Global survey on digitalisation

Introduction

As part of the wider move to digital services, many administrations have embarked on a digital transformation journey. They have revolutionised their analogue processes, meaning they can better meet taxpayer's expectations and offer new services. While there is internationally comparative data on tax administration, collected through surveys such as the International Survey on Revenue Administration (ISORA), such data often considers the various functions and processes of an entire tax administration, and may not examine in detail the digitalisation and digital transformation of tax administrations.

This information could provide detailed insights on the way tax administrations are organising and innovating their operational models and service delivery arrangements, and allow tax administrations to learn from one another, identify good practices and better understand the direction tax administrations are heading globally. Equipped with such information, tax administrations might also be in a better position to illustrate to policy makers why it is important to provide funding for the digital transformation journey.

This survey tries to fill the information gap on digitalisation of tax administrations by looking at:

- Leading technology tools and digitalisation solutions implemented by tax administrations and how they have made a significant difference to the tax gap and/or compliance burdens; and
- Approaches that will help to advance the overall digital transformation of tax administrations.

The aim is to update the survey information on an annual basis to always have up-to-date information and to build a picture of trends over time. Survey results will be made available publicly in the form of an e-catalogue displayed on a dedicated FTA website. Administrations could access this catalogue at any time, allowing them to gain knowledge and a better understanding of whom to contact to engage in further bilateral (or even multilateral) discussions. Some parts of the survey will be presented on a country-by-country basis (for example, via a global map or in table form) while other parts will only be summarised (for example, via charts).

The survey itself is structured around the building blocks set out in the 2020 report Tax Administration 3.0 (Digital identity; Taxpayer touchpoints; Data management; Tax rule management and application; General elements, including governance and skills) and the questions have been designed to be low burden with mainly yes/no or multiple-choice questions. For specific areas of interest, administrations might be asked to prepare case studies that could be featured on the e-catalogues or there might be some small follow-up surveys.

Part A: Digital identity

The secure identification of taxpayers is key to the efficient functioning of modern tax administrations allowing the matching of administration processes (communication, tax return filing, incorporation of other data sources, self-service options, etc.) to individual and business taxpayers.

To facilitate the identification of individuals and businesses that are, or may be, subject to tax obligations tax administrations put in place registration processes and databases, so called 'registers'. To ensure the accuracy of the registers and to streamline internal automated processes across the administration, in particular matching data to taxpayers, jurisdictions started issuing tax identification numbers (TINs) or equivalent unique identifiers. Please see here for the use of identification numbers by tax types for FTA members.

With technological advancements resulting in an increasing taxpayer demand for the delivery of services through digital means, tax administrations have to consider how to ensure the secure identification of taxpayers in the digital world. For this purpose, tax administrations started creating unique digital identities of their customers to allow them to access a range of digital services, for example, through taxpayer portals. Please see here for administrations that have integrated taxpayer accounts/records that provide a "whole of taxpayer" view across major taxes.

Digital identities provide wider opportunities than just in tax administration and can enable different parts of government and third parties to work together and allow the same digital identity to be used in interactions, domestically and across borders. As a result, an increasing number of governments are putting in place government-wide digital identity strategies, encompassing a large variety of government services, and tax administrations have an important role to play in this.

This section of the survey aims to surface details around the adoption of digital identities by tax administrations, including their coverage and authentication methods, required for taxpayers to access digital services.

		Individuals	**Businesses**
1	Does your administration require individuals and / or businesses to use an approved digital identity to access secure digital services (for example, through a taxpayer portal)?	☐ Yes, please answer the questions in Part A column "Individuals" ☐ No, please move to Part B	☐ Yes, please answer the questions in Part A column "Businesses" ☐ No, please move to Part B
Note: For the purpose of this survey, digital identity is an electronic representation of an individual or business which enables them to be sufficiently distinguished when interacting online. The digital identity includes attributes which are bound to a credential that is used to authenticate the individual or business.			
Digital identity usage and coverage			
		Individuals	**Businesses**

2	Who provides the digital identity that individuals and businesses can use to access secure digital services offered by your administration: *Please select all that apply*	☐ The tax administration ☐ Another government body ☐ A private sector body	☐ The tax administration ☐ Another government body ☐ A private sector body
3	If you made at least two selections in Q2, are those digital identities interoperable?	☐ Yes ☐ No	☐ Yes ☐ No
4	If you selected "The tax administration" in Q2, can the approved digital identity offered by your administration also be used to access secure digital services from: *Please select all that apply*	☐ Another government body ☐ A private sector body	☐ Another government body ☐ A private sector body
5	Of your individual and business taxpayer population, please indicate the estimated percentage that use an approved digital identity to access secure digital services offered by your administration:	☐ 0-20% ☐ 21-40% ☐ 41-60% ☐ 61-80% ☐ 81-100%	☐ 0-20% ☐ 21-40% ☐ 41-60% ☐ 61-80% ☐ 81-100%
6	Please list the <u>main</u> tax and non-tax related services that are accessible using the approved digital identity: *Please use no more than 100 words.*		

Digital identity structure and registration
Please answer this section from the perspective of what your administration considers the main digital identity used by individuals and businesses.

