ANNEX 6: PART 2

Table of Contents

Chapter 2 – Developing a roadmap to digitalization of revenue authorities

2.1. Introduction

In recent years, an increasingly connected digital society has been reshaping the economy by creating new products, services and business models based on new technologies. Every sector of the global economy is rapidly becoming digitalized; original commercial channels were developed, while unfamiliar ways to produce, consume, work and earn are gradually taking in place. The development and application of disruptive technologies proved to change the way taxpayers and tax authorities interact, the way taxes are paid, and information is stored and used. From this perspective, no tax authority is exempt from the need to address this new economic reality in a cooperative manner, including those from developing countries, which are prompted to deal with this new environment despite difficulties that may occur, such as lack of resources obstructing or slowing down the process.

Tax authorities are faced with more and more challenges to keep up with technological development and globalization in the performance of their tax functions. Similar to private companies and other organizations, tax authorities have a core business, which include guaranteeing that the tax laws are implemented fairly and consistently, and taxpayers comply with their tax obligations. In general, this is done so by providing services to taxpayers to facilitate the way they meet their tax obligations. Particularly, the core functions of tax authorities[1] include:

- registration of taxpayers, including detection of non-registration and false registration;
- processing of tax returns, withholdings and third-party information;
- verification or examination of the correctness and completeness of received information (including audit activities);
- assessment of taxes due;
- process of enforced debt collection;
- handling of administrative appeals and complaints;
- provision of service and assistance to taxpayers;
- detection and prosecution of tax fraud; and
- imposing penalties and interest payments.

Most jurisdictions have one single tax administration for direct and indirect taxes, but some may have separate organizations responsible for collecting different taxes. Customs agencies

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[1] M.H.J. Alink & V. van Kommer, Chapter 2: Core Business of a Tax Administration in Handbook on Tax Administration (Second Revised Edition) (IBFD 2016), Books IBFD (accessed 17 Nov. 2022).

tend to, in most examples, be separate from the tax agencies. Thus, processes of tax operations and customs operations may differ significantly.[2] Nonetheless, the scope of the digital transformation should involve all areas affected by such reform, ranging from the technology itself to human resources. This effort should be based on a whole-of-government approach, including various departments within the tax administration and interactions with other government agencies.

The effectiveness of the functions above depends on a set of factors that are not always internal to the tax administration's function but rather impacted by the state of the economy, the government's priorities and culture of the jurisdiction that the tax administration is inserted. However, when it comes to the functions tax authorities have control over, by adopting appropriate technologies together with instituting ways to monitor and measure their operations and performances, through the so-called best practices, tax authorities will increase their efficiency and organization of work progress, as well improve the relationship with taxpayers that could in turn improve voluntary compliance, enhance trust and lead to better revenue collection.

Good principles of tax authorities' relationship with taxpayers are characterised by:[3] responsiveness, interactive communications with taxpayers on changes in tax law and procedures, consistency and transparency on how tax law applies, usage of taxpayer's information only to the extent permitted by law. Emerging technology such as big data, data analytics, artificial intelligence and machine learning have the potential to significantly improve all of these factors and deliver and improve the core functions of tax authorities. The efficacy of successful implementation of information and communication technology (ICT) solutions in revenue authorities is pegged to the correct digital strategy alignment.

Implementing novel digital tools and starting digitalization projects in an organization do not come without challenges. Digital transformation takes significant financial investment and time. In order to ensure a successful digital transformation, tax authorities should take a strategic rather than opportunistic approach to digitalization; before starting the process of employing technology, tax authorities are encouraged to develop a **digital tax administration roadmap** – a step-by-step plan containing basic principles to be followed by the administration having in mind the long-term goals of the tax administration and the government as a whole.

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[2] Ibid
[3] OECD, Centre for Tax Policy and Administration, Tax guidance series, General Administrative Principles – GAP001 Principles of Good Tax Administration, (2001), Paris, OECD Publishing.

This modular approach ensures that early decisions do not constrain future developments, and short-term designs are guided by a long-term vision.

Several factors should be considered in the strategy of designing a roadmap to digitalization, such as the legal framework of the jurisdiction in which the tax administration is inserted, the technological availability of resources, the cost and feasibility of adopting new digital tools, the adequacy of each technology to deliver the desirable result, and the objectives aimed to be achieved by each tax administration. Obstacles should not be overlooked; these are mostly related to the collection and use/management of data, the respect of due process and taxpayers' rights, budget constraints and lack of digital skills among the tax authority's personnel.

Designing and following a digital roadmap, as well as adopting appropriate technologies, are important steps in the digital journey, but monitoring and evaluating the progress in automation is imperative to provide authorities with visibility into the value created by their strategy; and it should be made an integral part of any automation initiative. Several international organizations have proposed a "maturity" or "digital maturity" benchmark for tax authorities, which is highly instructive and discussed further below.

In summary, a digital roadmap involves the following steps:

Table 1: Key steps for a digital roadmap

Vision setting	defining the short and long term goals of the tax administration
Mapping and benchmarking	reviewing the existing data, resources and available capacity in order to understand the gaps of needs and identify potential technology tools
Prioritization	identify most urgent needs and which projects should be prioritized
Building an enabling environment	rolling out a program that supports decision-making and digital development, including factors such as data quality, stakeholder buy-in, and leadership involvement
Cooperation and trust for future proofing	ensure cooperation with internal and external stakeholders to understand their needs, their experiences, and to obtain their feedback on the program
Monitoring and evaluation	measure, monitor and track development to ensure objectives are being achieved as expected

Following best practices and the principles set up in this guide, the most appropriate digital roadmap can be drafted and tailor-made for a specific tax administration.

The aim of Chapter 2 of this Guide is to highlight the environment and conditions for a successful digital transformation and the principles to follow when building a digital tax administration strategy, as well as the constraints faced by authorities when implementing digital tools. The content of the guide is based on the best practices and experiences shared by tax authorities.

2.2. Conditions for a successful digital transformation

The digital transformation of a tax administration depends primarily on its unique objectives, but the common overarching goals of tax authorities' digitization include facilitating tax collection, improving efficiency, easing capacity constraints, offering better services to taxpayers, fighting tax fraud and evasion, and countering corruption. This can be achieved by reducing taxpayers' tax compliance costs and tax authorities' administration costs, increasing accessibility to information and tax administration support, improving the quantity and accuracy of data collected by tax authorities, enhancing the exchange of information between governmental agencies and at the international level. Although in many instances the goals of different administrations may converge, the needs and priorities are different. For this reason, it is not possible to provide a one-size-fits-all solution regarding the steps that each tax administration should undertake to digitalize itself in an optimal way. Alternatively, the principles and concepts set out in this Guide aim to provide a framework or a more principled guide that each tax administration can follow and tailor to its needs.

