To combat two-sided evasion, electronic billing machines may be introduced to record retailer sales and share the data with tax authorities.

Corporate income tax (CIT)

Digitalizing CIT can increase compliance and revenue. This can include e-filing, e-payments, and, for more advanced tax authorities, e-accounting. E-accounting has often been implemented at a later stage of a country's tax digitalization journey. E-accounting requires that companies electronically report their full profit and loss data on a regular basis. This allows for closer monitoring by revenue authorities and thus reduces the risk of CIT evasion.

Tax digitalization enables greater international collaboration between revenue authorities and thus helps reduce corporate tax evasion. Some corporations underreport their profits in a given country by opaquely shifting part of their profits overseas. This risk has been exacerbated by the rise of the digital economy, with companies sometimes operating in countries where they have no physical presence. Greater collaboration between national revenue authorities is being advocated on many fronts to combat CIT evasion. Tax digitalization is essential for rapid and reliable communication between revenue authorities and for their utilization of available data.

Personal income tax (PIT)

Automated pre-population can be particularly effective for PIT compliance, since revenue authorities can get direct third-party reports from employers. In many countries, PIT is directly remitted by the employer every month via payroll withholdings. Then, at the end of the fiscal year, employees earning above a certain threshold are required to declare their annual income for refunds or to make additional payments. Revenue authorities can use the information provided by employers to automatically pre-populate employee tax forms. This can sharply reduce the time spent and mistakes made by individual taxpayers when filing preparing their PIT returns.

Collecting PIT from self-employed workers can be a challenge for revenue authorities, as there is no direct third-party reporting. Tax digitalization can increase compliance among self-employed workers by reducing the time and cost of reporting their financial situation and increasing third-party reporting via e-invoicing and e-accounting among suppliers and clients.

Property tax

Property tax often represents a relatively low share of overall tax revenues, averaging 5.7% of total tax revenues in OECD countries in 2017;¹²² however, its progressive nature makes it important.¹²³ Property tax is often the largest source of discretionary revenue for local governments. As such, it is an important measure for countries pursuing fiscal decentralization. Big Data techniques that digitalize property data can help revenue authorities identify fraud and underreporting of value. Additionally, digitalized online accounts for landowners can centralize information and tax payments; the UK's Making Tax Digital initiative is an example.¹²⁴ In emerging economies, property tax digitalization efforts will see the greatest benefits when using computer-assisted mass appraisal and online billing and payment systems.

Acronym list

AAAA	Addis Ababa Action Agenda
AEOI	Automatic Exchange of Information
AGESIC	Agency for eGovernment and Information and Knowledge Society
AI	Artificial Intelligence
AMECE	Asociación Mexicana de Estánderes para el Comercio Electrónico (Mexican Association of Standards for Electronic Commerce)
APA	Advanced Pricing Agreement
API	Application Programming Interface
ASP	Application Service Providers
ASYCUD	Automated System for Customs Data
ATAF	African Tax Administration Forum
ATI	Addis Tax Initiative
ATM	Automatic Teller Machine
B2G	Business to Government
BEPS	Base Erosion and Profit Shifting
BIR	Bureau of Internal Revenue (Philippines)
BKF	Badan Kebijakan Fiskal - Fiscal Policy Agency (Indonesia)
BMGF	Bill and Melinda Gates Foundation
BPJS	Employees Social Security System
BSC	Balanced Score Card
CAGR	Compound Annual Growth Rate
CIT	Corporate Income Tax
COMESA	East African Community and the Common Market of Eastern and Southern Africa
COTS	Commercial-Off-The-Shelf
CRS	Common Reporting Standard
CSMS	Case Selection and Management System
DGII	Directorate General for Internal Taxes (El Salvador)
DGT	Tax Directorate General (Indonesia)
DJBC	Directorate General of Customs and Excise (Indonesia)
DPIDG	Division for Public Institutions and Digital Government
DRM	Domestic Resource Mobilization
DST	Digital Service Tax
EAPS	East African Payment System
EBM	Electronic Billing Machine
ECLAC	Economic Commission for Latin America and the Caribbean
EDC	Electronic Data Capture
EGDI	E-Government Development Index
ERP	Enterprise Resource Planning
eTIS	electronic Tax Information System
FAQ	Frequently Asked Questions