		Individuals	**Businesses**
7	Is the underlying digital identity solution built upon an existing domestic identity system or is it a completely new system? *Please choose one option.*	☐ Existing domestic identity system ☐ Completely new system	☐ Existing domestic identity system ☐ Completely new system
8	Was an industry, international or other framework adopted for the development of the digital identity solution?	☐ Yes, for the whole DI solution ☐ Yes, for parts of the DI solution ☐ No	☐ Yes, for the whole DI solution ☐ Yes, for parts of the DI solution ☐ No
9	If yes in Q8, please indicate which framework was used:	☐ eIDAS - EU Regulation (EU) No 910/2014 of 23 July 2014	☐ eIDAS - EU Regulation (EU) No 910/2014 of 23 July 2014

		☐ NIST – SP 800-63 (US National Institute of Standards and Technology (NIST) Digital Identity Guidelines ☐ Other, please describe in no more than 50 words:	☐ NIST – SP 800-63 (US National Institute of Standards and Technology Digital Identity Guidelines) ☐ Other, please describe in no more than 50 words:
10	Does the digital identity solution allow for an interaction with foreign identity systems?	☐ Yes ☐ No	☐ Yes ☐ No
10.1	If yes in Q10, please choose whether this is:	☐ A theoretical possibility ☐ Already done in practice	☐ A theoretical possibility ☐ Already done in practice
11	What is the minimum data set that is combined to establish the digital identity: *Please provide the information for individuals and businesses.*	☐ Unique identity number issued by a government or government approved body ☐ Name ☐ Place of birth ☐ Date of birth ☐ Address ☐ Government issued documents, e.g. driver licence or birth certificate ☐ Biometric information, e.g. finger print, voice sample, face pattern, retina pattern ☐ Other, please describe:	☐ Unique identity number(s) issued by a government or government approved body ☐ Name ☐ Date of incorporation ☐ Address ☐ Details of the authorised representative(s) ☐ Other, please describe:
12	Is the digital identity created automatically or on request?	☐ Automatically ☐ On request	☐ Automatically ☐ On request
12.1	Is there a need to have a meeting to finalise the process of receiving a digital identity?	☐ Always, in-person ☐ Always, virtual ☐ Sometimes, in-person ☐ Sometime, virtual ☐ Never	☐ Always, in-person ☐ Always, virtual ☐ Sometimes, in-person ☐ Sometime, virtual ☐ Never
12.2	Is it possible for individuals without ID-documents or birth certificates to	☐ No	

	receive a digital identity for the use of tax purpose?	☐ Not yet, enrolment via a national digital inclusion programme under consideration ☐ Yes, via special domestic public services and means of identification (for e.g. refugees) ☐ Yes, via the use of private means of identification, e.g. bank cards ☐ Yes, via specific tax administration services	

Authentication

13	Is an authentication method applied to verify the digital identity when used online?		☐ Yes ☐ No
13.1	If yes in Q13, please indicate what types of authentication methods are used by your administration: *Please check all that apply.*	☐ Password-based authentication ☐ ID card ☐ Mobile app ☐ Voice recognition ☐ Facial recognition ☐ Retina scan ☐ Finger print ☐ Multi-factor authentication	
13.2	*Please answer the following question if you indicated in Q13.1 that more than one authentication method is used by your administration.* Does your administration apply different authentication methods based on the level of security required for certain types of interactions (for example, viewing information vs. making changes to information)?		☐ Yes ☐ No
13.2.1	If yes in Q13.2, please describe in no more than 100 words:		
14	When using secure digital services, are there situations where legislation or your administration's rules require taxpayers to make a formal declaration (e.g. confirming that information is accurate)?		☐ Yes ☐ No
14.1	If yes in Q14, please indicate the type of options that taxpayers have to make the formal declaration: *Please select all that apply if there are different options for different situations.* *Note: Pre-digitalisation this formal declaration might have been made through a handwritten wet-signature.*	☐ Checking a box ☐ Re-validating the digital identity ☐ Digitised signature, e.g. a scanned image of a handwritten signature, a signature on a signature pad, or a signature on screen using a cursor or digital pen ☐ Biometric signature through the use of signature recognition software that captures pressure, strokes, the speed of writing, etc. ☐ Digital signature which is based on a digital certificate issued by a certification authority	