When it comes to digitalization efforts, tax authorities are at different stages in their digital development, and each authority should assess where their starting point is. Digital maturity is distinct from the general maturity models that can be used to assess the efficiency of a tax administration. While the general maturity of a tax administration reflects the efficiency with which it performs its functions and services, digital maturity is specific to digitalization of tax procedures and is measured according to different benchmarks that take into account the sophistication of the technology itself. [4] (This can range from the most conventional technologies — e.g., web portals and online tax return filing — to more complex and advanced system implementation, such as advanced analytics for taxpayer risk profiling and blockchain applications).

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[4] The sophistication is also a term indicating not a technology type per se but rather the capabilities of a technology.

The existing work carried out by several international organizations to establish either general or digital maturity models and related benchmarks for tax authorities is highly instructive.[5] According to one research[6], based on the world-wide experience over the past few years, the digital profiles of national tax authorities can be generally grouped under six levels:

Table 2: Levels of digital profiles of national tax authorities

Level 1	Level 2	Paradigm shift	Level 3	Level 4	Transformational	Level 5	Level 6
"E-file"	"E-accounting"		"E-match"	"E-audit"		"E-assess"	"E-government"
Use of standardized electronic form for filing tax returns required or optional; other income data (e.g., payroll and financial) filed electronically and matched annually	Submit accounting or other source data to support filings (e.g., invoices and trial balances) in a defined electronic format to a defined timetable; frequent additions and changes at this level		Submit additional accounting and source data; government accesses additional data (bank statements) and begins to match data across tax types, and potentially across taxpayers and jurisdictions, in real time	Level-2 data analyzed by government entities and cross-checked to filings in real time to map the geographic economic ecosystem; taxpayers receiving electronic audit assessments with limited time to respond		Government entities using submitted data to assess tax without the need for tax forms; taxpayers allowed a limited time to audit government-calculated tax	All government interaction with citizens and enterprises digitalized; seamless international digital exchange of information between law enforcement and tax authorities in different countries

The different digital maturity models will be explored further in this report, but in summary, most international organizations currently adopt 4 levels of digital maturity using a broad evaluation framework, assessing (a) what systems are in place that allow access to online tools for tax services provision, (b) whether data are simply entering a system or are further processed, (c) whether in the above process the tax result is automated merely for internal purposes with low taxpayer interaction or there is a more advanced real time data collection

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[5] See the IMF's Tax Administration Diagnostic Assessment Tool (TADAT), the World Bank's Integrated Assessment Model for Tax Administration (IAMTAX), the IDB digital maturity model, the European Union's EC Fiscal Blueprints (2007),

[6] See EY, Tax Authorities are Going Digital (2017), available at https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/digital/ey-tax-authorities-are-going-digital.pdf; EY, How Tax Administration is Going Digital (2019), available at https://www.ey.com/en_gl/tax/how-tax-administration-is-going-digital.

and processing that includes real time cooperation of taxpayers with tax authorities, and (d) a relevant legal framework in place that authorizes the system to operate.[7]

2.3. Overarching principles of digitalization projects

There are three overarching principles that should be kept in mind throughout each step of the roadmap: ensuring data quality, considering the human and cultural factor and establishing leadership commitment.

2.3.1. Human and cultural factors

Digital transformation is more about people than technology. A common challenge that government bodies face is that their organizations lack the right talent for the digital era. Nowadays, digital transformation requires upskilling all employees so they can harness digital tools and data. Thus, a strategic stage of the digitalization of revenue administration is ensuring that the human factor is considered. This means the administration should understand what the level of skills of their current staff is and ensure the personnel is informed and aligned with the digitalization efforts.

Often the reason behind the failure of digitalization processes is that strategic teams and leadership lack to consider the human capital in their decisions. The challenges faced by tax authorities related to this step should be mapped out and considered. These may include:
- Difficulties with the explainability and interpretability of digital solutions by tax administration staff,
- Less understanding of new capabilities among senior leaders,
- Limited availability of relevant expertise and lack of awareness of innovative technologies'' potential,[8]
- Retention issues and workforce dissatisfaction around potential impacts of automation
- Lack of collaboration and training across functions,
- Weak vision/buy-in from top management,
- Insufficient data/knowledge management sharing.

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[7] CIAT. (2020). ICT as a Strategic Tool to Leapfrog the Efficiency of Tax authorities. CIAT. Available at https://www.ciat.org/Biblioteca/Estudios/2020-ICT_STL_CIAT_FMGB.pdf; OECD. (2011). Tax Administration in OECD and Selected Non-OECD Countries: Comparative Information Series (2010). OECD Publishing.
[8] FATF (2021), Opportunities and Challenges of New Technologies for AML/CFT, FATF, Paris, France

Tackling these human and cultural barriers is an integral part of a digital strategy, since no operating model will succeed long-term without focus on creating a culture where all practitioners can thrive.

It is key to define an operating model that brings tech skills close to each department individually. As opposed to having a separate IT department to serve the whole organization, each department may have an IT person inserted into their context. Some of the best practices implemented by organizations are:

- Support the model with an administration-level team charged with focusing on activities that will yield the highest value across units and functions
- Establish strong leadership commitment at executive level
- Consider formally change management programs, with the formation of teams or Centers of Excellence to spread initiatives across the organization
- Implement management committee that aligns and collaborates, removing potential blockages
- Put significant focus on recruiting, developing and retaining individuals who can serve as advanced analytics 'leaders' in various parts of the business
- Create a talent management strategy that fosters the right mix of skills and experience (IT, statistical, analytical and tax domain knowledge) needed to drive informed decision-making
- Provide capacity building and continuous reskilling and upskilling of the human capital (both in handling the system and in management of the provision of new services)
- Provide clear, concise procedural and policy manuals for each of the tax authorities' functions, closely followed by skilled staff
- Make sure staff embraces change and is part of the process
- Engage with frontline staff in initiative design
- Work with professional associations and universities to ensure that the next generation of officials have the required technical skills.

2.3.2. Leadership commitment

Automation can rarely be addressed in isolation of other strategic imperatives. Improvements in the provision of tax services via digital means should be complemented with improvements in the core processes of the tax authorities if the current administration structure does not allow

for them. This means that investments in ICT will usually need to be backed up by political commitment and willingness to implement the essential changes.[9]

In particular, establishing leadership commitment and involvement is imperative. The personnel at the executive level should be aligned with the rest of their team on what the goals are and the potential of digital tools. There should be a buy-in from leaders in the organization who understand not only the ins and outs of the operations of the revenue authorities, but the digital strategy being built.

2.3.3. Data quality

Data is crucial in the digitalization process, and it can provide an understanding of trends and patters across multiple information sources. Authorities have access to a number of different databases (tax returns, financial data, payroll data of employers, audit information, third party information from banks, pensions, exchange of information, social media, etc.).

