ANNEX 1

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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 have been developed, while unfamiliar ways to produce, consume, work, and earn are gradually taking in place. The development and application of disruptive technologies has changed the way taxpayers and tax authorities interact, the way taxes are paid, and how information is stored and used. From this perspective, no tax administration 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 the challenges they may face, such as lack of resources obstructing or slowing down the process.

Tax administrations are faced with more and more challenges keeping up with technological development and globalization in the performance of their tax functions. Similar to private companies and other organizations, tax administrations have a core business, which includes guaranteeing that the tax laws are implemented fairly and consistently, and taxpayers comply with their tax obligations. In general, this is done by providing services to taxpayers to facilitate the way they meet their tax obligations. Particularly, the core functions of tax administrations[1] include but are not limited to:

- 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 agency. Thus, processes of tax operations and customs operations may differ significantly.[2]

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 part of. However, when it comes to the functions tax administrations 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 can 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 administrations' relationship with taxpayers are characterised by:[3] responsiveness, interactive communications with taxpayers on changes in tax law and procedures, consistency, transparency on how tax law applies, and 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 administrations should take a strategic rather than opportunistic approach to digitalization; before starting the process of employing technology, tax administrations 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. 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

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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.

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 administrations, which is highly instructive and discussed further below.

In summary, a digital roadmap includes:

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 the 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 administrations.

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 administrations' digitization include ease tax collection, improve efficiency, ease capacity constraints, offer better services to taxpayers, fight tax fraud and evasion, and countering corruption. 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 administrations 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.)

The existing work carried out by several international organizations to establish either general or digital maturity models and related benchmarks for tax administrations is highly instructive.[5]

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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.
[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),

According to research[6] based on the world-wide experience over the past few years, the digital profiles of national tax administrations can be generally grouped under six levels:

Table 2: Levels of digital profiles of national tax administrations

Level 1	Level 2		Level 3	Level 4		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	**Paradigm shift**	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	**Transformational**	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 chapter. In general, 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 and processing that

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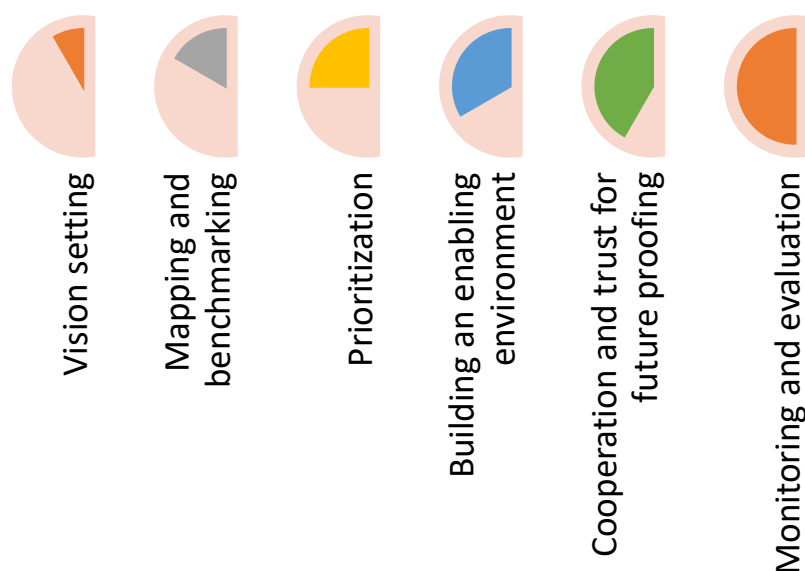
includes real-time cooperation of taxpayers with tax administrations, and (d) a relevant legal framework in place that authorizes the system to operate.[7]

2.3 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 secures a smoother transition in terms of consistency in tax services provision and efficiency. Following a strategy diligently is important, as automation can be a costly endeavour if applied incompletely 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: Guiding principles 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

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[7] CIAT. (2020). ICT as a Strategic Tool to Leapfrog the Efficiency of Tax Administrations. 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.