FATCA	Foreign Account Tax Compliance Act
FBR	Federal Board of Revenue
FDI	Foreign Direct Investment
FIMPE	Fideicomiso para extender a la sociedad los beneficios de la Infraestructura de los Medios de Pago Electrónico
FMP	Multiple Payment Forms
FY	Fiscal Year
GDP	Gross Domestic Product
GoR	Government of Rwanda
HMRC	Her Majesty's Revenue and Customs
ICAEW	Institute of Chartered Accountants in England and Wales
ICT	Information and Communications Technology
ICTD	International Centre for Tax Development
IDR	Indonesian Rupiah
IMF	International Monetary Fund
ISO	International Organization for Standardization
IT	Information Technology
ITU	International Telecommunication Union
IWAPI	Indonesian Business Women Association
KCCA	Kampala Capital City Authority (Uganda)
KPI	Key Performance Indicators
KPP	Tax Service Offices (Indonesia)
LAC	Latin America and the Caribbean
LC	Capture Lines
LIRS	Lagos State Internal Revenue Service
LMIC	Lower-Middle Income Country
MCC	Millennium Challenge Corporation
ME&L	Monitoring Education and Learning
MNC	Multinational Company
MoF	Ministry of Finance
MSME	Micro, Small & Medium Enterprise
MXN	Mexican Peso
NF-e	Nota Fiscal eletrônica
NTA	National Tax Agency (Japan)
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OSI	Online Service Index
P2G	Person-to-government
PAC	Authorized Certification Provider
PAN	Personal Account Number
PAYE	Pay-As-You-Earn

PCT	Platform for Collaboration on Tax
PIT	Personal Income Tax
PoS	Point of Sales
PPP	Public-Private Partnership
RAG	Revenue Analytics Group (Ireland)
RARP	Revenue Administration and Reform Project
RDB	Rwanda Development Board
RIPPS	Rwanda Integrated Payments Processing System
REPSS	Regional Payment and Settlement System
ROPL	Rwanda Online Platform Limited
RRA	Rwanda Revenue Authority
RSSB	Rwanda Social Security Board
RURA	Rwanda Utilities Regulatory Agency
RWF	Rwandan Franc
SAT	Tax Administration Service (Mexico)
SDG	Sustainable Development Goal
SHCP	Secretaría de Hacienda y Crédito Público (Secretariat of Finance and Public Credit—Mexico)
SMS	Short Message Service
SOE	State-owned Enterprise
SPEI	Sistema de Pagos Electrónicos Interbancario (Inter-Banking Electronic Payment System—Mexico)
SSA	Sub-Saharan Africa
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TA	Tax Administration
TADAT	Tax Administration Diagnostic Assessment Tool
TIN	Tax Identification Number
UMIC	Upper-Middle Income Country
UN	United Nations
UN DESA	United Nations Department of Economic and Social Affairs
UNISCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNIPOG	United Nations Project Office on Governance
USAID	United States Agency for International Development
USD	United States Dollar
USSD	Unstructured Supplementary Service Data
VAT	Value-Added Tax
WEF	World Economic Forum
XML	extensible markup language
ZIRMA	Zimbabwe Revenue Authority

Automatic Exchange of Information (AEOI) is an international standard that governs how tax authorities in participating countries exchange data relating to the bank accounts and safekeeping accounts of taxpayers.

Big data is a field that focuses on ways to analyze, extract information from, or otherwise use datasets that are too large or complex for traditional data-processing application software.

Change management is a collective term for all approaches to preparing for and executing organizational change and supporting of individuals, teams, and organizations through that change.