Tax authorities should not focus on building a data-driven culture, but rather data-informed one. Collecting relevant data from taxpayers and other stakeholders is a starting point, but the ultimate goal is to extract value from the data collected. This is achieved by applying data analysis tools to the available information.

By matching and linking the data from variable sources, authorities get the ability to do more systematic profiling of taxpayers and extract valuable insight into future compliance trends and taxpayer behavior, putting the authorities in a better position for (i) data driven decision-making, (ii) present data visualization and storytelling, and (iii) construct helpful dashboards. This requires the use of simpler and more sophisticated technological tools to create comparisons of the data and insights.

A key question for tax authorities is whether their data matching process produces results such as linking companies to VAT transactions, payroll and import/export transactions; linking

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[9] Similarly, according to Taliercio, the factor that enables politicians to make their commitment credible is the level of autonomy given to the revenue authority. Politicians are interested in making a credible commitment because they believe it will increase tax compliance. Autonomy of TAs has an effect on people's perceptions regarding the political commitment to a potential reform. This means that autonomy has merit in itself and not only as a means to better performance of the TAs' functions. Because revenue performance results from a variety of factors, both institutional and extra-institutional which does not permit the extraction of results regarding the impact of autonomy itself on TAs' performance. See in this respect Robert Taliercio, (2003), *Administrative Reform as Credible Commitment: The Impact of Autonomy on Revenue Authority Performance in Latin America*, Washington, DC: World Bank.

companies to foreign affiliates and non-arm's length foreign transactions; statistical data correlation with taxpayer compliance.[10] However, if the data that is fed to the digital system is inaccurate, not comprehensive, inconsistent or biased, the technology implemented is unlikely to provide usable outputs for tax authorities. Thus, authorities should understand which data sources are available to them, how to collect the data and, more importantly, actively manage data to verify that it is fit for purpose and relevant. Duplicated data should be avoided, as well as inconsistent formats and incomplete information, the use of multiple units and languages, and inaccurate data. Ideally, governments should implement the principle of asking citizens for their personal information only once. This means that relevant data enters the system only once and different departments seamless share the collected information with each other[11].

In practical terms, for example, demands for superfluous information in tax returns can be eliminated and perhaps tax returns and payment invoices can be consolidated. In addition, governments should consider adopting administration-wide data strategies. It is also imperative that tax authorities are able to draw upon data sources outside of their organization, which is facilitated if technical platforms are interoperable between different government departments. According to research,[12] the best practices in the use of technology and information processes for tax collection are based on the following principles:

- Data enters the system only once (data-only-once)
- Data is managed and processed centrally for various products and services (single source of truth)
- Data travels and is stored on digital media (paperless)
- Information is received and processed in real time (real time)
- Measures are adopted to protect confidentiality

2.4. Key steps of a roadmap to digitalization

The goal of a roadmap to digitalization is to map out best practices and guiding principles that revenue administration can consult to draft their own strategic plan to digitalization, tailor made for their unique needs.

The optimal way to go digital is not always linear. However, following these steps secure a smoother transition in terms of consistency in tax services provision and efficiency. Following
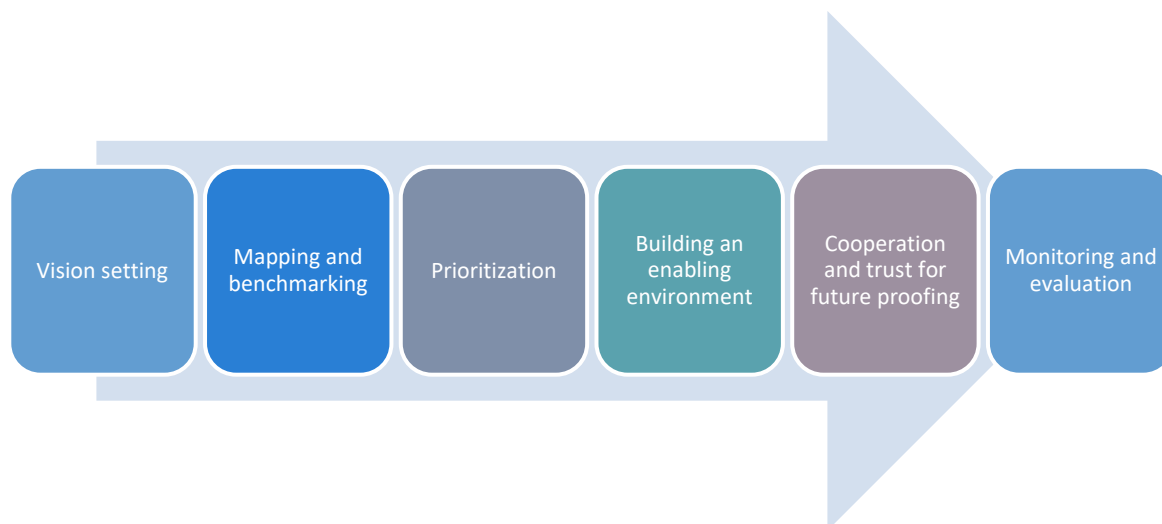
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[10] J. Owens, B. Schlenther, Development in use of technologies in African Tax authorities, Tax Notes (forthcoming)

[11] This is already a reality in some countries, such as Estonia. Estonia is universally recognized for the digital transformation of its government. See Kattel, R., and Mergel, I. (2019). Estonia's Digital Transformation: Mission Mystique and the Hiding Hand. In M. Compton and P. Hart (Eds.), Great Policy Successes (pp. 143–160). Oxford University Press, available at https://doi.org/10.1093/oso/9780198843719.003.0008.

[12] See Digital Maturity Index: How to measure digital transformation progress in tax authorities - Gestión fiscal (iadb.org)

diligently a strategy is important, as automation can be a costly endeavor if applied incomplete and inaccurately, and government administrations are not likely to benefit from the initial steps taken in automation projects if a clear strategy is not followed.

Table 3: Key steps for drafting a tax administration digital roadmap

Vision setting	Mapping and benchmarking	Prioritization	Building an enabling environment	Cooperation and trust for future proofing	Monitoring and evaluation

2.4.1. Vision Setting

Before implementing digital solutions, tax authorities should consider their unique needs and set their long-term strategy and vision based on what they want to achieve by using such technology. As mentioned, different countries have different needs usually dependent on the context and the varying levels of "implementation or development". The implementation plan should be appropriate and customized for each tax authority. In addition, depending on the country's starting point in its digital journey, the vision could include transformation of the role and nature of the taxpayer alongside the tax administration.

However, a principle that should be applied equally to all tax authorities is that, when setting a strategy, there needs to be a sharp focus on what the initiative is attempting to accomplish; the various steps of the design process should be driven by this clear vision, which is well thought through and agreed between adequate teams of the administration and leadership. The tax administration also has to define what it means to have (and how to build) a disruptive tech mindset and culture.