Authorisation

15	Does your administration allow taxpayers to authorise third parties to access secure digital services?		☐ Yes ☐ No
15.1	If yes in Q15, can the authorisation be assigned to a named individual or an entity? *Please check all that apply.*	☐ Named individual ☐ An entity	
15.2	If yes in Q15, who can the authorised third party represent? *Please check all that apply.*	☐ To represent a business ☐ To represent other individuals	

15.3	If yes in Q15, please describe in no more than 100 words how your administration ensures that the authorised third party is entitled to represent the relevant taxpayer:	

Innovation

16	With respect to the main digital identity used by your taxpayers, does the underlying solution make use of emerging and innovative technologies?	☐ Yes ☐ No
16.1	If yes in Q16, please indicate which technologies:	☐ Blockchain ☐ Self-sovereign identity *(An approach to digital identity that gives individuals control of their digital identities.)* ☐ Digital identity wallet solution *(A solution to store and manage identity data and official documents in electronic form.)* ☐ Artificial intelligence ☐ Other, please describe in no more than 50 words:
17	Do you want to bring to the attention of others any innovative uses of digital identity in your administration or wider government?	☐ Yes ☐ No
17.1	If yes, please describe in no more than 100 words:	

Part B: Taxpayer touchpoints

Advances in digitalisation will allow tax administrations to improve existing taxpayer touchpoints or create new ones. Over the past years, many FTA member administrations have introduced new e-services, ranging from integrated taxpayer accounts to mobile applications to digital mailboxes. Now, those services are expanded further by using innovative technologies, such as artificial intelligence (AI). For example, see here for FTA members that are working with AI and those that have implemented chatbots.

As part of this process, tax administrations need to have a solid understanding of customer expectations as those might change over time and shift significantly between different profiles of taxpayers and stakeholders. While many administrations already measure satisfaction of taxpayers and intermediaries (see here), it is important to look beyond overall satisfaction with the administration and understand the customer experience related to the various touchpoints.

Touchpoints can also be embedded into taxpayers' natural systems allowing them to have a seamless experience, allowing tax to become an integrated part of daily life and doing business, thus fundamentally changing taxpayer engagement with the administration. Key enablers for achieving such integration are application programming interfaces (APIs) which allow tools developed by third parties to digitally interact with the tax administration systems without providing direct access.

This section of the survey takes a closer look at taxpayer touchpoints. First, it looks at online services provided by tax administrations and how innovative technologies are applied in this process. Second, it tries to understand whether tax administrations measure taxpayer experience when using the online services. Finally, it surveys administrations on the integration of their services in taxpayer natural systems and how such integration is achieved.

Online services		PIT	CIT	VAT
18	Please indicate for which of the following interactions your administration is offering online services: *Please provide answers for each of the three tax types (Personal income tax – PIT; Corporate income tax – CIT and Value added tax – VAT) and answer the additional questions for the first 5 interactions.*	**PIT**	**CIT**	**VAT**
18.1	• Registration for tax	☐	☐	☐
18.1.1	– Registration for tax is part of a wider government registration approach, i.e. when registering an individual or a legal entity tax registration is automatically part of that process	☐	☐	☐
18.1.2	– When pre-determined criteria are met, the registrant receives an automated response without any human intervention with the tax registration number(s)	☐	☐	☐
18.2	• Filing tax returns	☐	☐	☐
18.2.1	– When pre-determined criteria are met, returns are automatically processed and the assessments sent to taxpayers (all without any human intervention)	☐	☐	☐
18.3	• Making tax payments	☐	☐	☐

