Tax Administration 2023

COMPARATIVE INFORMATION ON OECD AND OTHER ADVANCED AND EMERGING ECONOMIES

OECD

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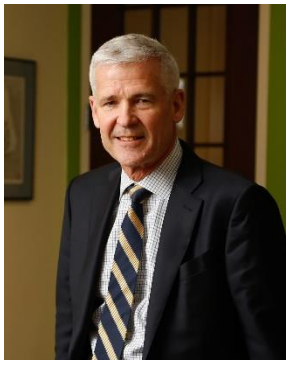
Preface



The 2023 edition of the Tax Administration Series (TAS), like its predecessors, provides comparative information on the performance of advanced and emerging tax administrations globally and seeks to draw out the main underlying trends and challenges they face. The purpose and value of the TAS, first published in 2004, is to assist administrations, governments, taxpayers and other stakeholders towards identifying improvements in the effectiveness of tax administration.

Coming out of the COVID-19 pandemic, which affected the lives of so many people around the world, tax administrations remain focused on key questions resulting from the impacts of the crisis. Some of these impacts are temporary. For example, we can see from the TAS data (which covers fiscal years from 2018 to 2021), that tax arrears are decreasing in many jurisdictions compared to the COVID-19 highs. This indicates the effectiveness of approaches taken by tax administrations to support citizens and businesses during this unprecedented period.

However, some impacts may be more permanent. This includes expectations taxpayers have for service delivery and burden reductions, as well as changes to the operating models of tax administrations, which includes leading our workforce in a modernized work environment.

The pandemic has also accelerated many new practices, creating lasting benefits for tax administrations and taxpayers. Many of the examples in this edition showcase the integration of digital transformation initiatives into the existing operating models of individual tax administrations, often using the learnings from the pandemic to further enhance compliance and reduce burdens.

TAS 2023 also explores the significant progress that has been made in relation to digital transformation as well as some of the challenges it presents. The substantial benefits of digitisation can be observed in taxpayer compliance and a reduction in taxpayer burden. This report highlights the considerable progress achieved by tax administrations in these areas.

Digital transformation will be of central importance for us to achieve our goals. Making it easy and seamless to meet tax obligations will be central to any tax administration's objective of raising vital public funds. Upgrading and providing new services and adopting new technologies will assist in creating positive attitudes to compliance which will yield substantial benefits for years to come.

I would like to express my appreciation to those involved in producing this engaging and informative report, and in particular Oliver Petzold and Paul Marsh of the OECD Secretariat. This edition of the TAS will continue to help us all understand more about the challenges that we face individually and collectively. Through this, not only can we consider what we might do in our own jurisdictions but also identify where tax administrations can collaborate to improve our services to taxpayers across the globe.

Bob Hamilton
Chair of the OECD Forum on Tax Administration
Commissioner of the Canada Revenue Agency

Foreword

Tax Administration 2023 is the eleventh edition of the OECD Centre for Tax Policy and Administration's comparative information series. First published in 2004, the primary purpose of the Tax Administration Series (TAS) is to share information that will facilitate dialogue on the design and administration of tax systems.

This edition of the TAS provides internationally comparative data on aspects of tax systems and their administration in 58 advanced and emerging economies. It includes performance-related data, ratios and trends up to the end of the 2021 fiscal year and, thus, shows the impact of the COVID-19 pandemic on the work of tax administrations.

The publication also presents the results of the last three rounds of the International Survey on Revenue Administration (ISORA) that were launched between September 2020 and September 2022. The ISORA survey is a multi-organisation survey to collect information and data on tax administration. It is governed by four partner organisations: the Inter-American Center of Tax Administrations (CIAT), the International Monetary Fund (IMF), the Intra-European Organisation of Tax Administrations (IOTA) and the OECD. The Asian Development Bank (ADB) also participated in those ISORA surveys along with the four partner organisations.

To provide further insight into the ISORA data in certain places, TAS 2023 also uses data from the Inventory of Tax Technology Initiatives (ITTI). ITTI is an online database containing information on technology tools and digitalisation solutions implemented by tax administrations across the globe. It has been developed by the OECD's Forum on Tax Administration together with eight key partner organisations. The ITTI data was also used to prepare a special chapter on the digital transformation journey of tax administrations.

This report was approved by the Committee on Fiscal Affairs on 3 July 2023 and prepared for publication by the OECD Secretariat.

Acknowledgements

The OECD has produced the Tax Administration Series, its comparative information series on tax administration, since 2004. Since that time the publication has grown in terms of its coverage, influence and importance and is now widely recognised as an authoritative source of information on tax administration around the globe.

The 2023 Tax Administration publication presents the results of the third to fifth round of the International Survey on Revenue Administration (ISORA) which were launched in 2020, 2021 and 2022, respectively. It would not have been possible without the direct support and help of a large number of people, particularly the staff in the 58 tax administrations that provided data and jurisdiction examples, reviewed content and responded to feedback and questions on the data and text that form the basis of the publication.

The principal authors of the publication were Paul Marsh and Oliver Petzold both Advisors in the OECD's Forum on Tax Administration (FTA) Secretariat. Management and analysis of the ISORA data was undertaken by Oliver Petzold and Vegard Holmedahl, also an Advisor in the FTA Secretariat. Authoring support was provided by Peter Green, Head of the FTA Secretariat.

Finally, the authors would like to thank the work of the wider team at the OECD Secretariat, in particular Sonia Nicolas and José Puig Pimentel, and the OECD Centre for Tax Policy and Administration's Communications team, in particular Carrie Tyler, Hazel Healy and Karena Garnier.

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Reader's guide

Tax Administrations covered by the report

Tax Administration 2023 is the eleventh edition of the OECD Centre for Tax Policy and Administration's comparative Tax Administration Series (TAS). The primary purpose of the series, which commenced in 2004, is to share information that will facilitate dialogue among tax officials on important tax administration issues, and to identify opportunities to improve the design and administration of their systems.

This edition of the series provides internationally comparative data on various aspects of tax systems and their administration in 58 advanced and emerging economies. It covers 52 jurisdictions that are members of the OECD's Forum on Tax Administration (FTA). In addition, it includes information on the non-FTA jurisdictions that are members of the European Union (i.e. Bulgaria, Croatia, Cyprus, and Malta) as well as Morocco and Thailand (which increases the report's geographical coverage).

ISORA data gathering process and reporting

The publication presents the results of the third to fifth round of the International Survey on Revenue Administration (ISORA) which were launched in September 2020, September 2021 and September 2022, respectively. The ISORA survey is a multi-organisation international survey that collects national-level information and data on tax administration. It is governed by four partner organisations: the Inter-American Center of Tax Administrations (CIAT), the International Monetary Fund (IMF), the Intra-European Organisation of Tax Administrations (IOTA) and the OECD. Since the 2018 ISORA survey round, the Asian Development Bank (ADB) also participates in ISORA along with the four partner organisations.

2020 changes to the ISORA structure and process

Following the completion of the 2018 ISORA survey, the ISORA partners reviewed the data produced by the survey, and engaged with participating administrations to gather feedback on the survey process.

The review showed that some questions suffered from a low response rate, and that the quality of the responses was mixed in some areas. Administrations confirmed that the data was useful for international comparison, for preparation of missions to other jurisdictions and for briefing documents. They did note that the survey process was complex and time consuming, and that it was desirable for the data to be timelier.

Considering this, the ISORA partners agreed that there was a need for a major revision before launching ISORA 2020, in order to reduce burdens on tax administrations in completing the survey and to improve the quality of responses. The survey review determined that responses to many questions would remain unchanged between years, thus opening the opportunity for splitting the ISORA survey into two parts:

1. ***Questions to be asked in an annual ISORA survey***. These questions mainly focus on the operational performance of tax administrations, allowing the annual survey to be significantly

reduced in size and making it easier to complete. This also allows data to be made available more quickly to participating administrations. The 2020, 2021 and 2022 ISORA surveys fall in this category.

2. ***Questions to be asked every four-five years.*** These are mainly questions where responses are less likely to change between survey iterations. A significant number of questions included in the 2016 and 2018 ISORA surveys would fall within this category. Understanding that responses to those questions are more likely to remain stable over a longer period, means they need to be asked less frequently, thus reducing administration's annual burden of completing the survey. The ISORA partners have finalised the work on those supplementary questions, which will be included in the 2023 ISORA survey.

Survey management

The last three iterations of the ISORA survey collected data for fiscal years 2018, 2019, 2020 and 2021. Survey information was gathered online using the IMF's Revenue Administration Fiscal Information Tool (RA-FIT). Participation was voluntary and 165 administrations completed the 2022 ISORA survey. Each partner organisation, and the ADB, supported participants by assisting them with the completion of the ISORA survey, based on an upfront agreed allocation key. The 58 administrations included in this publication corresponds to the group of administrations supported by the OECD.