2.4.2. Mapping and benchmarking

The first step is to know what the organization aspires to achieve, but the subsequent one is to understand how to get there. During the mapping and benchmarking stage, tax authorities should focus on mapping out the current processes and regulations that are in place in the organization, as well as establishing what the limitations they impose on progress and efficiency

are. The level and extent of digital transformation strategy of the tax administration is preconditioned on their institutional structure in addition to their tax structure as well as the amount of funding the government is able to assign to achieve the goals stated in the strategy.

2.4.2.1. Functional analysis

In order to efficiently perform a functional analysis, tax authorities should map out their functions and obligations. The core tasks of a tax administration concern the implementation and enforcement of tax legislation and regulations; thus, the power to administer taxes imposed by law. These activities include:

- registration of taxpayers, including detection of non-registration and false registration;
- processing of tax returns, withholdings and third-party information;
- verification or examination of the correctness and completeness of received information (including audit activities);
- assessment of taxes due;
- process of enforced debt collection;
- handling of administrative appeals and complaints;
- provision of service and assistance to taxpayers;
- detection and prosecution of tax fraud; and
- imposing of penalties and interest payments.

The description of the above tax authority's functions are connected to the taxpayers' main obligations or duties. The services encompass a reciprocal or transactional element as they are addressed to the taxpayer directly and aim to assist the taxpayer in fulfilling his/her tax obligations. These services are essential to and sometimes precede the performance of the core tax function of tax authorities (i.e. tax collection either enforced or not) and are a way of achieving high rates of voluntary compliance.

These services listed above can be separated in two broad categories: (a) tax services performed by electronic and digital means and falling within the core tax service function of tax administration (i.e. e-filing and pre-filing/e-assessment and in turn, e-payments and refunds) and (b) services that concern the assistance provided to the taxpayer (consultation, information, notification before deadlines and legal guidance, all of which have the potential to be carried out by electronic means or be fully automated). These are mostly communication channels and processes that facilitate the tax authorities provision of services and their relations with taxpayers (i.e. tax inboxes, chatbots, virtual assistants and virtual file systems as well as digital bookkeeping).

In addition, other functions not directly taxpayer facing are performed internally by tax authorities and can also be transformed by digital means. Technology can be applied in analyzing the high amounts of data collected by tax authorities – e.g., through the application of data analytics technologies – and thereby improving risk management; to nearly fully automating processes and making them more efficient; to facilitate the cooperation between different government bodies.

Tax authorities need to develop effective organizational structures and be provided with adequate resources to effectively and efficiently implement and operate the tax systems they administer. Every tax administration needs an adequate level of autonomy that is reflected in its structure and operational responsibilities and is accountable for its operations. Moreover, the relationship of tax authorities with taxpayers must be laid down in a system of rights and obligations.[13]

2.4.2.2. Legal and regulatory analysis

Tax authorities must review the legal and regulatory framework of the jurisdictions they are inserted in, including existing information and reporting requirements, and potentially adapt the design and operation of tax returns and penalty regimes.

When moving to a digital tax administration, some of the processes and regulations described in the tax laws will still be meaningful and needed, but others will have to be reviewed and adapted for a digital age.

During the legal and regulatory analysis, these are some questions that should be considered by tax authorities:

- Are certain existing regulations redundant in a digital age?
- Do laws written in the analogue age work for the digital era?
- Do we need new laws to ensure confidentiality of information?
- Do we need new laws to protect taxpayers' right?
- Should legislation be drafted in cooperation with technologists and other stakeholders?

a) Eliminating Laws And Regulations That Are No Longer Needed

When analyzing the aptness of the legal framework for the integration of technologies, authorities will often realize that laws and regulations that used to serve a purpose in the analogue age are now redundant if new and emerging technologies are implemented. For example, rules that require physically certifying documents (e.g. notarizing, stamping etc.) are

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[13] Most tax legislations have codified the legislation governing the relationship between taxpayers and TAs in order for both parties to be aware and have easy access to the rights and obligations and the steps regulating each tax process.

an archaic way of ensuring the validity and truthfulness of paper documents that are no longer needed in a digital environment.

Moreover, the deployment of new technologies might lead to rethinking entire systems such as the one on VAT. Under existing VAT systems, neutrality is achieved by a complex system of setting off input and output VAT with the necessary refunds involved whenever applicable. This makes the system susceptible to fraudulent refund claims. Digital technology such as the blockchain might introduce real-time data for all transactions making the system fraud resilient and even potentially obsolete in a move to a one-layered final consumption tax.

b) Updating the remaining laws

Some existing rules, however, would remain necessary also in the context of digital tax procedures. For example, this category would include the data protection rules, the rules on good administration, or the right to a fair trial. Such general principles of the legal system would have to be taken into account when embarking on a digital transformation.

Furthermore, often laws are not sufficiently clear or do not relate to evaluating solely quantifiable objective factors. For this reason, sometimes one might find it difficult to automate when the underlying rules entail too great subjectivity or possible different interpretations. To overcome this deficiency a move towards greater reliance on rebuttable presumptions might be necessary whenever automation within a tax system is sought. Naturally, the outcomes of these rebuttable presumptions would be subject to review upon request by the interested parties (i.e. the tax administration and the taxpayer).

Finally, the existing legal system would need to be complemented by a new set of rules that will be put in place for introducing the new digital processes. Since such new rules would be of increasingly technical nature, account would have to be taken of the principle of legal certainty, ensuring that the law is clear to those subject to it. In this sense, the guiding principles behind any digital system would have to be set out in a statute that is sufficiently clear and not overly technical.

c) Challenges of the functional and legal analysis

The functional and legal analysis step comes with its own challenges. For instance, the responsible team may come to the realization that the organization lacks:
- Alignment between initiative team and business teams
- Consistent methods/processes
- Well-defined desired business outcomes

- Clear responsibilities across functions
- Clear and engaged sponsorship
- People with appropriate skill sets to define the right approach

Building a modular approach on how to tackle each of these fundamental challenges is determinant for the success of the digital transformation. One strategic approach is for tax authorities to form a digital steering committee and appoint project managers and a team with sufficient technical expertise.

2.4.2.3. Financial aspects of digitalization of tax administration

The digital transformation of the tax administration is a costly process that requires thorough planning of financial resources, which makes a government's long-term funding commitment crucial for achieving the goals stated in the strategy. The cost of the digital reform takes into account both capital and operational expenses associated with development, implementation, maintenance and support of electronic systems. The process of financial planning includes three steps that are taken at different stages of developing and implementing the digitalization project.