18.3.1	– Making tax payments is part of a wider government online payment portal, i.e. an online service where persons can pay government taxes and fees	☐	☐	☐
18.3.2	– Payments are instantaneously processed and reflected in balances visible to the taxpayer	☐	☐	☐
18.4	• Requesting extensions of deadlines (filing and payment)	☐	☐	☐
18.4.1	– When pre-determined criteria are met, the requesting person receives an automated response without human intervention whether the extension of a deadline has been accepted or rejected	☐	☐	☐
18.5	• Asking for tax payment arrangements	☐	☐	☐
18.5.1	– When pre-determined criteria are met, the requesting person receives an automated response without human intervention whether the payment arrangement has been accepted or rejected	☐	☐	☐
18.6	• Making taxpayer confidential enquiries in a secure environment	☐	☐	☐
18.7	• Filing tax related objections	☐	☐	☐
18.8	• Dealing with correspondence, such as enquiries, returns filed, documents sent by the administration, etc.	☐	☐	☐
18.9	• Uploading data files onto the tax administration's system	☐	☐	☐
19	Does your administration offer specific approaches to those that do not have online access?	☐ Yes ☐ No		
20	Does your administration ensure that its online services are available to a wide range of users including those users who have visual, auditory, motor or cognitive disabilities?	☐ Yes ☐ No		
20.1	If yes in Q20, does your administration measure how those taxpayers perceive the quality of the service offerings?	☐ Yes ☐ No		
21	Does your administration offer taxpayers to interact with virtual assistants, such as chatbots?	☐ Yes ☐ No		
21.1	If yes in Q21, please indicate whether the virtual assistant(s): *Please select all that apply.*	☐ Are rule-based, i.e. interactions with taxpayers follow a set of pre-programmed rules ☐ Use artificial intelligence (AI) during interactions with taxpayers		
21.2	If yes in Q21, please indicate the (estimated) percentage of interactions resolved in the first instance by the virtual assistant(s).	%		
22	Does your administration use AI during interactions with taxpayers (other than virtual assistants)?	☐ Yes ☐ No		
22.1	If yes in Q22, please describe in no more than 100 words for which type of interactions AI is used and the AI's			

	involvement in that process:	
23	Does your administration use pre-programmed processes during interactions with taxpayers (other than virtual assistants)?	☐ Yes ☐ No
23.1	If yes in Q23, please describe in no more than 100 words for which type of interactions pre-programmed processes are used:	

Measuring taxpayer experience

24	Does your administration measure taxpayer experience in using online services?	☐ Yes ☐ No
24.1	If yes in Q24, please indicate how taxpayer experience is measured:	☐ Survey ☐ Online feedback channels ☐ User testing ☐ Web analytics ☐ Interview ☐ Other, please describe in no more than 50 words:

Creating software packages for use by taxpayers

25	Does your administration create software packages that assist taxpayers to fulfil their tax obligations (for example, bookkeeping and accounting software, invoicing solutions, return-filing solutions)? *Please note: Those software packages can be for desktop and/or mobile devices.*	☐ Yes ☐ No
26	Does your administration engage in co-creation of software packages with third parties?	☐ Yes ☐ No
27	If yes in Q25 and / or 26, please describe in no more than 100 words the type of software packages provided or co-created:	

Integrating tax interactions into third party systems

28	Does your administration develop APIs?	☐ Yes ☐ No		
28.1	If yes in Q28, does your administration make library of APIs publicly available for third party use?	☐ Yes ☐ No		
28.2	If yes in Q28, does your administration engage in co-creation of APIs with third parties?	☐ Yes ☐ No		
28.3	If yes in Q28, please indicate for which of the following interactions your administration has published APIs that allow third parties to integrate the respective interaction into their products: *Please provide answers for each of the three tax types.*	**PIT**	**CIT**	**VAT**
28.3.1	Register for tax	☐	☐	☐
28.3.2	File tax returns	☐	☐	☐

28.3.3	Make tax payments	☐	☐	☐
28.3.4	Request extensions of deadlines (filing and payment)	☐	☐	☐
28.3.5	Ask for payment arrangements	☐	☐	☐
28.3.6	Make taxpayer confidential enquiries in a secure environment	☐	☐	☐
28.3.7	File tax related objections	☐	☐	☐
28.3.8	Deal with correspondence, such as enquiries, returns filed, documents sent by the administration, etc.	☐	☐	☐
28.3.9	Upload data files onto the tax administration's system	☐	☐	☐
28.3.10	Other, please briefly describe in no more than 100 words:			

Part C: Data management

Current tax administration is, at its heart, a data processing operation heavily reliant on the availability and quality of data. With increasing digitalisation, more tax related data from taxpayers and third parties is being collected and used to improve the efficiency and speed of tax administration processes, as well as helping to provide new services.

Data collection now goes beyond traditional processes with reporting systems being put in place that require the electronic transfer of taxpayer primary documents, such as invoices, in some cases in real-time. In addition, third party data reporting is expanded in many jurisdictions beyond employer reporting (for example, under Pay-As-You-Earn systems) to cover financial intermediaries and other stakeholders, including the data sharing between tax administrations and other parts of government. Data on the income reporting regimes in FTA member jurisdictions can be found here: income of residents and income of non-residents.