While all data contained in the publication has been subject to a high-level review by the OECD, neither the OECD nor any other partner organisation formally validated the data. As a result, all data included in the publication should be considered as self-reported by the administrations concerned.

Data available to the public

Historically, the OECD makes all ISORA data for TAS participants publicly available through the TAS and its data annex. Similarly, the ADB publishes jurisdiction-level ISORA data for its members. See, for example, its publication *A Comparative Analysis of Tax Administration in Asia and the Pacific: Sixth Edition* (Asian Development Bank, 2022[1]). The other ISORA partners, do the following:

- IMF publishes in aggregated form. See, for example, the IMF publication *ISORA 2018: Understanding Revenue Administration* (Crandall, Gavin and Masters, 2021[2]); and
- CIAT publishes selected data points. See, for example, the CIAT publication *Innovation, Digitalization and Technology Index (INDITEC): A tool for benchmarking Tax Administrations at the international level (Based on data from ISORA 2020 Survey)* (Díaz de Sarralde Miguez and Morán, 2022[3]).

In addition, starting with the 2020 ISORA survey, all ISORA data is made available to the public on the RA-FIT data portal (https://data.rafit.org/).

Data comparability

TAS 2023 includes performance-related data, ratios and other information for the fiscal years 2018, 2019, 2020 and 2021. The data for the fiscal years 2018 to 2020 data was collected through the 2020 and 2021 ISORA surveys and already included in previous editions of the TAS. However, a number of administrations updated some of their previously supplied data during the process of producing the 2023 edition of the TAS. For that reason, there might be some differences between this and previous editions of the TAS in figures and tables displaying 2018 to 2020 data.

In certain areas, TAS 2023 also uses data from the 2016 and 2018 ISORA rounds to show trends for the period between 2014 and 2021. However, as noted above, the changes in the ISORA process meant that since ISORA 2020, the surveys have been reduced significantly in size when compared to the 2016 and

2018 version. In addition, following the review, a number of changes were made to questions to improve clarity and data quality. Therefore, care needs to be taken when comparing results from the different ISORA versions, and the wording of survey questions compared whenever relevant. The survey questions can be accessed on https://data.rafit.org/ under “Forms and Guides” in the section “Publications/Links”.

As a result of the changes to the ISORA survey, TAS 2023 may not comment on certain data points that were covered in the 2019 edition of the TAS (OECD, 2019[4]). For those data points, the 2019 edition remains the most recent source.

Also, it should be noted that statistical data is often subject to revisions after publication. As a result, some data may not correspond to what has been published by administrations. For example, it may be that opening balances of a specific year (t) may not correspond to closing balances of the preceding year (t-1) that were published in earlier editions of this publication.

Even more care should be taken when comparing ISORA data with data gathered through pre-ISORA surveys, i.e. data included in the sixth and prior editions of the TAS. When the ISORA survey was initially created and at the request of survey participants, the four partner organisations made considerable effort to agree and document a range of words and terms used in the survey and their meaning. While this has improved data integrity and comparability between administrations, comparisons with pre-ISORA data may be limited as definitions may now exist for terms not previously defined, or in some instances, have changed.

Further, in relation to combined tax and customs administrations, it should be noted that the data in this publication refers to the tax administration activities of such administrations. The data may therefore not be directly comparable with key performance indicators published by them as these indicators may include both tax and customs related data.

Data from the Inventory of Tax Technology Initiatives

To complement the ISORA survey data, this edition of the TAS also draws on data from the Inventory of Tax Technology Initiatives (ITTI) which contains information on technology tools and digitalisation solutions implemented by tax administrations globally. ITTI has been put together with the assistance of the ISORA partners, the ADB, the African Tax Administration Forum, the Cercle de Reflexion et d’Echange des Dirigeants des Administrations Fiscale, the Commonwealth Association of Tax Administrators and the Study Group on Asia-Pacific Tax Administration and Research. (OECD, 2023[5])

The inventory data is collected through a global survey on digitalisation, and can offer further insight into the ISORA data in certain places. Therefore, where available, this edition of the TAS uses the ITTI data from 52 out of the 58 tax administrations that are covered in this report and that have completed the global survey on digitalisation.

The ITTI data was also used to prepare the special chapter on the digital transformation journey of tax administrations.

Publication structure

The series examines the fundamental elements of modern tax administration systems and uses data analysis and examples supplied by tax administrations to highlight key trends, recent innovations, and performance measures and indicators.

Structure

The main body of the publication is structured around ten chapters: (i) an introduction followed by chapters on (ii) responsibilities and revenue collections; (iii) registration and identification; (iv) assessment; (v) services; (vi) verification and compliance management; (vii) collection; (viii) disputes; (ix) budget and workforce; and (x) the digital transformation journey.

The publication also contains two annexes:

- Annex A contains the tables with the ISORA 2020, 2021 and 2022 survey responses provided by tax administrations[1] which form the basis of the analysis in this report:
  - The first set of tables contains a number of indicators derived from the data submitted via the ISORA survey (tables starting with "D"). The formulae and data points used for calculating the indicators are shown below each of these tables.
  - The second set of tables contains the raw ISORA 2020 and 2021 survey data. Those are the tables starting with "A".
  - The last two tables holds external data points that were used to calculate some of the D-table indicators. Those tables start with "E".
- Annex B has the details of the administrations that participated in this publication.

Tables and figures

The tables and figures in the publication are all accompanied by hyperlinks (OECD StatLinks) that direct readers to corresponding MS Excel spreadsheets containing the underlying data. These links are stable and will remain unchanged over time.

Typically, the source notes below the figures in the main body of the publication refers readers to the underlying data that is contained in Annex A. In some cases, they may refer to previous editions of the TAS or, where ITTI data is used, to the relevant MS Excel spreadsheets on ITTI.

Symbols and abbreviations that are used in the data tables are explained at the bottom of each table. The reader should note that where no data is shown for a specific jurisdiction in a table this is primarily due to the question not being applicable to a particular jurisdiction, or an opening question to a sub-section of the survey being answered in the negative and, therefore, the jurisdiction did not have to answer the follow-up questions.

Forum on Tax Administration

The FTA is a unique body bringing together tax commissioners from over 50 advanced and emerging economies from across the globe. Readers wishing to find out more about the OECD's work on tax administration should go to www.oecd.org/tax/forum-on-tax-administration/.

Caveat

Tax administrations operate in varied environments, and the way in which they each administer their taxation system differs in respect to their policy and legislative environment and their administrative practice and culture. As such, a standard approach to tax administration may be neither practical nor desirable in a particular instance. Therefore, this report and the observations it makes need to be interpreted with this in mind. Care should be taken when considering a jurisdiction's practices to fully appreciate the complex factors that have shaped a particular approach. Similarly, regard needs to be had to the distinct challenges and priorities each administration is managing.

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Abbreviations and acronyms

ADB	Asian Development Bank
AEAT	Agencia Estatal de Administración Tributaria (Spain)
AEOI	Automatic Exchange of Information
AFIP	Administración Federal de Ingresos Públicos (Argentina)
AI	Artificial Intelligence
AIAA	Algorithmic Impact and Alignment Assessment
APA	Advance Pricing Agreement
API	Application Programming Interface
AT	Autoridade Tributária e Aduaneira (Portugal)
ATO	Australian Taxation Office
AUD	Australian Dollar
BEPS	Base Erosion and Profit Shifting
CFD	Comprobante Fiscal Digital (Digital Fiscal Receipt)
CFDI	Comprobante Fiscal Digital por Internet (Digital Fiscal Receipt by Internet)
CIAT	Inter-American Center of Tax Administrations
CIT	Corporate Income Tax
COTS	Commercial-Off-The-Shelf
CRA	Canada Revenue Agency
CRS	Common Reporting Standard
CS	Customer Satisfaction
CVITP	Community Volunteer Income Tax Program
DDMP	Digital Document Management Program
DFA	Digital Financial Asset
DGFiP	Directorate Générale des Finances Publique (France)
DI	Digital Identity
DPN	Director Penalty Notice
ECP	Enterprise Client Profile