Table 4. Key steps of planning finance of a digital tax administration project

Estimating the budget	→	Planning sources of funding	→	Managing and controlling the finances

First, the project team needs to estimate the costs associated with development and implementation of the project, which requies identification of all possible expenses, as well as their approximate amounts. At this stage, it is necessary to take into account not only the initial investment into digitalization reform, but also the subsequent costs related to e-system maintenance and support, its customization due to potential changes in legislation as well as capacity building. Moreover, the project team has to consider the unobvious costs arising because of the need to create additional contact points for taxpayers or provide training for them, as well as to promote digitalization reform. These costs are necessary to ensure the sustained functionality and effectiveness of the digital systems. In general, the examples of costs associated with digitalization projects include the following:

- Development or procurement of core and supporting tax ICT systems;
- Maintenance and support of core and supporting tax ICT systems;
- Creating or adopting infrastructure and networks for the new system;
- Business process reengineering and organizational change management consultancy;
- Replacement expenses;

- Project organization;
- Cost of human resources;
- Training cost, including internal training for tax administration staff and external training for taxpayers;
- Cost of communication, which implies creating advertising campaigns and using various media channels to promote a new ICT system.

Second, budgeting requires the identification of all potential sources of funding for a digitalization project throughout its development, implementation, and subsequent maintenance and support phases. Typically, a significant portion of the funding comes from the tax administration's budget, but these funds are often insufficient. This is especially true for the least developed countries, whose economies are characterized by low levels of tax collection and budget deficits. In this regard, it is important to search for additional sources of funding, which may include:

- Funds from other government institutions and ministries (for example, the Ministry of Finance and the Customs Service) that may be involved in the implementation of the project or interested in the results of its implementation.
- Funds from international organizations that offer various instruments to support the digital initiatives of tax authorities;
- Funds received under the public-private partnership;
- Funds coming as part of donor assistance from developed states, which allows the least developed countries to implement projects for the digitalization of tax authorities.

Finally, the tax administration must establish proper finance management and budget execution at the project implementation stage, which involves ensuring the availability of the required amount of financial resources before initiating each stage of the digitalization project, conducting current financial processes, as well as monitoring and strict control over the efficient and effective use of funds.

2.4.3. Prioritization

Once tax authorities have thoroughly understood their processes, available resources, legal framework and current infrastructure they are inserted in, and clearly defined the problems and inefficiencies that they want to address, potential solutions should be considered. An initial question to be considered is: Could the inefficiencies identified be solved in a traditional way (i.e., with tools already available to the administration)? If not, which technology (or combination of technologies) should be explored?

In this stage, it is important to anticipate that old technologies will continue to coexist with new technologies during the transitional period. Often, there are good reasons for this: replacing a system that is working well can be risky and expensive, while keeping the current system is functional and cheaper. In addition, improvements to the existing systems can always be made and there might not be a need for radical transformation of the ICT systems in place. However, new technologies may fulfill the revenue authorities' objectives more efficiently. In order to decide what the best solution for an identified inefficiency is, tax authorities must assess what the cost benefit of changing the traditional systems is. It is not unusual for organizations to layer new technologies on top of older ones, rather than totally replacing them.

While it can be expensive to implement new digital systems, sticking to legacy systems can prove to be even more costly in the longer term. Once a new digital tool is in place, the benefits brought by automation are many: more efficiency in the operations of the administration, less costs and time spent by employees, more possibilities of analysis of data and compliance behavior, better targeting of high-risk cases, better and more efficient targeted services, improved governance and lower incidence of bribery and corruption in general.

When making the decision on a suitable solution, authorities should take into account the needs of the organization and understand the environment in which the administration operates (i.e., what are the levels of IT skills in the organization, what is the infrastructure in the country, what is the level of automation in the business community; to what extent governmental agencies are already automated, etc.). This is part of step number 2.

2.4.3.1.   Assessing which technology to implement

When a decision is made to implement a new digital tool, a core element in the process is to identify which IT system is best to adopt to replace the system that is to be discontinued: (a) an in-house custom-built system developed by staff or a service provider, or (b) commercial off-the-shelf (COTS) product.[14]

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[14] It refers to software and hardware that already exists and is available from commercial sources. When appeared in the early 2000s, COTS systems were ready-made and usually based on leading practice. Although they may require customization and investment expenses, they were marketed as integrated and configurable to meet the varying requirements of modern tax authorities with reduced implementation timelines and investment costs. Later on, COTS expanded to include enterprise resource planning (ERP) and customer relationship management (CRM) applications. Their main characteristic when they were addressed to TAs was that they constituted all-encompassing solutions, meaning that they did not only offer the means to automate processes but also to manage resource allocation and workflow more efficiently while monitoring progress through enhanced management information systems. See Glenn P. Jenkins, *Information Technology and Innovation in Tax Administration*, Kluwer Law International, 1996.

The more appropriate decision depends on the needs of each revenue authority. It is a strategic business decision that must conform to the tax administration's overall strategic objectives while it will ensure usability and will be preceded by a cost-benefit analysis measuring the appropriateness of the resources spent.

The nature of the problem that the organization would like to address also plays a role in deciding which system to implement. As seen in sections above, digital tools can be applied in many ways: to deliver better and more efficient services to taxpayer (the so-called "e-services"); to assist in analyzing the high amounts of data collected by tax authorities, i.e., through the application of data analytics technologies, and thereby improve risk management; to nearly fully automate tax processes and make them more efficient; and to facilitate the cooperation between different government bodies.

The table below illustrates the main differences between the two systems that might affect the TAs choice on outsourcing.[15]

Table 4: Advantages and disadvantages of custom-built ICT solutions and COTS products

Custom Built ITC solutions	COTS products
Advantages	*Advantages*
- A solution tailored to the tax administration's structure and needs - Lower initial development cost and potential for more rapid initial implementation - Greater buy-in from counterparts as they have more control over the system and have ownership over design and implementation - Leverages internal expertise - Capitalizes on existing investments (e.g., leverages existing technology investments) - Internal control of enhancements and maintenance - Flexibility to make changes as needed to be responsive to needs	- Higher quality, fully-integrated solutions - Built-in industry best practices for all IT competencies (core tax, management information, compliance performance system, and e-tax systems) - Reinforces best practices - Future development costs shared with other customers - Implementation track record - Cutting edge technology - Shorter implementation timescales - Rigorous testing and deployment methodologies - Customization required to meet local requirements (including laws and procedures)
Disadvantages	*Disadvantages*

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[15] The table summarizes and reproduces the findings of Guillermo Jimenez, Niall Mac Sionnaigh, and Anton Kamenov, Technology for Tax Administration, USAID's Leadership in Public Financial Management, February 2013, available at https://pdf.usaid.gov/pdf_docs/pnaea485.pdf .