Equipped with all this data, tax administrations are introducing new services, for example the pre-filling of tax returns. With many administrations collecting salary and wage information directly from employers, the pre-filling of personal income tax (PIT) returns is now applied by a large number of FTA members (see here). Pre-filling of returns can significantly reduce the compliance burden of taxpayers, and many administration are now looking to include data on deductible expenses to allow for a full pre-filling of PIT returns. In addition, the availability of electronic invoicing systems allows tax administrations to start to go beyond PIT returns and now cover (fully) pre-filled corporate income tax and value-added tax returns.

To maximise the value of the data tax administrations have at their disposition, they also need to consider how share it effectively with other agencies and ecosystem partners. They also need to think about how to best analyse the data and, while many administrations already employ data scientists and analytics officers (see here), having big data capabilities with the necessary people, skills and infrastructure is key for success in this area.

This section of the survey looks at all those issues, covering the collection and use of data, data sharing arrangements as well as data governance structures. It also looks at the data analytics and the use of innovative solutions to support or enhance data management capabilities or operations.

Data standards			
29	Does your administration require the use of recognised industry standards for:		
29.1	• Exchange of data with the administration?		☐ Yes ☐ No
29.2	• Record keeping?		☐ Yes ☐ No
Data collection			
		Taxpayers via their business systems (beyond PAYE systems)	**Third parties such as financial institutions, insurance companies, health agencies, etc.**
30	Does your administration receive data directly from:	☐ Yes ☐ No	☐ Yes ☐ No

	If yes in Q30, please answer the following questions:		
30.1	Can some data be sent to the administration automatically from machine-to-machine without human involvement?	☐ Yes ☐ No	☐ Yes ☐ No
30.2	Can some data be uploaded manually onto the administration's systems via dedicated interfaces?	☐ Yes ☐ No	☐ Yes ☐ No
31	Can your administration's IT system routinely access data stored in taxpayer natural systems, for example for risk assessment, audit or tax assessment purposes?		☐ Yes ☐ No
31.1	If yes in Q31, please describe in no more than 100 words, including whether this is a legal requirement or requires taxpayer consent:		
32	Are certain categories of taxpayers required to use an e-invoice solution that transfers data to the tax administration?		☐ Yes ☐ No
33	Are certain categories of taxpayers required to use online cash registers that transfer data to the tax administration?		☐ Yes ☐ No

Prefilling

		PIT	CIT	VAT
34	Does your administration automatically prefill tax returns with data that it has collected: *Please select all that apply for each tax type.*	☐ Yes, with income information ☐ Yes, with expense / allowance information ☐ No	☐ Yes, with income information ☐ Yes, with expense / allowance information ☐ No	☐ Yes, with income information ☐ Yes, with expense / allowance information ☐ No

35	Has your administration started to fully prefill tax returns?	☐ Yes ☐ No
35.1	If you indicated in Q35 that your administration fully prefills tax returns, did your jurisdiction simplify tax rules to allow for full prefilling of returns?	☐ Yes ☐ No
35.1.1	If yes in Q35.1, please indicate how the tax rules were simplified:	☐ Reduction of number of taxable deductions / allowances ☐ Creation of special tax regimes with simplified rules for calculating income ☐ Other, please describe in no more than 50 words:
36	If yes in Q34 (in any of the three tax types), does your administration receive income or expense data that is used to prefill tax returns from:	
36.1	- Online marketplaces (incl. sharing and gig economy)	☐ Yes ☐ No

36.2	- Other online platforms, e.g. stock trading, currencies (incl. crypto).	☐ Yes ☐ No	If yes, please describe the type of income or expense data received (no more than 50 words):
36.3	- Taxpayer accounting systems	☐ Yes ☐ No	If yes, please describe the type of income or expense data received (no more than 50 words):
36.4	- E-invoicing systems	☐ Yes ☐ No	
36.5	- Online cash registers	☐ Yes ☐ No	
36.6	- Other government entities	☐ Yes ☐ No	If yes, please describe the type of income or expense data received (no more than 50 words):
36.7	- Private entities such as banks and insurance companies	☐ Yes ☐ No	If yes, please describe the type of income or expense data received (no more than 50 words):
36.8	- Other jurisdictions (beyond data received under CRS, FATCA and DAC)	☐ Yes ☐ No	If yes, please describe the type of income or expense data received (no more than 50 words):
37	Does your administration populate specific data into taxpayer natural systems (beyond pre-filling of tax returns)?		☐ Yes ☐ No

Data sharing

Internal

38	Does your administration have an enterprise data management (governance) system that allows taxpayer information be viewed across the administration?	☐ Yes ☐ No