EDS	Electronic Declaration System
eIDAS	Electronic Identification Authentication and Trust Services
EUR	Euro
FATCA	Foreign Account Tax Compliance Act
FRI	Financial Resilience Insights
FTA	Forum on Tax Administration
FTE	Full Time Equivalent
GBP	Great Britain Pound
GDP	Gross Domestic Product
GRS	Georgia Revenue Service
HMRC	Her Majesty's Revenue and Customs (United Kingdom)
HNWI	High Net Wealth Individual
HR	Human Resources
ICAP	International Compliance Assurance Programme
ICT	Information and Communication Technology
IMF	International Monetary Fund
IOTA	Intra-European Organisation of Tax Administrations
IR	Inland Revenue (New Zealand)
IRS	Internal Revenue Service (United States)
IRAS	Inland Revenue Authority of Singapore
IRIN	Inland Revenue Interactive Network
ISORA	International Survey on Revenue Administration
IT	Information Technology
ITA	Israel Tax Authority
ITDN	Intent to Disclose Notice
ITFA	Individual Tax Filling Assistance
ITTI	Inventory of Tax Technology Initiatives
KSeF	Krajowy System e-Faktur (National e-Invoice System)
LTO/P	Large Taxpayer Office/Programme
MAP	Mutual Agreement Procedure
MNE	Multinational Enterprise
MSP	Managed Service Provider
MTD	Making Tax Digital
NDID	National Digital Identity Platform (Thailand)
NTA	National Tax Agency (Japan)

NTA	Netherlands Tax Administration
NTCA	National Tax and Customs Administration (Hungary)
NZD	New Zealand Dollar
OECD	Organisation for Economic Co-operation and Development
PACO	Portal de Asistencia al Contribuyente (Portal for Integral Assistance to Taxpayers)
PAYE	Pay-As-You-Earn
PIT	Personal Income Tax
PMP	Platform for the Elderly and Pensioners
RA-FIT	Revenue Administration Fiscal Information Tool
RCT	Randomised Controlled Trials
RFB	Receita Federal do Brasil
RPA	Robotic Process Automation
RTR	Real-Time Risk
SAT	Servicio de Administración Tributaria (Mexico)
SEK	Swedish krona
SII	Servicio de Impuestos Internos (Chile)
SIG	Secure Internet Gateway
SME	Small and Medium-sized Enterprise
SMS	Short Message Service
SOC	Security Operation Centre
SRS	State Revenue Service (Latvia)
SSC	Social Security Contribution
SSTTP	Self-Serve Time to Pay
STA	State Taxation Administration (People’s Republic of China)
STA	Swedish Tax Administration
STI	State Tax Inspectorate (Lithuania)
TAS	Tax Administration Series
TIWB-CI	Tax Inspectors Without Borders for Criminal Investigation
TFTC	Task Force on Tax Crimes and Other Crimes
TRD	Thailand Revenue Department
UK	United Kingdom
UNDP	United Nations Development Programme
US	United States
VAT	Value Added Tax
WHT	Withholding Tax

Executive summary

This 2023 edition of the OECD's Tax Administration Series (TAS 2023) continues to highlight the scale and complexity of tax administration. Figure 0.1 shows that together the tax administrations participating in TAS 2023 collect net revenues of EUR 13.4 trillion and employ around 1.7 million staff. They deal with the tax affairs of more than 900 million personal income tax and corporate taxpayers who together contact tax administrations in excess of 450 million times via telephone, in-person, e-mail or paper and generate more than 2.3 billion contacts through online channels. That tax administrations do this on a combined operating budget amounting to around EUR 95 billion, equivalent to 0.7% of total revenues collected, reflects their efficiency and effectiveness.

Table 0.1. Key figures related to the tax administrations covered in this publication

Staff employed	1 720 000
Audits/verifications	17 700 000
In-person enquiries	52 500 000
Telephone calls received	368 000 000
Number of active PIT and CIT taxpayers	912 000 000
Number of tax returns (PIT, CIT and VAT) received	1 450 000 000
Contacts via online taxpayer account	2 320 000 000
Operational budget (in EUR)	94 900 000 000
Collectable arrears at year-end (in EUR)	714 000 000 000
Total arrears at year-end (in EUR)	2 460 000 000 000
Net revenue collected (in EUR)	13 400 000 000 000

Note: The figures are based on data obtained through the 2022 ISORA survey. The data has been converted to EUR using the exchange rate of 31 March 2023. They are minimum figures as not all administrations were able to provide information for all data points. Figures relate to the fiscal year 2021.

A constant theme through previous editions of this series, as well as this edition, has been how tax administrations have increased and maintained their efficiency and effectiveness by looking at the opportunities to take more proactive approaches to influencing taxpayer compliance. This has frequently been driven through the increased use of technology, responding to the evolving expectations and needs of taxpayers. For example, tax administrations were rapid adopters of e-administration, enabling the online filing of tax returns as well as online payments and the full or partial prefilling of tax returns. These are now commonplace with more than 85% of individuals and 95% of businesses filing their returns electronically. As Figure 0.1 shows, digital contact channels dominate interactions with taxpayers and the number of administrations using or developing mobile applications continues to grow as illustrated in the examples in Chapter 5.

During the COVID-19 pandemic, tax administration's abilities to use technology to manage connections to citizens and businesses, their long experience of operating at scale and skills in handling extensive data sets led many governments to turn towards tax administrations to assist in the provision of wider government support measures. The pandemic also led to rapid changes in operating models, accelerating many new practices and developments, which has created lasting benefits for administrations and taxpayers. It is important to remember, though, that the primary purpose of a tax administration is to generate the revenue needed to fund public services. Previous editions of this series, have also noted the revenue impacts of the COVID-19 pandemic, and it is a sign of the resilience and adaptability of tax administrations that these impacts were temporary. For example, following the significant increase of the total year-end arrears to net revenue ratio in 2020 – the first year of the pandemic – this ratio decreased between 2020 and 2021 in almost 70% of the jurisdictions covered in this report.

With the participation of 58 jurisdictions that together account for around 90% of global GDP, TAS 2023 provides a comprehensive overview of the state of tax administration in 2021 in three ways. Firstly, comparative information covering a range of tax administration performance indicators and data is set out in 135 tables based on the information provided through the International Survey of Revenue Administrations (ISORA). Secondly, this edition draws on data from the Inventory of Tax Technology Initiatives (ITTI) (OECD et al., 2023[1]) which contains information on technology tools and digitalisation solutions implemented by tax administrations globally. Thirdly, it contains more than 100 examples of innovations and leading practices received from 34 tax administrations. Combined, these data sources and examples highlight the wide range of issues that tax administrations are dealing with, and can help assist tax administrations in their consideration of where further improvements might be made, as well enhancing wider public understanding of the changing nature of global tax administration.

Tax Administration 3.0

As the sophisticated use of technology grows, tax administrations are now investigating how their operating models can be digitally transformed, often using the learnings from the pandemic, in order to further build-in compliance and reduce burdens. This digital transformation is described in the OECD's Tax Administration 3.0 vision (OECD, 2020[2]), and many tax administrations are now taking the concepts and ideas of Tax Administration 3.0 and are using them to drive their digital transformation strategies.

The Tax Administration 3.0 vision identifies a series of core building blocks that are at the critical components of digital transformation. Using a combination of data and examples, TAS 2023 explores the significant progress that has been made against those building blocks as well as some of the challenges. Despite the challenges of digital transformation, the benefits to taxpayer compliance and reducing taxpayer burdens are significant, and this report highlights the significant progress that tax administrations have made to deliver these benefits.

Supporting taxpayer compliance

Creating positive attitudes to compliance, by making it as easy and as seamless as possible to meet tax obligations, are central to a tax administration's task of raising vital public funds. Among the initiatives being taken by tax administrations are:

- **Creating a 24/7 tax administration**: Tax administrations are continually looking to improve their reactive processes, be they online, in-person or by telephone, to make it easier for taxpayers to contact the tax administration. For example, more than 60% of administrations offer virtual or digital assistants to help respond to taxpayer enquiries and support self-service, a change of almost 30 percentage points compared to 2018. In turn, this helps taxpayers understand their obligations and how to meet them. This is increasingly being supplemented by proactive outreach through education campaigns, including through the use of a wide range of social media.

- **Leveraging digital identity and verification**: As tax administrations deliver more of their services digitally, the importance of digital verification and digital identity is growing. Tax administrations are leveraging their expertise and data sets to not only give taxpayers access to tax administration services, but also wider government systems.
- **Decentralising tax administration services**: Embedding services and processes in the natural systems used by taxpayers in their daily lives and businesses is a growing trend among tax administrations. While this helps to improve tax compliance, it also reduces administrative burdens and frees up taxpayers' time for other activities, including growing their businesses. As these forms of collaboration become more common and sophisticated, tax administrations are starting to take strategic approaches to managing and providing support to service providers, including allowing access to tax administration internal systems through application programming interfaces (APIs).

Reducing taxpayer burdens

Compliance-by-design approaches have been in place for many years for salaried personal income taxpayers through pay-as-you-earn withholding and reporting by employers, often built into payroll software. These systemic arrangements, adopted by almost all tax administrations, have helped maximise compliance for this significant part of the tax base. The increasing availability and sharing of data is now allowing such approaches to expand to cover other sources of income and other classes of taxpayers, including through the prefilling of corporate income tax and value-added tax returns in some cases.