- Dependency on availability of internal expertise - Significant internal project management capability required for large information technology projects - Difficulty retaining key IT staff - Difficulty keeping pace with advanced technological change - Difficulty enforcing best practice (e.g., integration across tax types) - Difficulty maintaining high documentation standards - Longer development	- Lack of buy-in with respect to changes in existing business processes, organization, and IT infrastructure by users - Requires significant change management capability in absence of leading practice - Relatively high initial license and implementation costs - Vendor reliance for support and maintenance - Not component-wise (full package offered)

As far as tax services are concerned, most countries in the developed and developing world are opting for COTS systems that through their interfaces allow taxpayers to perform online routine transactions (i.e. tax return filing, tax refunds, payments).[16] The decision to go for a bespoke in-house system or a COTS is usually based on several factors ranging from technical capabilities of tax authorities to the amount of available funding and the goals of each public organization.[17] Developing economies usually use a combination of IT solutions across the tax authorities' functions.

However, in the OECD countries, integrated ICT systems in tax authorities is a more common phenomenon than in developing countries. Historically it has been observed that OECD countries prefer custom-built systems for the more traditional functions of tax authorities and COTS systems for the more innovative functions of tax authorities.[18] The distinction though between traditional and innovative functions is much blurred the more we opt for digital integration and the more the tax authorities are performing most of their services online.

One of the most prominent obstacles that tax authorities still face when they are called to decide on what ITC to implement is the relevant costs. As mentioned above, the costs of ICT implementation tend to include hardware, software, procurement, implementing, integrating, operating, training, and replacement expenses, indirect costs, including staff time spent on

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[16] This is the main way that e-services are provided to taxpayers in Asia and South America, see among others ADB. 2013. *Electronic Taxpayer Services in Asia and the Pacific*. Manila.
[17] See also David Tansey, *Tax Administration Information Systems, Concept, Design, and Implementation,* The Governance Brief, issue 36, (2019), pp.1-10.
[18] Taxpayer Services Sub-Group, Information Note: Tax Reference Model – Application Software Solutions to Support Revenue Administration in Selected Countries, OECD Centre for Tax Policy and Administration, Forum on Tax Administration, March 2010.

requirement definition and other procurement activities, training, testing, and general downtime, while the solution is being deployed.

There are, however, many other non-quantifiable costs such as frustration of tax personnel which may outweigh the benefits that certain IT offers. For example, third-party data matching can improve compliance, enforcement and institute a perception of fairness among taxpayers while promoting voluntary compliance resulting in higher collections and taxpayer satisfaction. Difficulties of measuring such non quantifiable costs should not deter tax authorities from making a tailored cost-benefit analysis depending on the situation.

Many tax authorities in emerging and transitional economies have difficulty in securing the necessary funding.[19] In these cases, the ICT decision should be based on how the strategic objective of each tax administration can be achieved with limited ICT spending or ICT solutions of lower cost.

To effectively implement a digitalization project, tax authorities must recognize the importance of sequencing where more advanced ICT modules are introduced as the organization reaches higher levels of digital maturity. Such approach is crucial for a smooth transition and efficient operation. It is particularly important for least developed countries, where resources are limited, and the impact of efficient tax administration can significantly enhance economic stability and growth.

The starting point should be the effective delivery of basic e-services, such as taxpayers' registration, e-filing, and e-payment of tax obligations. These services are the preconditions for moving afterwards to the provision of pre-filled income or VAT tax returns, based on the information shared among the competent tax offices. Tax authorities could also adopt e-invoicing systems after having implemented an effective system of e-services as per above. However, it is important to note that not all countries follow a linear progression from e-services to e-invoicing. Some may adopt e-invoicing independently of having a fully established system of basic e-services due to differing national priorities or strategic decisions. Once the fundamental e-services are adopted, tax authorities might consider implementation of more advanced modules for digitalization of such functions as risk assessment and auditing.

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[19] KfW Development Bank, Information Technology in Tax Administration in Developing Countries, July 2015, available at https://www.taxcompact.net/sites/default/files/resources/2015-07-ITC-IT-Tax-Administration.pdf

2.4.3.2. Phased approach

One of the significant challenges in the digitalization of revenue authorities is the effective phasing of various workstreams — such as establishing legal and procedural frameworks, data management, technology, human capital and skills development, change management processes, and procurement policies — to ensure they complement rather than constrain each other. Successful implementation of a digitalization reform requires careful planning and coordination to determine which changes should be in place before adopting subsequent ones. This helps avoid bottlenecks and ensures smooth transitions between phases.

For example, it is essential to establish a robust legal framework addressing data access, privacy, confidentiality, and protection before making subsequent changes in data sourcing and management to ensure the processes are legally compliant from the moment of implementation. Additionally, building the capacity to ensure that tax authorities' staff can effectively utilize new technologies and adapt to digital workflows is a prerequisite for piloting data and analytics. Although there may be standardized phases and endpoints in digital transformation journeys, decisions on phasing, the level to be achieved, and timelines vary across countries and take into account each state's particular situation.[20] In addition to the objectives, achieved digital maturity level, available funding, and digital infrastructure, availability and accessibility of data, the capacity of tax authorities and taxpayers, such decisions can be affected by socio-economic conditions, political factors, and cultural contexts.[21]

2.4.4. Building an enabling environment that supports digital development

Building an enabling environment that supports digital development includes:

a) Certifying that the human resources of the organization are considered in the digital reform and being upskilled. This can be done by putting significant focus on recruiting, developing and retaining individuals who can serve as advanced analytics 'leaders' in various parts of the business; providing capacity building and continuous reskilling and upskilling of the human capital, both in handling the system and in management of the provision of new services; and creating a talent management strategy that fosters the right mix of skills and experience (IT, statistical, analytical and tax domain knowledge) needed to drive informed decision-making).

b) Consider cultural factors of the organization and building a digital friendly environment (e.g., making sure staff embrace change and is part of the process and engage with frontline staff in initiative designs).

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[20] ADB (2022), Launching a Digital Tax Administration: What You Need to Know, May 2022, p. 39, available at: https://www.adb.org/sites/default/files/publication/792586/digital-tax-administration-transformation.pdf.
[21] *Ibid*, pp. 31-32.

c) Seeking stakeholder buy-in from government leadership and establishing strong leadership commitment at executive level. For example, by supporting the model with an administration-level team charged with focusing on activities that will yield the highest value across units and functions.

d) Ensuring data quality by collecting relevant, clean, non-repetitive and non-bias data that are fit for purpose (i.e., fed for data analysis to extract valuable insights).

These factors are key in the success of digital transformation in any organization and should be considered throughout each step of the digital roadmap. Given its importance, the items have been explored under the section "Overarching principles of digitalization projects" above.

Moreover, organizations should build a digital and change-friendly environment by providing the necessary resources through the change management program. Tax authorities can consider formally change management programs, with the formation of teams or Centers of Excellence to spread initiatives across the organization. It can implement management committees that aligns and collaborates, removing potential blockages; and it can provide clear, concise procedural and policy manuals for each of the tax authorities' functions, closely followed by skilled staff.[22]

These aspects are paramount for maintaining trust between tax authorities and their employees, providing streamlined automation of their functions, fostering confidence and cooperation, and safeguarding the workplaces.