With other parts of government

39	Does your administration share bulk information with other government agencies or provide them with direct access to information?	☐ Yes ☐ No
39.1	If yes in Q39, please describe the type of data shared (e.g. income data, taxpayer personal information) and with which government agencies (no more than 50 words):	
40	Does your administration receive bulk information from other government agencies or have direct access to information other government agencies hold?	☐ Yes ☐ No
40.1	If yes in Q40, please describe the type of data	

	received (e.g. income data, taxpayer personal information) and from which government agencies (no more than 50 words):		

41	In your jurisdiction, do you have common cross government databases?	☐ Yes ☐ No

41.1	If yes in Q41, please select which type of databases:	☐ Population register ☐ Property register ☐ Business register ☐ Motor vehicle register ☐ Other, please briefly describe (no more than 50 words):

With non-government third parties

42	Does your administration share individual taxpayer data with non-government third parties: *Please select all that apply.*	**Employers**	**Withholding agents***	**Tax intermediaries****	**Financial institutions**	**Other**
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
	* Withholding agent: A person that is required by law to withhold taxes. *** Tax intermediary: A person that is advising and assisting taxpayers with meeting their tax obligations.*					

42.1	If yes in Q42, please indicate whether the data is sharing is:	Done automatically	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
		Initiated by the taxpayer	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

43	Does your administration share anonymised taxpayer data on a confidential basis with third parties for analytical purposes, i.e. not for general release?	☐ Yes ☐ No

43.1	If yes in Q43, please describe in no more than 100 words with whom and for what purposes:	

Data governance

44	Does your administration:	
44.1	- Have a comprehensive data management strategy?	☐ Yes ☐ No
44.2	- Assess data quality of reported data?	☐ Yes ☐ No
44.3	- Have in place a data ethics framework?	☐ Yes ☐ No
44.4	- Control user data access and security?	☐ Yes ☐ No
44.5	- Automatically detect unauthorised access?	☐ Yes ☐ No

44.6	- Employ a Data Privacy Officer?	☐ Yes ☐ No
44.7	- Have a cyber security unit?	☐ Yes ☐ No
44.8	- Hire external parties to test the security of your systems?	☐ Yes ☐ No
44.9	- Use artificial intelligence as part of the data governance process?	☐ Yes ☐ No
44.9.1	If yes in Q44.9, please describe how (in no more than 100 words):	

Data analytics

45	Does your administration:	
45.1	- Have big data capabilities with the necessary people, skills and infrastructure?	☐ Yes ☐ No
45.2	- Use an enterprise wide Business Intelligence and Visualisation tool?	☐ Yes ☐ No
45.3	- Use analytics for real-time tax fraud detection and prevention?	☐ Yes ☐ No
46	Does your administration use big data for analytical purposes?	☐ Yes ☐ No
46.1	If yes in Q46, please indicate the purpose:	☐ Improve compliance ☐ Identify trends ☐ Policy forecasting ☐ Revenue forecasting ☐ Provide new services ☐ Other
46.2	If yes in Q46, does your administration use artificial intelligence / machine learning as part of this analysis?	☐ Yes ☐ No

Innovations

47	Are there any innovative solutions / technologies your administration has implemented to support or enhance your data management capabilities or operations (for example, DataOps, use of artificial intelligence and automation)?	☐ Yes ☐ No
47.1	If yes in Q47, please describe in no more than 100 words:	

Part D: Tax rule management and application

Currently tax rule management and application is primarily undertaken within tax administration-driven or supported processes. This usually involves a number of steps including:

- The provision of guidance on tax law compliance and deadlines (through a variety of channels, including websites, direct communications, tax agents etc.);
- the use of forms and e-forms which require the input by the taxpayer of specific tax relevant information (which may be for registration purposes, tax return filing etc.); and
- the finalisation of the relevant process within the administration (for example, the registration of the taxpayer, computation of the final tax liability, acceptance of payments etc.).

However, the digital transformation of tax administrations will affect how tax rule management is conducted. More and more, tax administrations will need to consider providing more detail on the technical rules and information needed for elements of tax processing to take place within taxpayers' natural systems. Under this approach the data largely remains in taxpayer systems with assurance processes done on the system itself rather than the processing of the underlying data by the administration.

This section tries to create an overview of how tax administrations use technology for tax rule management. This includes looking at the translation of tax rules into machine-readable format, the development of assurance frameworks that allows third parties to incorporate tax rules in their software packages, and the use of artificial intelligence and other innovations in this area.

Machine-readable tax law / rules		
48	In your jurisdiction, have you translated tax law / rules into machine-readable format that will enable the law / rules to be incorporated in the relevant software used by taxpayers?	☐ Yes ☐ No
	If yes in Q48,	
48.1	- Please describe in no more than 100 words how you have achieved this (e.g. which tools and methodologies were used)?	
48.2	- Did you need to simplify the tax rules and / or law?	☐ Yes ☐ No
48.3	- Please describe in no more than 100 words how you ensure future tax rule / law changes are incorporated into this format?	