Digital techniques are also allowing tax administrations to take a more preventative approach to risk management. By seeking to intervene at earlier stages in taxpayer processes, they can prevent non-compliance happening rather than having to uncover it after tax returns have been filed. This can be seen in:

- **The sophisticated use and manipulation of data**: This has fuelled a significant increase in the use of analytics tools and techniques to improve risk management and help design-in compliance. Close to 95% of tax administrations report using data science and analytical tools to manipulate electronic data from third parties, including other tax administrations, as well as internally generated electronic data to guide their compliance work. This is an increase of more than 20 percentage points compared to 2018.
- **Harnessing leading-edge technologies**: More than 80% of tax administrations report that they are using or that they are in the implementation phase for the future use of leading-edge techniques to exploit data in ways that reduces the need for human intervention. Although still at an early stage in general, artificial intelligence and machine learning are already creating efficiencies, freeing up resources to be deployed into other areas.
- **More personalised interactions**: The power of data analysis is allowing tax administrations to create more tailored approaches to their interactions with taxpayers. This may be through one-to-many channels or for managing specific groups of taxpayers such as large business taxpayers, or High Net Wealth Individuals (HNWIs). Examples provided by tax administrations now show increasing segmentation in other areas, helping to guide more focused compliance and service actions and interventions, including at the individual level.

Tax administration resources

The transformation of operating models requires consistent and long-term funding. The task of delivering digital transformation is made more challenging by budgetary constraints which continue to impact tax administrations. While most of the administrations report increasing operational expenditures in absolute terms, this may not show the whole picture as many administrations are dealing with increased responsibilities, the pressures of technology change and the changing structure of their workforce. Further,

a significant part of the budgets is needed for salary costs, accounting for on average 73% of operating expenditures annually. There is also significant variation in the amount of operational and capital expenditure on information and communication technology. While this may often be due to different sourcing and business approaches, it also raises the question as to whether expenditure levels in some cases may be somewhat low to support the demands for more sophisticated services and the ongoing digital transformation.

An additional challenge reported by tax administrations is the need to prepare existing staff for the challenges ahead as well as seeking to recruit highly skilled staff in a very competitive job market, something which has led to a number of innovations in staff recruitment and staff training.

International cooperation

Whilst much progress has been made domestically, this report demonstrates that international co-operation and the sharing of knowledge between tax administrations has never been more important as jurisdictions undergo significant changes and as the digitalisation of the economy increasingly transcends national borders.

Tax administrations have a long tradition of working together; for example, in effectively implementing key OECD/G20 agreements such as the BEPS actions and the Common Reporting Standard as well as in the development of the OECD's multilateral International Compliance Assurance Programme, where taxpayers and tax administrations work co-operatively and multilaterally in close to real-time to undertake risk assessment and assurance of key international tax risks.

This track record of effective collaboration will continue to be essential as tax administrations both share knowledge to accelerate their individual journeys, and also meet the challenges of cross border economic activity. This spirit of co-operation will also be essential as tax administrations ensure the effective implementation of new initiatives such as the 'Two-Pillar Solution to Address the Tax Challenges Arising from the Digitalisation of the Economy' (OECD, 2021[3]).

References

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OECD (2020), *Tax Administration 3.0: The Digital Transformation of Tax Administration*, OECD, Paris, https://www.oecd.org/tax/forum-on-tax-administration/publications-and-products/tax-administration-3-0-the-digital-transformation-of-tax-administration.htm (accessed on 22 May 2023). [2]

OECD et al. (2023), *Inventory of Tax Technology Initiatives*, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/ (accessed on 22 May 2023). [1]

Note

[1] For Japan, given that it publishes its currency figures in millions the currency figures included in tables have had added a suffix of “000” in order to fit the survey requirements that currency figures needed to be provided in thousands.

1 Introduction

This chapter provides an overview of the content of the 2023 edition of the OECD's Tax Administration Series.

Over numerous editions, a recurring theme of the OECD's Tax Administration Series (TAS) has been the way tax administrations have evolved to respond to the relentlessly changing environment in which they operate. This 2023 edition is no different, and provides further insight into how tax administrations are:

- Adapting new working practices introduced during the pandemic for the post pandemic world;
- Investing in their staff as part of their wider drive to digital transformation;
- Transforming their operating models to deliver new services;
- Becoming more collaborative and integrated with wider government;
- Exploiting the opportunities that enhanced data sets bring to provide new services to taxpayers and address compliance issues; and
- Using advanced technology to drive efficiencies and improve taxpayer compliance.

The resilience and adaptability of tax administrations that allows them to adapt successfully to these changes have been facilitated and enabled by the wider technological changes taking place across the economy, including the expansion of social media, mobile platforms, cloud computing, big data technologies and advanced analytics techniques. These technologies helped tax administrations respond effectively to the COVID-19 pandemic, and are expected to have an ongoing impact on the operating models of tax administrations.

These impacts can be characterised by a more system-wide compliance management approach in which tax administrations try to closely engage with the evolving natural systems that taxpayers use to manage their business, undertake transactions and communicate in order to reduce errors, minimise burdens and increasingly build-in tax compliance.

This is starting to be reflected in the data collected through the 2022 version of the International Survey on Revenue Administration (ISORA). In particular, many tax administrations are making greater use of machine learning and artificial intelligence to deliver new services to taxpayers and 'embed' tax administration processes, traditionally carried out within the tax administration's own systems, into the services that third parties, such as software suppliers, provide to taxpayers. Partnerships and collaborations in this way can allow tax compliance to be increasingly moved upstream, closer to taxable transactions, helping to build in compliance and reduce burdens.

Alongside the ISORA survey, the tax administrations covered in the TAS were also invited to provide examples of innovative practices that they are undertaking to help achieve their objectives. They have provided a rich source of over 100 examples, covering a wide range of topics. While these examples do not form a basis for comparison across tax administrations in the same way as the ISORA data points can, they do add more colour to the data, and tell a forward-looking story of the strategic direction of travel of tax administration.

Furthermore, this edition of the TAS also uses information from the Inventory of Tax Technology Initiatives (ITTI) (OECD et al., 2023[1]). ITTI collects data on the digital transformation and digitalisation work of tax administrations from across the globe, and this rich source of data can provide further insight into the developments taking place in tax administration, facilitating mutual learning and collaboration.

Something that does remain constant however is the core objective of a tax administration, namely the timely and accurate collection of tax revenues to fund public services. ***Chapter 2*** explores this topic in more detail, and provides statistics on the range and value of taxes that administrations are responsible for.

Central to achieving this objective is the work of tax administrations to ensure that all relevant taxpayers are registered and can be identified, as necessary, both quickly and securely. ***Chapter 3*** sets out the work of tax administrations in this field, and tax administrations are increasingly involved in whole of government plans on digital identity.

Chapter 4 looks at the tax assessment function, which includes all activities related to processing tax returns and payments. This chapter examines the use of e-channels for filing and paying, and outlines administrations' efforts to provide pre-filled returns, and the levels of on-time return filing and payment.

Chapter 5 highlights how tax administrations are using sophisticated technological approaches to encourage 'self-service' by taxpayers. This is part of a more fundamental change whereby tax administration becomes a seamless process, with non-compliance and administrative burdens increasingly "designed out". ***Chapter 6*** explores this further and picks out how compliance approaches are changing, with the use of data and new technology tools to identify and take targeted enforcement action against those who fail to meet their obligations.

Chapter 7 explores how tax administrations manage the collection of outstanding debt, and examines the features of a modern tax debt collection function. These functions are essential to maintaining high levels of voluntary compliance and citizens' confidence in the overall tax system. This chapter also provides examples of approaches applied by administrations to minimise or even prevent debt being incurred.

However, inevitably, disputes between taxpayers and tax administrations do arise, and ***Chapter 8*** considers those processes that safeguard taxpayer rights and ensure appropriate checks and balances exist on the exercising of tax powers by administrations.

Underpinning all of this work are the resources that are available to tax administrations. ***Chapter 9*** provides information on the resources that tax administrations have at their disposal, and picks out a number of trends that can be observed in the data over time.

Finally, ***Chapter 10*** of this edition of the TAS contains a special feature which explores the trends in digital transformation journeys that are being undertaken by tax administrations.

References

OECD et al. (2023), *Inventory of Tax Technology Initiatives*, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/ (accessed on 22 May 2023). [1]

2 Responsibilities and collection

This chapter looks at the performance of tax administrations in their primary role of collecting taxes. It provides information on the aggregate net tax revenues collected as well as other key figures related to the activities of the administrations covered in this publication.