2.4   Overarching principles of digitalization projects

Before going into details of the key steps of a tax administration digital, there are three overarching principles that should be kept in mind throughout each step of the roadmap: considering human and cultural factors, establishing leadership commitment, and ensuring data quality.

2.4.1   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 they are informed and aligned with the digitalization efforts.

Often the reason behind the failure of digitalization processes is that strategic teams and leadership do not give adequate consideration to the human capital in their decisions. The challenges faced by tax administrations related to this step should be mapped out and considered. These may include:

- Difficulties with the understanding and interpretation of digital solutions by tax administration staff;
- Lower 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; and
- Insufficient data/knowledge management sharing.

Tackling these human and cultural barriers is an integral part of a digital strategy: no operating model will succeed long-term without focusing 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,

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[8] FATF (2021), Opportunities and Challenges of New Technologies for AML/CFT, FATF, Paris, France

each department may have an IT person inserted into their context. Some of the best practices implemented by organizations are:

- Support the operating 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 formal change management programs, with the formation of teams or Centres of Excellence to spread initiatives across the organization;
- Implement a 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;
- Engage with frontline staff in initiative design;
- 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 administrations' functions, closely followed by skilled staff;
- Make sure staff embraces change and is part of the process;
- Work with professional associations and universities to ensure that the next generation of officials have the required technical skills;

2.4.2 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 administrations 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]

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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.

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 also the digital strategy being built.

2.4.3   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 a 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 obtain 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 administrations is whether their data matching process produces results such as linking companies to VAT transactions, payroll, and import/export transactions; linking 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, incomplete, inconsistent or biased, the technology implemented is unlikely to provide usable outputs for tax administrations. 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.

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[10] J. Owens, B. Schlenther, Development in use of technologies in African Tax Administrations, Tax Notes (forthcoming)

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 seamlessly 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 administrations 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 as it happens (real time); and
- Measures are adopted to protect confidentiality.

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[11] This is already a reality in some countries, such as Estonia. Estonia is universally recognized for the digital transformation of its government. After gaining its independence in 1991, Estonia got off to a good start by investing heavily in its digitization. There are two main factors that have made this process a success: the use of the X-Road software that interconnects various services of public and private sectors, and the adoption of a compulsory national digital ID. The implementation of these two initiatives in 2001 has allowed the Baltic country to provide various e-services to its citizens, including inter alia, tax related services. Every person residing in Estonia receives a personal identification number (*Isikukood*) that consists of 11 digits based on the sex and date of birth of the person. This number represents the person both in the physical and virtual world, and it is displayed on the physical ID card, a mandatory identification document in Estonia. In addition to the physical ID card, citizens can also obtain Digi-ID and Mobile-ID cards. Through these identification mechanisms taxpayers have secure access to e-MTA, the online environment established by the Estonian Tax and Customs Board to provide e-services. On this website taxpayers can file their taxes electronically, initiate correspondence with the Tax Authority, get certificates and documents, view their balance of liabilities, make queries, file requests for refunds, etc. 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 administrations - Gestión fiscal (iadb.org)

2.5   Guiding principles for drafting a tax administration digital roadmap

2.5.1.   Vision Setting

Before implementing digital solutions, tax administrations 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 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.

2.5.2.   Mapping and benchmarking

The first step is to know what the organization aspires to achieve, and the subsequent one is to understand how to get there. During the mapping and benchmarking stage, tax administrations 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.

a)   Functional analysis

In order to efficiently perform a functional analysis, tax administrations 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 administration's functions is 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 administrations (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 into 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 administrations' 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 administrations 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 administrations need to develop effective organizational structures and be provided with adequate resources to enable them implement and operate their systems effectively and efficiently. 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 administrations with taxpayers must be laid down in a system of rights and obligations.[13]

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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.

b) Legal and regulatory analysis

Tax administrations 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 administrations:

- Are certain existing regulations redundant in a digital age?
- Do laws written in an 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?

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 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.

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 considered 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 much 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 are 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.

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; and
- 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 administrations to form a digital steering committee and appoint project managers and a team with sufficient technical expertise.

c) 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 would allow 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, maintanence 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 and its customization due to potential changes in legislation. 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. 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; and
- Cost of communication, which implies creating advertising campaigns and using various media channels to promote a new ICT system.