Assurance framework

49	Has your tax administration developed an assurance framework that allows third parties to incorporate tax rules in their software packages and deliver outputs based on those rules that are accepted by the tax administration?	☐ Yes ☐ No
49.1	If yes in Q49, please describe in no more than 100 words how the framework is validated and enforced?	
49.2	If no in Q49, please indicate how your administration ensures that commercial software packages are compatible with the tax administration system? *Please select all that apply.*	☐ Administration provides technical documentation to enable product development by software providers ☐ Administration enforces a software development lifecycle that a software provider must follow to meet set requirements ☐ Administration implements controls around authorisation and validation of information sent / received ☐ Administration does not see the need to ensure that commercial software packages are compatible with the tax administration system ☐ Other, please describe in no more than 50 words:
50	Does your administration publish the names of software products approved or recognised by the administration?	☐ Yes ☐ No
50.1	Does your administration maintain a register of approved or recognised software products?	☐ Yes ☐ No
50.1.1	If yes in Q50.1, is this register publicly available?	☐ Yes ☐ No
50.2	If yes in Q50 and / or Q50.1, please indicate how the approval / recognition process is conducted:	☐ Certification by the administration ☐ Certification by another government body ☐ Administration endorsement of a private certification process ☐ Other, please describe in no more than 50 words:

Automated registration / deregistration

51	Does your administration automatically register / deregister taxpayers based on data received from third parties?	**Register taxpayers**	**Deregister taxpayers**
		☐ Yes ☐ No	☐ Yes ☐ No
52	Can third party stakeholders, e.g. platforms, automatically register / deregister taxpayers?	☐ Yes, without taxpayer consent ☐ Yes, only with taxpayer consent ☐ No	☐ Yes, without taxpayer consent ☐ Yes, only with taxpayer consent ☐ No

Artificial intelligence

53	Does your administration use artificial intelligence (AI)?	☐ Yes ☐ No
53.1	If yes in Q53, please select the main use cases:	☐ Automated provision of personalised information to stakeholders ☐ Virtual assistants ☐ Risk assessment processes ☐ Detection of tax evasion and fraud ☐ Assistance of tax officials in making administrative decisions ☐ Making recommendations for actions ☐ Making of final administrative decisions ☐ Dispute resolution ☐ To ensure the integrity of tax administration systems / processes ☐ Other, please describe in no more than 50 words:
53.1.1	If you selected "Risk assessment processes" in Q53.1, please indicate for which tax types:	☐ PIT ☐ CIT ☐ VAT
53.1.2	If you selected "Dispute resolution" in Q53.1, please indicate for which tax types:	☐ PIT ☐ CIT ☐ VAT
53.2	If yes in Q53, are there limitations on the use of AI, e.g. final decision making?	☐ Yes ☐ No
53.2.1	If yes in Q53.2, please briefly describe in no more than 50 words:	
53.3	If yes in Q53, does your tax administration have an ethical framework for the application of AI?	☐ Yes ☐ No
53.4	If yes in Q53, please describe in no more than 50 words how your administration ensures that decisions by the AI are not biased (e.g. do you probe your AI or do review the source code for human bias):	

Innovation

54	Does your administration have systems in place that are able to identify errors or inconsistencies in the data provided by stakeholders at the point of receipt in the administration?	☐ Yes ☐ No
55	Does your administration's IT system enable the taxpayer or business to test upfront tax treatments of scenarios to inform their decision making and liabilities?	☐ Yes ☐ No
56	Does your administration use Distributed Ledger Technology, e.g. blockchain, in its taxation processes?	☐ Yes ☐ No

56.1	If yes in Q56, does your administration use smart contracts embedded within Distributed Ledger Technology?	☐ Yes ☐ No
57	Does your administration automatically provide information on taxpayer's individual tax positions whenever it changes to third parties to facilitate withholding of taxes?	☐ Yes ☐ No
57.1	If yes in Q57, please indicate to which third parties you automatically provide this information (no more than 50 words):	
57.2	If yes in Q57, do those third parties calculate the withholding on the basis of a flat rate or the wider tax position of the taxpayer?	☐ Withholding on the basis of a flat tax rate ☐ Withholding on the basis of the individual tax position
57.3	If yes in Q57, please indicate whether the withholding is done as a result of legislative requirements or voluntary arrangements:	☐ Legislative requirement ☐ Voluntary arrangements
58	Are there any other innovations in this area that you have undertaken and would like to bring to the attention of other administrations? Please describe in no more than 100 words:	

Part E: General elements

The nature of digital transformation requires the joining-up of systems and processes across the public and private sector, as well as internationally. The complexity and significant resource investments required call for a strategic approach and a structured form of governance if the transformation is to succeed. This survey section looks at both issues.