Introduction

The primary purpose of a tax administration is the collection of tax revenue to fund public services, but over time, as previous editions of this series have highlighted, many tax administrations have also been tasked with other responsibilities. This chapter provides an overview of the net tax revenues collected as well as some other key figures related to tax administration performance, and looks at the wider role tax administrations are playing in driving change across the whole of government.

Learning from working practices during the COVID-19 pandemic

Confidence in the proven ability of tax administrations to deliver complex administrative processes on a large scale was undoubtedly a key driver behind many governments giving their tax administrations additional responsibilities during the COVID-19 pandemic. Chapter 2 of *Tax Administration 2021* (OECD, 2021[1]) has a more detailed overview of the wider roles that tax administrations took on during the pandemic.

With many jurisdictions now considering the post-pandemic environment, they are reflecting and learning on the ways of working that were needed to deliver the rapid taxpayer support schemes that governments tasked them with. Many report that the pandemic working practices they adopted are now being used in business-as-usual practices, leading to longer-term shifts in the way they manage their business.

Box 2.1. Belgium – REACH-OUT campaign

Before the pandemic, on an annual basis nearly 200 000 tax debtors asked for a face-to-face meeting to discuss tax payment matters. With offices closing to the public during the pandemic, the tax authority needed to come up with a solution for these taxpayers that previously needed assistance.

The Belgian Tax Collection and Debt Recovery Administration, in charge of collecting and recovering Direct Taxes, VAT and a range of non-fiscal claims, launched a new initiative called REACH-OUT in spring 2020 to target a specific group by telephone to offer assistance and solve tax payment issues. The target group consisted of taxpayers with a history of late tax payment or having a low revenue.

A medium-sized outbound call centre was created to provide services to taxpayers during financially difficult moments, by gently reminding them of an upcoming personal income tax payment or offering the possibility of instalment arrangements and this in the period between 10 days before and 10 days after the due date of their annual personal income tax.

This initiative was very well received by the public and there was much appreciation for this pro-active and empathic service of the Belgian tax authority. On the taxpayers' side, it contributed to both a higher level of trust in the tax authority and a higher payment rate in the target group. Compared to a control group, there was an increase of 31% in resolved cases, leading to a reduced workload for the contact centre and recovery teams by intervening early in the collection process. After a positive evaluation, this pilot project was extended and is now used for other purposes, for example, during the need to support citizens with their energy costs.

Source: Belgium (2023).

Revenue collections recover from the impact of COVID-19

The information from the survey analysed for this chapter is showing how revenue collections recover from the impacts of the COVID-19 pandemic. Following declining revenue collections between 2019 and 2020 across a large majority of jurisdictions, revenue collections have increased between 2020 and 2021 in almost all jurisdictions covered in this edition (see Table 2.1.).

The data also shows that this increase in revenue collections is quite significant (+17.2% on average, see Table 2.1.), hinting at a substantial recovery of economic activity following the COVID-19 related lockdown measures introduced by many governments and the forced closure of many businesses which negatively affected their taxable income and sales.

Table 2.1. Change in total net revenue collections between 2018 and 2021

Change in total net revenue collections	Between 2018 and 2019	Between 2019 and 2020	Between 2020 and 2021
Increase (percent of administrations)	96	23	95
Decrease (percent of administrations)	4	77	5
Average change in percent	+6.2	-3.8	+17.2

Source: Table A.5.

Responsibilities of tax administrations

With few exceptions, jurisdictions have unified the collection of direct and (most) indirect taxes within a single body for tax administration. More detail on institutional arrangements can be found in Chapter 4.2.1. in the 2019 edition of the Tax Administration Series (TAS). (OECD, 2019[2])

Table 2.2. summarises for which revenue types the tax administrations participating in this publication have responsibility. In addition, as found in previous editions of the TAS (for example, Chapter 2.2. in TAS 2019), governments have given tax administrations other areas of responsibility (including shared responsibility in some areas) in addition to their traditional tax roles.

Typically, these may be to provide financial benefits to taxpayers (for example, welfare-type benefits) or to collect loans or debts owing to government (for example, student loans or child support). In other situations, the role/function is less directly related to the tax system, for example oversight of certain gambling activities or population registries. (OECD, 2019[2])

Table 2.2. Revenue types for which the tax administration has responsibility, 2021

Percent of administrations that have responsibility for the following revenue types

Personal income tax	Corporate income tax	Value added tax	Excises - domestic	Motor vehicle taxes	Real property taxes	Wealth taxes	Estate, inheritance, gift and other taxes	Other taxes on good and services	Social security contributions	Customs
98	100	95	62	48	47	24	48	55	40	50

Sources: Tables A.1. to A.4.

Box 2.2. New Zealand – Cost of Living payments

Inland Revenue (IR) provided three payments totalling NZD 350, spread over August, September and October 2022, to an estimated 1.7 million low-and-middle income-earning New Zealanders to help with the rising cost of living. IR used its digital and analytical capabilities to rapidly design and deliver the payments, taking three months from design to executing the first payment. One of the design parameters was that customers would not be required to apply for the payments.

A key for IR was understanding the information it held to determine customers' eligibility, such as their eligibility for other payments or tax residency status. Over the course of the three payments, IR collaborated extensively, incrementally increasing its use of data matching to determine the eligibility of people who received the payments.

IR also worked with the New Zealand Government's banking partner to ensure the large number of eligible customers would receive payments on or close to the payment date. This was the first time that the organisation had released up to 1.6 million disbursements in one go, which meant IR needed to change how and when payment information was transferred electronically between agencies. This resulted in all customers being paid on the payment day, and provided them with certainty of payment as advised by the Government. Another result is that IR and other organisations now have the infrastructure and precedence of process in place to deliver large scale payments to customers.

Source: New Zealand (2023).

Revenue collections

This section looks at the net revenue collection of tax administrations as well as a number of other key figures related to their activities.

Net collections by tax administrations averages 21% of jurisdiction GDP

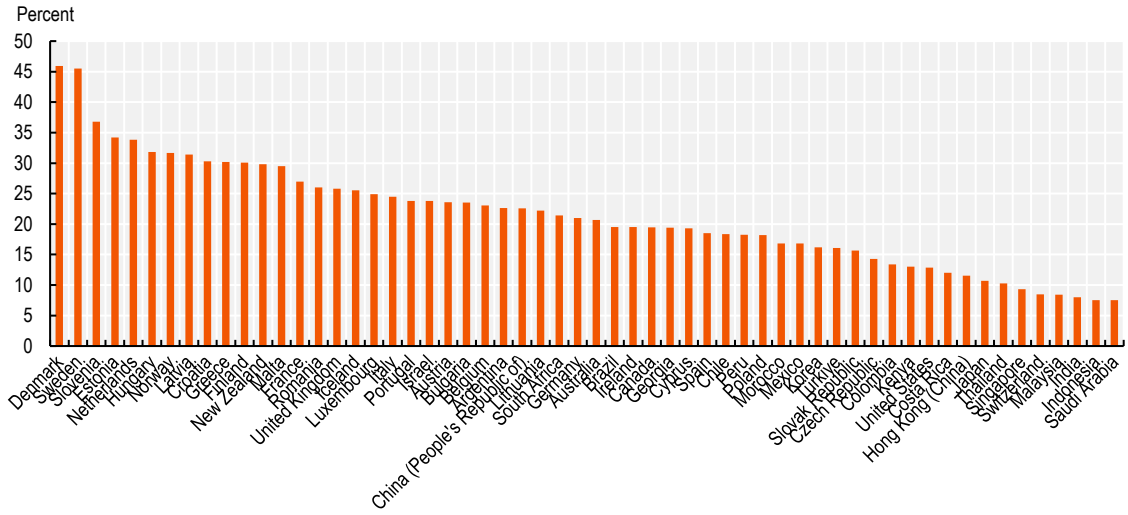
Through its Global Revenue Statistics Database (OECD, 2023[3]) the OECD generally seeks to publish internationally comparable data on the tax revenues of its members as well as a number of other jurisdictions for all levels of government. As the information contained in the Global Revenue Statistics Database reports data at a jurisdiction and not an administration level, tax administrations were asked in the ISORA survey to provide a range of information on their revenue collection activity. This information aptly demonstrates the importance of ISORA participating tax administrations to the respective economies.

Net revenue collected by tax administrations participating in this report, as a percentage of gross domestic product (GDP) in 2021 ranges from less than 10% to reach more than 40% in the case of Denmark and Sweden. Average net revenue collected by administrations in this report is 21% of GDP (see Figure 2.1.).