2.4.5. Cooperation and building trust for future proofing

Cooperating and building trust with internal and external stakeholders to understand their needs, their experiences, and to obtain their feedback on the program is key in successful digitalization projects.

In order to get the most out of new technologies' potentials, a level of trust between tax authorities and taxpayers is required. If both players work together to build an open, transparent

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[22] For example, Serbia Tax Authorities recognize the potential of digital reforms. Their vision for change management programs in the future includes: Implementing strategic oriented documents, which requires dedicated, strong team with divers skills in project management (project orientation is not common approach in state owned institutions and must be encouraged by high management); For employees within the administration, dedicating reform activities while avoiding a conflict with day-to-day job; Monitoring and timely identification of risks; Developing a proper tools for stimulation and sanctions. See Serbian TA's presentations during the Conferences on 'Transforming Tax Administration: The Role of Technology' (30 November 2020) and 'Digital Platforms: New Opportunities and Challenges for Tax authorities' (31 March 2021), organized by the World Bank, WU GTPC and EY.

and constructive environment, technologies could be applied to design programs which minimise the compliance costs for taxpayers and administrative costs for governments. Cooperative compliance programs, focused on building trust, may play an important role in the implementation of technologies by law enforcement agencies.

Increased automation in tax authorities and the use of novel disruptive technologies improve tax compliance and modernize taxpayers' services based on the model of customer's experience. This is to be achieved by enabling an "end-to-end view" of taxpayers' cases and interactions, through aggregating data on customer experience from every taxpayer's interaction with tax authorities.[23] Through monitoring of these interactions, tax authorities are able to identify the points where taxpayers are satisfied and then improve the overall service provided. In addition to advancing the users' experience, the use of technology in taxpayers' services enhances the integrity of the system.[24]

A clear and well-informed dialogue with taxpayers is a game changer in the digitalization process. Due to the increasing use of digital communication systems, taxpayers can be promptly informed about their tax obligations. They save time and tax authorities reduce significant resources such as staff time taken addressing queries through telephone services or tax offices. In addition, legal guidance through digital means is a new trend with significant potential but also with many challenges.

For example, many tax jurisdictions have already started using most of the social media platforms for their communication with taxpayers which, among others, increases taxpayers' awareness about tax issues. Facebook, Twitter, and YouTube are increasingly employed by tax authorities as a means to reach also younger generations of taxpayers and this is further related to a change in culture on how communication with revenue bodies can be made in the future[25]. Specifically, OECD has endorsed the use of social media in terms of its effectiveness because

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[23] Canada Revenue Agency, 2019-20 Departmental Plan, 35; Internal Revenue Service, IRS Integrated Modernization Business Plan, 21.

[24] The integrity is achieved by the accurate matching of computer data for a desired action. TAs are committed to secure privacy, integrity, and verification of any data disclosed for computer matching by the government. See i.e. Kimberly Houser & Debra Sanders (2017)

[25] See also OECD, Social Media Use by Governments: A Policy Primer to Discuss Trends, Identify Policy Opportunities and Guide Decision Makers, Working Papers on Public Governance No. 26, discussing among others the importance of social media beyond simply improving communications, such as the potential of this channel to re-build mutual trust between governments and their constituents, and to improve government's responsiveness to citizens, promote inclusive and participatory access of taxpayers to government services and improve public service delivery.

it tends to promote dialogue between tax authorities and taxpayers together with the image taxpayers have about the tax authorities' function.[26]

In the same line, to enjoy the full benefits of technology, there needs to be a shared view between business and tax authorities on what technology can and cannot deliver, as well as a willingness to embed new technologies into "normal business processes", which requires a buy in from business to work with tax authorities and a level of trust.

2.4.6. Monitoring and evaluation

Drafting and following a digital roadmap and adopting appropriate technologies is a first step, but instituting ways to monitor and measure the operations and performances of tax authorities, through the so-called "best practices", will increase their efficiency and organization of work progress. Monitoring and evaluating progress in automation is imperative to provide authorities with visibility into the value created by their strategy. It should be made an integral part of any automation initiative.

There are a variety of tools available to tax authorities that measure progress in digital reforms, out of which can be mentioned: Tax Administration Diagnostic Assessment Tool (TADAT); Tax DIAMOND (Development of implementation and monitoring directives for tax reform); the ATAF African Tax Outlook (ATO); OECD FTA Maturity Models; Revenue Administration Gap Analysis (RA-GAP); International Survey on Revenue Administration (ISORA); and models developed by CIAT and IDB.

a. The Tax Administration Diagnostic Assessment Tool (TADAT)

This is a tool that is designed to provide an objective assessment of the health of key components of a country's system of tax administration. This framework is focused on the nine key performance outcome areas (POAs) that cover most tax administration functions, processes and institutions. The assessment of these performance outcome areas is based on 32 high-level indicators that are each built on 1 to 5 dimensions that together add up to 55 measurement dimensions, making TADAT a comprehensive but administrable diagnostic tool. The TADAT assessments are particularly helpful in:

- Identifying the relative strengths and weaknesses in tax administration systems, processes, and institutions.
- Facilitating a shared view on the condition of the system of tax administration

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[26] OECD, Forum on Tax Administration: Taxpayer Services Sub-Group, Social Media Technologies and Tax Administration (2011), Center for Tax Policy and Administration (CTPA), available at https://www.oecd.org/tax/administration/48870427.pdf

among all stakeholders (e.g., country authorities, international organizations, and technical assistance providers)

- Setting the reform agenda, including reform objectives, priorities, initiatives, and implementation sequencing.
- Facilitating management and coordination of external support for reforms and achieving faster and more efficient implementation.
- Monitoring and evaluating reform progress by way of subsequent repeat assessments.[27]

b. Tax DIAMOND (Development of implementation and monitoring directives for tax reform)

The Tax DIAMOND is a toolset designed by the World Bank, with support of the Global Tax Program, that accompanies the implementation and monitoring of tax reforms as a key part of its strong technical assistance program for tax reform. The DIAMOND methodology helps countries and development partners to translate the findings of high-level diagnostic tools into reform programs, such as the MTRS, and gives opportunities to the relevant government departments to organize and coordinate reform programs.[28]

c. ATAF African Tax Outlook (ATO)

This is a flagship African publication which provides valuable, practical and relevant descriptive and analytical work on tax issues to improve tax administrations and inform tax policy formulation and implementation in Africa. The main purpose of the ATO is to establish an African flagship publication, aiming to be a source of reliable information on taxation that will serve as an African and global reference and an important barometer for businesses; in other words, creating a reference manual mainly for African tax administrations, tax policy makers, tax practitioners and businesses.