Second, the budgeting requires the identification of all potential sources of funding for a digitalization project throughout the period of its development and implementation, as well as subsequent maintenance and support. Usually, a significant part of the funding comes from the tax administration's budget, but these funds are often insufficient, which is especially true for the least developed countries, whose economies are characterized by low level 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 administrations;
- Funds received under the public-private partnership; or
- Funds coming as part of donor assistance from developed states, which allows the least developed countries to implement projects for the digitalization of tax administrations.

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.

2.5.3. *Prioritization*

Once tax administrations 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 administrations 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.

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]

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.

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[14] COTS 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 administrations 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 table below illustrates the main differences between the two systems that might affect the tax authorities' choice on outsourcing.[15]

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

Custom Built ITC solutions	COTS products
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.	*Advantages* - 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 - 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.	*Disadvantages* - 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.

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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 .

- Difficulty enforcing best practice (e.g., integration across tax types). - Difficulty maintaining high documentation standards. - Longer development.	- 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 administrations 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 administrations' functions.

However, in the OECD countries, integrated ICT systems in tax administrations are 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 administrations and COTS systems for the more innovative functions of tax administrations.[18] The distinction though between traditional and innovative functions gets more blurred where digital integration is preferred, and tax authorities perform most of their services online.

One of the most prominent obstacles that tax authorities still face when they are called to decide on what IT 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 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 and enforcement, institute a perception of fairness among taxpayers, and promote voluntary compliance resulting in higher collections and taxpayer satisfaction. Difficulties of measuring such non-quantifiable costs should not deter tax administrations from making a tailored cost benefit analysis depending on the situation.

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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.

Many tax administrations 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.

In principle, choosing among different ITs requires a sequencing. 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 administrations could also adopt e-invoicing systems after having implemented an effective system of e-services as per above (although not all countries go into e-invoicing after having a solid system of e-services already in place).

2.5.4. *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) Considering 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).

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-biased data that is fit for purpose (i.e., fed for data analysis to extract valuable insights).

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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

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 administrations can consider formal 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 administrations' functions, closely followed by skilled staff.[20]

2.5.5. *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' potential, a level of trust between tax administrations and taxpayers is required. If both players work together to build an open, transparent, 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 administrations 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 administrations.[21] Through monitoring of these interactions, tax administrations are able to identify the points where taxpayers are satisfied and then improve

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[20] For example, the Serbian Tax Authority has recognized 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 the 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 Administrations' (31 March 2021), organized by the World Bank, WU, GTPC and EY.

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

the overall service provided. In addition to advancing the users' experience, the use of technology in taxpayers' services enhances the integrity of the system.[22]

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 administrations 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 administrations as a means to reach 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[23]. Specifically, the OECD has endorsed the use of social media in terms of its effectiveness because it tends to promote dialogue between tax administrations and taxpayers together with the image taxpayers have about the tax administrations' function.[24]

In the same line, to enjoy the full benefits of technology, there needs to be a shared view between business and tax administrations 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 administrations and a level of trust.

2.5.6. *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 administrations, through the so-called "best practices", will increase their efficiency and improve organization of work progress. Monitoring and evaluating progress in automation is

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[22] 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)

[23] 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.

[24] 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

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 administrations 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.

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.[25] Often, a maturity model may function both as a benchmark and offer guidance on how tax administrations 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 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) whether there is a relevant legal framework in place that authorizes the system to operate.[26]

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[25] J. Owens, B. Schlenther, Development in use of technologies in African Tax Administrations, Tax Notes (forthcoming)

[26] CIAT. (2020). ICT as a Strategic Tool to Leapfrog the Efficiency of Tax Administrations. 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.

2.6   Constraints faced by organizations when implementing digital tools

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.
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 impeditive for digital reforms. The focus should be on how to transition into a new digital system while avoiding disruption?

Reference: FATF (2021), Opportunities and Challenges of New Technologies for AML/CFT, FATF, Paris, France