Net collections by tax administrations averages 61% total jurisdiction revenue

Forty tax administrations report net revenue collections exceeding more than 50% of total government revenue in 2021, making tax administrations the principle government revenue collection agency in more than two-thirds of jurisdictions covered in this report. Average net revenue collected by administrations in this report is 61% of total jurisdiction revenue (see Figure 2.2.)

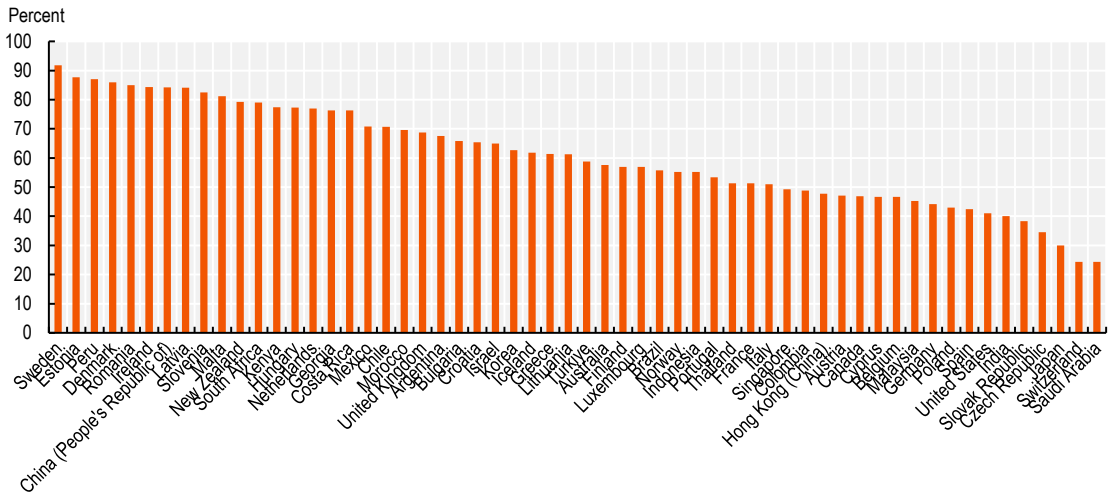
Figure 2.1. Net revenue collected as a percent of gross domestic product, 2021



Source: Table D.1.

StatLink https://stat.link/cg4dti

Figure 2.2. Net revenue collected as a percent of total government revenue, 2021

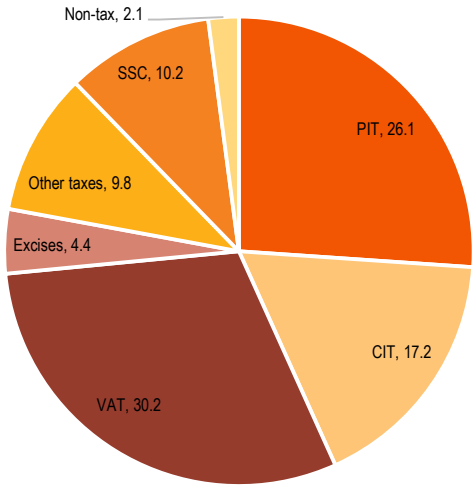


Source: Table D.1.

StatLink https://stat.link/htmfb2

Value added tax and personal income tax account for 30% and 26% of net revenue collections, respectively, and are the two major tax types collected by around 40% of the tax administrations covered in this report. Corporate Income Tax (17%) and social security contributions (10%) comprise the other major revenue types as reflected in Figure 2.3. In many jurisdictions, social security contributions are not collected by tax administrations and are therefore underrepresented when looking at average net revenue collections for all jurisdictions covered in this publication. Where collected, they are often the predominant source of tax revenue collected by the tax administration (see Table D.4.).

Figure 2.3. Average net revenue collections (in percent) by major revenue type, 2021



Sources: Tables D.2. to D.4.

StatLink https://stat.link/0bmziv

Given the importance of these major taxes to overall collection rates, tax administrations are investing in new and innovative approaches to promote tax compliance and streamlining tax collections. As well as establishing new teams to focus on tackling non-compliance, they are also:

- developing new taxpayer education initiatives (such as the innovative approaches from Brazil, Finland and India highlighted in Box 2.3.);
- digitally transforming collection approaches (the example from Singapore in Box 2.3. illustrates how this can reshape services);
- finding ways to reduce burdens for taxpayers; and
- using sophisticated analytics to identify and prevent non-compliance.

These are frequent themes throughout this edition of the series, and they are covered in more detail in later chapters.

Box 2.3. Examples – Supporting collection

Brazil – Fiscal Citizenship as part of university programmes

The *Receita Federal do Brasil* (RFB) has included fiscal citizenship as an integral part of the programme of mandatory activities for student training in educational institutions. This is helping build understanding of the importance of Fiscal Citizenship and the RFB Fiscal Citizenship programmes.

This is done by including RFB modules as an extension course of the Accounting Sciences courses where the RFB already has a partnership with the Accounting and Tax Support Nucleus (NAF) with about 520 educational institutions. As part of these partnerships, students offer free assistance on tax matters to citizens and micro-entrepreneurs who cannot afford it, which helps improve tax compliance in the wider society.

See Annex 2.A for supporting material.

Chile – Tax regulations implementation team

The Tax Regulations Implementation Team is part of the Audit and Compliance Directorate of the *Servicio de Impuestos Internos* (SII), and helps implement changes related to new or modified laws that have a fiscal impact within SII, and external organisations.

The team's main function is to identify early on the impacts of law changes that will affect both SII and taxpayers. Following this the team manages the implementation of the relevant measures, often using innovation and new technologies, so that systems, officials and taxpayers comply with the new regulations.

The team is made up of officials who are specialised in specific tax matters, and have experience in tax audits and training in tax. To deliver their objectives, the team is empowered to act autonomously and be pro-active in its work.

See Annex 2.A for supporting material.

Finland – Happy Taxpayer concept

Happy Taxpayer is a new kind of communication concept using social media, influencers, and creative videos to showcase the services and perks that people living in Finland are entitled to thanks to tax revenues.

The aim of the project is to cultivate a positive attitude towards paying taxes and to reduce the shadow economy. By emphasising that taxes provide the building blocks of a fair and sustainable society, it demonstrates that all parties are working together to make Finland a good place to live and work in.

Happy Taxpayer was created as part of the tax administration's three-year project relating to the Government's action programme to combat the shadow economy. The idea for the campaign was sparked by the results of a survey that was commissioned by the tax administration. The survey showed that the 18 to 29 year olds who felt that they were adequately informed of the use of tax revenues and who felt that they benefited from taxes had a more positive attitude towards paying taxes.

See Annex 2.A for supporting material.

India – Educating taxpayers of the future

Whereas taxpayer outreach towards school going children and young adults has always been a part of the Indian tax administrations' outreach strategy, a new government-wide initiative celebrating the 75th anniversary of India's independence, provided a platform for truly revolutionising the tax administrations' communication strategy to the taxpayers of the future. As a part of this campaign, the tax administration launched board games, a 3-D Puzzle, comic books, an animated video series and an Android Game, all aimed at enhancing the tax literacy of the future taxpayers of the country.

For more detail on the board games, 3-D Puzzle and the comic books, see Annex 2.A.

Romania – Taxpayer education project

Increasing voluntary tax compliance is one of the main objectives of the Romanian tax administration, and supporting taxpayers' willingness to pay taxes must take into consideration various factors such as trust in the tax authority, social and moral values, and personal experience.

The Romanian tax agency conducted a project dedicated to individuals who earn or intend to earn income from tutoring/private lessons, and personalised notifications were sent, using messages designed to stimulate voluntary compliance. The target groups were selected from two counties, and the scope of the project was to observe taxpayer behaviour in different regions and to analyse the effects of the nudging techniques. The project was sustained by a communication campaign in order to

increase taxpayer's awareness about voluntary compliance. The result of the campaign was an increase in in fiscal registration for these category of taxpayers.

The lessons learned from this project include that the behaviour of the same category of taxpayers in different regions is different, meaning understanding of the target groups is a must and key messages must be adapted. Also just sending letters/notifications is not enough and communication campaigns must support all other actions. To track success data must be collected from internal and external sources and at a national level not only from the target group. Through continuous analysis the impact of nudge techniques influences across the same category of taxpayers can be considered at a national level.

Singapore – Digital transformation of enforcement processes

As part of its digital transformation, the Inland Revenue Authority of Singapore (IRAS) consolidated its frontline operations across several tax types for greater effectiveness, and further differentiated its approach in managing voluntarily compliant taxpayers (including those who could be compliant with assistance) and recalcitrant offenders.