The African Tax Outlook publication is intended to

- Be used for improved cross-country or regional comparisons and benchmarking
- Serve evidence-based recommendations to reform tax policies and tax administrations.
- Provide an analysis of the data in terms of taxation trends around the continent, identification of good practices, and inferences on the heterogeneity of the tax data over time and across countries.
- Provide comparable data on tax policy, tax administration and tax legislation;

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[27] https://www.tadat.org/overview#overview
[28] https://www.worldbank.org/en/programs/the-global-tax-program/knowledge-center#3

d. OECD FTA Maturity Models;

The OECD Forum on Tax Administration (FTA) first developed a maturity model in 2016 in order to help tax administrations assess digital maturity in the two areas of natural systems/portals and big data. The digital maturity model was introduced in the 2016 OECD report Technologies for Better Tax Administration. Building on this, work began in 2018 to develop a set of stand-alone maturity models covering both functional areas of tax administration, such as auditing and human resource management, as well as more specialized areas such as enterprise risk management, analytics and the measurement and minimization of compliance burdens.

The intention of the models is:

- To allow tax administrations to self-assess through internal discussions as to where they see themselves as regards maturity in various activities and functions.
- To provide officials working in an area, including senior leadership of the tax administration, with a good oversight of the level of maturity based on input from other stakeholders across the organization.
- To help facilitate discussions on future strategy as well as identifying areas for further short-term improvement, including where that needs to be supported by the actions of other parts of the tax administration.
- To allow tax administrations to see where they sit compared to their peers.[29]

e. Revenue Administration Gap Analysis (RA-GAP);

This is a tool developed by the IMF that aims to assist countries improve their capacity to estimate and analyze tax gaps, including the understanding of the drivers of tax gap changes and trends.The tool has been used by developing countries to optimise their tax collection system, in particular for value-added tax (VAT), which can vary consistently from sector to sector.

RA-GAP has some distinct advantages over commonly used methodologies. By using a value-added approach to estimating potential VAT revenues, as compared to the more traditional final consumption approach used by most countries undertaking VAT gap estimation, the RA-GAP methodology can provide VAT compliance gap estimates on a sector-by-sector basis, which assists revenue administrations to better target compliance efforts to close the gap. In addition,

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[29] https://www.oecd.org/tax/forum-on-tax-administration/about/maturity-model-series.htm

the RA-GAP methodology uses a unique measurement for actual VAT revenues, which isolates changes in revenue performance that might be due to cash management (e.g., delays in refunds) from those due to actual changes in taxpayer compliance.

f.   International Survey on Revenue Administration (ISORA)

ISORA is an initiative by the Inter-American Center of Tax Administrations (CIAT), the International Monetary Fund (IMF), the Intra- European Organization of Tax Administrations (IOTA) and the OECD. It is designed to gather tax administration data on a regular basis with the following objectives:

- Provide an improved focus on data management, performance management, and reporting by tax administrators.
- Provide a set of comparable and standardized tax administration data to improve advice and analysis in areas such as understanding historical performance, identifying trends and establishing baselines, flagging policy and administrative inefficiencies, and providing data to facilitate focused and in-depth research.
- Develop data and analysis that can improve cross-country comparisons.
- Improve the quality of revenue administration capacity development
- Provide necessary data to better calibrate revenue administration assessment tools, such as TADAT.
- Assist senior executives of revenue administrations in managing and evaluating their administrations' performance.[30]

There are similarities in the tools' design, but while some imply the need for self-assessment from the tax administration side, others include an active involvement from the international organization to perform this assessment. These tools are helpful in improving tax administration through the acknowledgment and implementation of internationally recognized good practices.[31] Often, a maturity model may function both as a benchmark and offer guidance on how tax authorities of a lower level can follow a best practice for improving their performance.

In summary, most international organizations currently adopt 4 levels of digital maturity using a broad evaluation framework, assessing (a) what systems are in place that allow access to online tools for tax services provision, (b) whether data are simply entering a system or are

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[30] https://data.rafit.org/?sk=f02eda7c-dfd9-4c15-9ff9-8c5b400e16cb&sId=1445908451587
[31] J. Owens, B. Schlenther, Development in use of technologies in African Tax authorities, Tax Notes (forthcoming)

further processed, (c) whether in the above process the tax result is automated merely for internal purposes with low taxpayer interaction or there is a more advanced real time data collection and processing that includes real time cooperation of taxpayers with Tax Authorities, and (d) a relevant legal framework in place that authorizes the system to operate.[32]

2.5. Constraints faced by organizations when implementing digital tools[33]

- **Budgetary considerations and legacy systems**

Complexities and costs involved in replacing or updating legacy systems make it challenging to exploit the potential of innovative technologies. adapting practices to new and (sometimes) untested systems, as well as the ability of actors to understand and train staff to implement them are core issues reported in the digitalization process.

- **Legal issues**

Jurisdictions will have to address the challenges stemming from the legal framework and review the existing rules. While some rules are necessary (e.g., protection of fundamental rights), others were created in an analogue age and are made redundant in a digital environment (e.g., procedural rules enforcing physical certification of documents should be replaced by the possibility of electronic signatures).

- **Taxpayers' rights**

Concerns are often raised by public and private parties on how to ensure the privacy and security of technology tools and how these systems will interact with data protection laws. When implementing technology, there is usually a trade-off between efficiency and data protection and privacy. Finding the right balance is not always easy and authorities must be aware of the concerns and discuss possibilities to address them.

- **Human factors**

Often when digitalization projects fail, it is not because of the technology itself, but because of the people behind the reform. Organizations need to carry the workforce with them by upskilling and consulting them, hiring appropriate staff and putting in change management programs.

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[32] CIAT. (2020). ICT as a Strategic Tool to Leapfrog the Efficiency of Tax authorities. CIAT. Available at https://www.ciat.org/Biblioteca/Estudios/2020-ICT_STL_CIAT_FMGB.pdf; OECD. (2011). Tax Administration in OECD and Selected Non-OECD Countries: Comparative Information Series (2010). OECD Publishing.
[33] FATF (2021), Opportunities and Challenges of New Technologies for AML/CFT, FATF, Paris, France

- **Regulatory uncertainty**

Even when staff, senior management and supervisors are technologically-literate, the regulatory practices are slow to adjust to a digital reality. Most of the times the regulatory updates lag behind the technology advances.

- **Data quality**

Data collected should be consistent, comprehensive, timely and unbiased. This aspect tends to be neglected by organizations, but the premise of "garbage in, garbage out" prevails - the output of a digital tool will only be as good as the data that was initially fed into the system.

- **Fear of disruption**

Implementing novel digital systems in an organization can temporarily disrupt the activities and functions of that body. However, this should not be an impediment for digital reforms. The focus should be on how to transition into a new digital system while avoiding disruption?