Common reporting standard is an information standard for the Automatic Exchange of Information (AEOI). It outlines what financial account information is to be exchanged, which financial institutions are required to report, the different types of accounts and taxpayers covered, and common due diligence procedures to be followed by financial bodies.

Digital government is the production and delivery of information and services within government and between government and the public using a range of information and communication technologies (ICT).

Digitization is the process of changing from analog to digital formats.

Digitalization is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business.

Fiscal cadastre is a real estate registration system that shows details of a property, including ownership, boundaries, physical conditions, land use, and value, for taxation purposes.

Phishing is the fraudulent attempt to obtain sensitive or valuable information such as usernames, passwords, and credit card details, by dishonestly presenting as a trustworthy entity in an electronic communication.

Tax expenditure is the revenue a government forgoes through the provisions of tax laws that allow (1) deductions, exclusions, exemptions, or credits on taxpayers’ taxable expenditures, income, or investments, (2) deferral of tax liability, or (3) preferential tax rates.

Time poverty is a state in which individuals do not have enough time for rest and leisure after taking into account the time spent working, whether in the labor market, for domestic work, or in other activities required to maintain their livelihoods.

UX design is the process that design teams use to create products that provide meaningful and relevant experiences to users.

Interviewee list

CATEGORY	NAME	ORGANIZATION
Global	Alexander Kitain	DAI
	Andrew Zeitlin	Georgetown University
	Anne Brockmeyer	World Bank
	Beatriz Marulanda	Marulanda & Consultores
	Daniel Alvarez	World Bank
	Greg De Paepe	Independent consultant
	Jonathan Weigel	London School of Economics
	Mazhar Waseem	University of Manchester
	Pierre Bachas	World Bank
	Rex Arendsen	OECD
	Victor Thuronyi	Ex-IMF
	Vishal Gujadhur	Bill and Melinda Gates Foundation

CATEGORY	NAME	ORGANIZATION
Mexico	Andrea Acosta Sandoval	Office supply store
	Arturo Luna	Visa
	Carolina Pastrana	Civico
	Daniel Padilla	Cura Deuda
	Diana Muñoz Flor	Secretaria de Economía
	Eugenio	Cigarra
	Herbert Bettinger	Bettinger Asesores
	Iván de Jesús González Pineda	Tidok
	Javier Allard	Mexican Association of Information Technology Industry (AMITI)
	Jorge Lopez Mendoza	Cementos Moctezuma
	Jorge Siegrist	Tax Administrator
	Jose Besil Bardawil	Besil Bardawil Fiscal Advisory
	José Carlos Pueblita	Pondera Lab
	Jose Rodríguez Pineda	La Fille
	Juan Bañuls	Tax Innovation
	Juan Carlos Reyes Vale	Distribuidora Dimas
	Juan Pablo de Button	Servicio de Administración Tributaria (SAT)
	Juana Aguilar	Vegetable stall owner
	Lizandro Núñez	Tax Innovation
	Lourdes X	Podologist
	Luis Cartas Paredes	SAT
	Luis Rodrigo Salinas Olvera	Prodecon
	Marcos Saules	SIGSA
	Maria Eugenia Romero Torres	Secretaria de Hacienda y Crédito Público (SHCP)
	Marisela Corres Santana	Bettinger Asesores
	Natalia Willis	ProMujer
	Osvaldo Santín	Ex SAT
	Paola Malda Arozarena	Banco de Ahorro Nacional y Servicios Financieros (Bansefi)
	Raúl Solís García	Inmobiliaria Ejidal San Francisco Tepojaco
	Salvador Gómez	Mexican Association of Authorized Certification Providers (AMEXIPAC)

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The Better Than Cash Alliance

The Better Than Cash Alliance is a global partnership of governments, companies, and international organizations that accelerates the transition from cash to digital payments in order to advance the Sustainable Development Goals. Based at the United Nations Capital Development Fund (UNCDF), the Alliance has 75 members, works closely with other global organizations, and is an implementing partner for the G20 Global Partnership for Financial Inclusion.

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