Under Frontline 2.0, with the increased use of chatbots and other self-service tools, frontline officers have more bandwidth to take on a wider range of issues across multiple tax types. Work was redesigned such that staff specialising in a single tax type previously would now handle general queries across different tax types and service channels, as well as assist taxpayers who filed or paid their taxes late to nudge them towards compliance. Technology-related roles were also created or expanded, such as training of chatbots, experimenting with and scaling-up of automation initiatives, developing digital self-help solutions, etc.

Enforcement 2.0 complemented these efforts by focusing on recalcitrant taxpayers and handling them on an entity basis to deal with all tax compliance matters holistically across different tax types. To achieve this, the Integrated Enforcement Frontline was formed to handle recalcitrant taxpayers across different tax types and contact channels. Additionally, a Delinquent Taxpayer Taskforce to build deeper expertise in handling high risk and complex cases was successfully piloted and implemented. Using automation and analytics also allowed IRAS to take swift and effective tax recovery actions. For instance, an Entity Risk Profile model was developed to provide more precise assessments of filing and payment risks, and its predictive capabilities enabled more targeted actions to improve recovery outcomes.

As a result of these cross-training initiatives on multiple tax types and modes of contact, IRAS successfully developed a pool of future-skilled officers.

Sources: Brazil (2023), Chile (2023), Finland (2023), India (2023), Romania (2023) and Singapore (2023).

Streamlining collections: Withholding at source

Withholding regimes can form part of compliance-by-design approaches which support overall compliance while significantly reducing burdens for large numbers of taxpayers depending on the extent of taxpayer involvement in any post-payment adjustments that might be needed (i.e. where withholding results in under-payment or over-payment of tax). In place of self-reporting and paying, withholding taxes are taxes paid directly to the tax administration, usually by a principal who pays the net income to the recipient (for example withholding by an employer on salary paid to an employee), or by an intermediary between the payer and customer. The most common withholding tax in operation globally is income tax on employment income (so called Pay-As-You-Earn (PAYE) approaches). Other examples include withholding taxes on interest, dividends or royalties. Depending on the underlying tax regime and nature of the payments,

withholding can vary from a simple system, at a universal set rate, to a more complex system that is responsive to the customer's wider circumstances.[1]

In addition to minimising burdens, withholding regimes can also reduce misreporting and underpayment as principals or intermediaries responsible for forwarding taxes to the administration have no right over the respective amounts. Of course, there remains scope for failures in such approaches by misapplication of rules or errors by principals or intermediaries where the system relies on them providing information. However, increased automation, greater cross-checking of data and whole of government approaches have the potential to reduce such issues.

To understand the importance of withholding at source for personal income taxes, the survey underlying this publication asked participating administrations to estimate the percentage of total personal income tax withheld by third parties and subsequently paid to the administration. Administrations that were able to provide this information estimate that around 80% of total personal income tax collections were withheld at source in 2021 (see Table 2.3.).

Table 2.3. Average percentage of personal income tax withholding between 2018 and 2021

2018	2019	2020	2021	Difference in percentage points between 2018 and 2021
79.1	78.9	81.7	81.2	+2.6

Note: The table shows the average percentage of personal income tax withholding for 43 jurisdictions that were able to provide the information for the years 2018 to 2021.
Source: Table D.32.

Note

[1] For further information on the withholding regimes put in place in jurisdictions, please see *Tax Administration 2019* (OECD, 2019[2]), Tables A.73. and A.74.

References

OECD (2023), *Global Revenue Statistics Database*, https://www.oecd.org/tax/tax-policy/global-revenue-statistics-database.htm (accessed on 22 May 2023). [3]

OECD (2021), *Tax Administration 2021: Comparative Information on OECD and other Advanced and Emerging Economies*, OECD Publishing, Paris, https://doi.org/10.1787/cef472b9-en. [1]

OECD (2019), *Tax Administration 2019: Comparative Information on OECD and other Advanced and Emerging Economies*, OECD Publishing, Paris, https://dx.doi.org/10.1787/74d162b6-en. [2]

Annex 2.A. Links to supporting material (accessed on 26 May 2023)

- Box 2.3. – Brazil: Link to a presentation on the fiscal citizenship course: https://www.oecd.org/tax/forum-on-tax-administration/database/b.2.3-brazil-fiscal-citizenship-course.pdf
- Box 2.3. – Chile: Link to an overview slide on the Tax Regulations Implementation Team: https://www.oecd.org/tax/forum-on-tax-administration/database/b.2.3-chile-regulations-implementation-team.pdf
- Box 2.3. – Finland: Link to a website with more detail on the Happy Taxpayer concept: https://happytaxpayer.com/
- Box 2.3. – India: Link to more detail on the educating taxpayers of the future campaign: https://www.oecd.org/tax/forum-on-tax-administration/database/b.2.3-india-educating-taxpayers-of-the-future.pdf

3 Registration and identification

Taxpayer registration and identification is critical for the effective operation of a tax system. This chapter comments on some of the significant characteristics of those processes.

Introduction

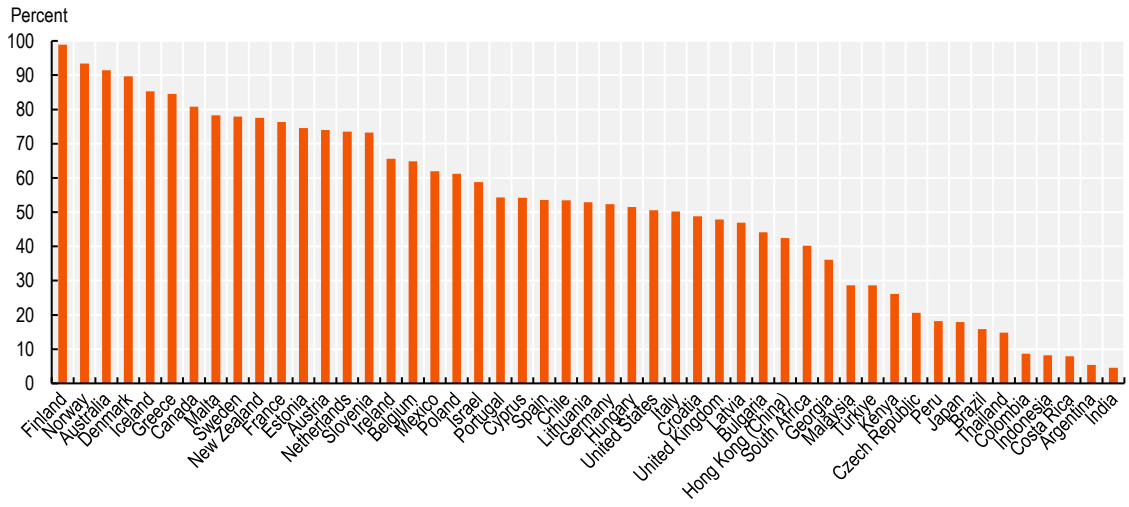
A comprehensive system of taxpayer registration and identification is at the foundation of an effective tax system. It is the basis for supporting a range of tax administration activities such as self-assessment, value-added tax and withholding tax regimes, as well as third party reporting and matching. This chapter comments on several issues of significance in taxpayer registration and identification, including levels of registration, registration channels and identity management, and how the digital transformation affects these services.

Levels of registration

The fundamental importance of an effective tax registration system cannot be overstated. These processes need to both manage those taxpayers that are "part of the system" and to help identify those yet to register. Furthermore, they need to be able to monitor and determine actions and interventions to establish any liability to tax for both individuals and corporate bodies, even in systems where filing is not mandatory.

Figure 3.1. provides information on the rate of registered personal taxpayers as a percentage of the total population. This shows a wide range of registration rates, often reflecting the level of integration the tax administration has with other parts of government.

Figure 3.1. Registration of active personal income taxpayers as percentage of population, 2021



Source: Table D.18.