It further explores how administrations identify the future skills required for a successful digital transformation. While many administrations have already reported that they assess current and future capability needs (see here), this section goes into more detail and looks specifically at digital transformation.

Finally, this section asks for details around the development of a digital culture within the administration and engagement with internal and external stakeholders.

Strategy		
59	Has your administration developed a strategy for digital transformation?	☐ Yes ☐ No, please go to Q60
	If yes in Q59:	
59.1	Please indicate the time-frame of the strategy:	☐ Less than 3 years ☐ 3 to 5 years ☐ More than 5 years
59.2	Have all key internal stakeholders, including senior management and relevant functional areas, been involved in drawing-up the strategy?	☐ Yes ☐ No
59.3	Has input been sought from external stakeholders, such as other parts of government, tax policy makers, taxpayer bodies and representatives?	☐ Yes ☐ No
59.4	During the process of drawing-up the strategy, has your administration used data analysis and analytics to forecast different scenarios?	☐ Yes ☐ No
59.5	Does your administration monitor progress against the digital transformation strategy?	☐ Yes ☐ No
59.5.1	If yes in Q59.5, please describe in no more than 100 words how progress is monitored:	
60	Does your government have a wider digital transformation strategy?	☐ Yes ☐ No
60.1	If yes in Q59 and Q60, has your administration's digital transformation strategy been aligned to the one of the government?	☐ Yes ☐ No
Governance		
61	Has your administration established a senior management governance body to oversee the digital transformation?	☐ Yes ☐ No

61.1	If yes in Q61, do external stakeholders have formal positions on the governance body, for example as non-executive directors, advisors or observers?	☐ Yes ☐ No
61.1.1	If yes in Q61.1, please indicate where those external stakeholders come from:	☐ Other parts of government ☐ Private sector ☐ Civil society ☐ Other, please describe in no more than 50 words:
62	Has your administration ring-fenced funding that support transitioning to a digital tax administration?	☐ Yes ☐ No
63	Has your administration adopted programme-planning activities that support transitioning to a digital tax administration?	☐ Yes ☐ No
64	Does your administration have specific roles / positions who manage and lead the work on digital transformation, for example a chief digital officer?	☐ Yes ☐ No
65	Does your government have a whole of government approach to digital transformation governance?	☐ Yes ☐ No
65.1	If yes in Q65, is your administration directly represented in the governance structures of that approach?	☐ Yes ☐ No
Skills		
66	Has your administration identified the future skills required by the administration for a successful digital transformation?	☐ Yes, for the whole administration ☐ Yes, for parts of the administrations ☐ No, please go to Q67
	If yes in Q66:	
66.1	Please describe in no more than 50 words the future skills required by your administration:	
66.2	Has your administration mapped the skills that administration officials currently have against those that are required?	☐ Yes ☐ No, please go to Q66.3
	If yes in 66.2:	
66.2.1	Does the mapping cover a multi-year period?	☐ Yes ☐ No
66.2.2	Is the mapping reviewed on a regular basis?	☐ Yes ☐ No
66.2.3	Have outcomes of this mapping been reflected in the wider human resource strategy of the administration?	☐ Yes ☐ No
66.3	Has an external supplier, such as a consultancy firm, conducted:	
66.3.1	• The identification of future skills required?	☐ Yes ☐ No
66.3.2	• The mapping of skills that officials currently have?	☐ Yes ☐ No

66.4	Have you collaborated with other government organisations or external partners (e.g. universities) on:	
66.4.1	• Improving staff skills required for digital transformation?	☐ Yes ☐ No
66.4.2	• The potential recruitment pool for digital transformation?	☐ Yes ☐ No
Culture of staff engagement		
67	Has your administration developed a strategy to build a digital culture* within the administration? *Digital culture: A culture where the digital needs of taxpayers and other stakeholders are understood and embraced by staff; new services are demand driven, innovative, and created considering potential cross-functional synergies; and projects are managed in an agile fashion.*	☐ Yes ☐ No
67.1	If yes in Q67, please describe in no more than 100 words:	
68	Does your administration communicate the digital transformation strategy or changes to all officials so that they understand their individual roles and responsibilities?	☐ Yes ☐ No
69	Does your administration regularly engage with staff and other stakeholders on the digital transformation strategy, its implementation and progress?	☐ Yes ☐ No