StatLink https://stat.link/dov9gp

Registration channels

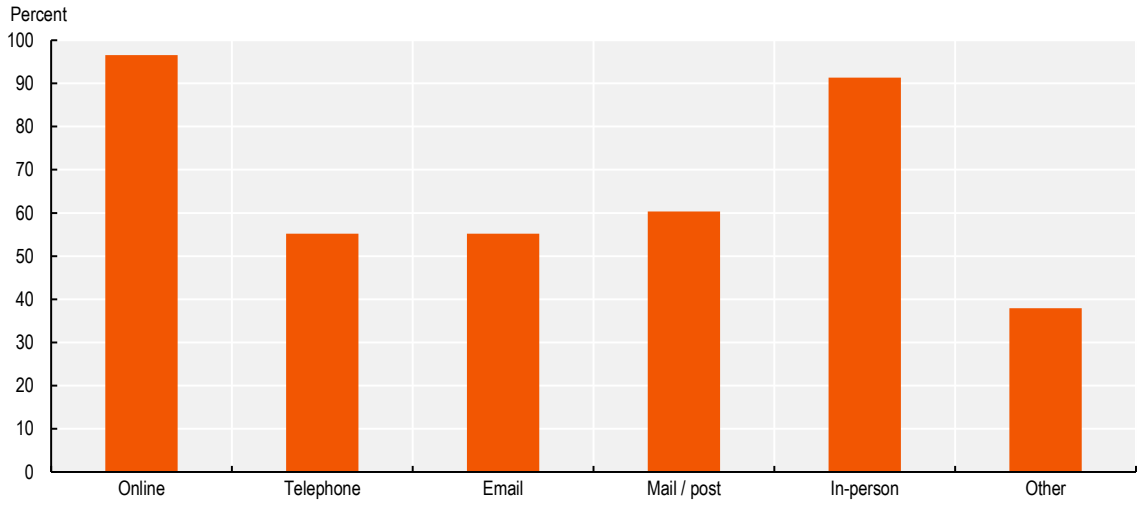
While the majority of administrations are solely responsible for the system of registration for tax purposes within their jurisdictions, previous editions of this series have shown that in many jurisdictions the registration processes can also be initiated outside of the tax administration through other government agencies (OECD, 2019[1]).

In looking at how taxpayers can register, almost all administrations reported they provide more than one channel for taxpayers to use and 97% report that it is possible to register online (see Figure 3.2.).

Compared to data from the 2017 edition of this series (OECD, 2017[2]) this is a 27-percentage point increase. Although in-person registration continues to be an important channel, or element of the registration process, often due to the need to provide physical evidence of identity, it is expected that as digital identity systems become more sophisticated, the dominance of online channels will grow.

Figure 3.2. Availability of registration channels for taxpayers, 2021

Percent of administrations that provide the respective registration channel



Note: The registration channels may not always be available for all tax types or taxpayer segments.
Sources: Tables A.74 and A.75

StatLink https://stat.link/np1cvd

While the underlying survey does not allow identification of whether the online registration channel is available for all tax types or taxpayer segments, jurisdictions report significant investment in digital identity programmes, including using artificial intelligence to improve efficiency and effectiveness. This is helping cement digital identity as the cornerstone of successful digital transformation activity, as the OECD Tax Administration 3.0 report (OECD, 2020[3]) identified. Indeed, in one jurisdiction (Saudi Arabia), taxpayers can only register online (see Tables A.74. and A.75.).

This shift to digital channels may also help drive further efficiencies, though as the shift to digital gathers pace further attention is being paid to those who may not have access to digital services. The example from Canada in Box 3.1. illustrates some of the work taking place to address this.

Box 3.1. Examples – Impact of digital systems on identity systems

Canada – Community Volunteer Income Tax Program Authentication Team

The Community Volunteer Income Tax Program (CVITP) established a dedicated team of individuals to conduct client identification authentications for CVITP organisations and volunteers, so they can focus on providing services to clients. When a volunteer needs assistance confirming a client's identity, they can contact this dedicated Canada Revenue Agency (CRA) team who will call the client to assist in the verification. Volunteers request the identification authentication via email, and then a call is arranged between the client and the CRA representative. To pass confidentiality, an individual must provide basic client information such as their social insurance number, name, date of birth and current address. They then must also answer two additional questions, confirmed via the agent's access to "Taxpayer Services Agent Desktop", while referring to the Technical Help Guide for most up-to-date confidentiality measures. Once the identity authentication is completed, the volunteer is informed and can continue working on the client's return. The support this team provides increases the CVITP's overall capacity to provide tax filing assistance and improves client access to benefits and credits.

The authentication team also serves those who also struggle to authenticate in person. Some individuals may not possess regular government issued identification which can make it very difficult for them to access the service. The authentication team allows these individuals to work directly with CRA field employees to validate their identity and receive service from the CVITP.

Japan – Using a smartphone to authenticate identity

For online filing, as well as using the taxpayer ID and password, in Japan it is also possible since 2019 to authenticate identity using the national identification card 'My Number Card'. Recently, for certain online services, the use of 'My Number Card' became mandatory. For this purpose, taxpayers are required to use a smart card reader.

The use of a smart card reader can be a cumbersome process, and to make things easier for taxpayers, the 'My Number Card' authentication can now be completed via smartphone. To do this, taxpayers need to use the 'Mynaportal' app, which is an online service managed by the Japanese government that allows users to complete various administrative procedures. This app reads a barcode displayed on their computer and completes the authentication process.

Mexico – Digital authentication systems

The Mexican Tax Administration Service (SAT) has established the Biometric Accreditation Service, enabling taxpayers to securely log in and validate their biometric data including fingerprints, iris scans, photos, and signatures. This ensures that the taxpayer's electronic signature holds legal validity.

The identity accreditation process involves the validating taxpayer data, such as the Federal Taxpayer Registry information and the Unique Population Registry Code, along with fingerprints and iris scans. Moreover, there is an offline contingency mode in place, allowing information to be submitted for validation even if communication with the central servers is disrupted.

All these essential components seamlessly interact to meet the needs of SAT's taxpayer services, guaranteeing that every electronically signed document is attributed to an individual with valid identification. The service operates through 370 enrolment units spread across the nation, supported by 11 central servers, and handles approximately 300 000 enrolments per month.

Sources: Canada (2023), Japan (2023) and Mexico (2023).

Integration with other parts of government

Given the pivotal role that registration and taxpayer identification play in underpinning the tax system, having up-to-date tax registers remains a high priority for most tax administrations. As past editions have shown, the large majority of administrations have formal programmes in place to improve the quality of the tax register (OECD, 2019[1]).

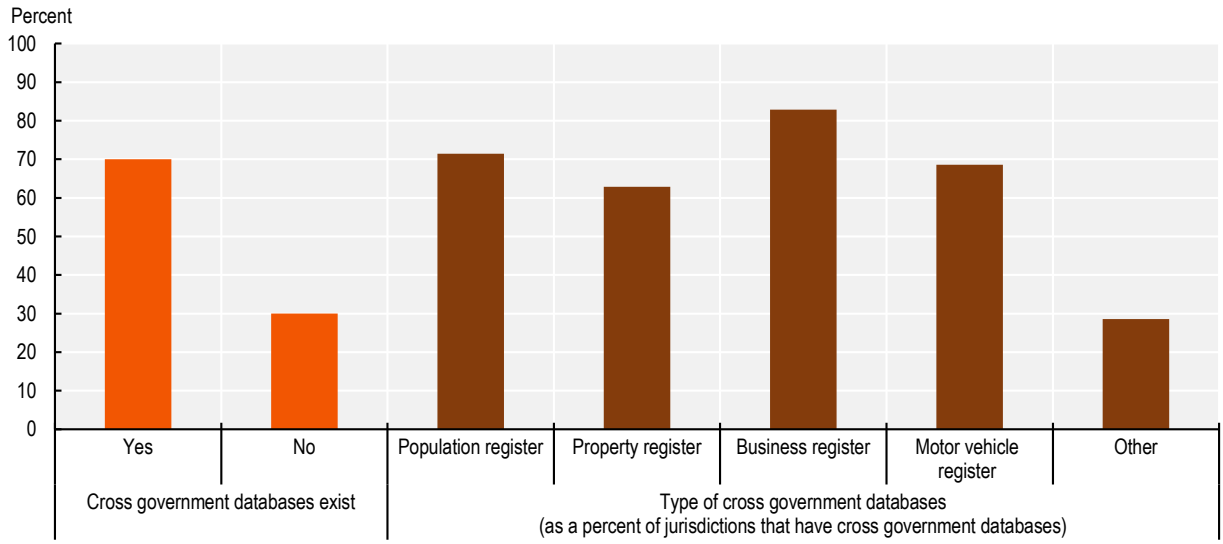
Therefore, it is unsurprising that other government bodies may wish to use the tax administration register for their own purposes to provide services to citizens or ensure compliance with laws and regulations. This is leading to the creation of cross government databases. As Figure 3.3. illustrates, 70% of administrations report the existence of a range of available databases.

Integration across government is increasing as governments see the potential in using information maintained by tax administrations, such as taxpayer address and bank information, to contact citizens and businesses or to make direct benefit or support payments (OECD, 2020[4]).

This is leading to closer collaboration between government agencies, and many of them are integrating (parts of) their IT systems to make tax registration part of other actions taxpayers undertake. For example, registering for tax at the same time as registering a company or registering the birth of a child; and/or to use the same identifier to allow taxpayers to access other government services.

Figure 3.3. Cross government databases: Availability and database types, 2022

Percent of jurisdictions



Note: The figure is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table DM3 (accessed on 22 May 2023).

StatLink https://stat.link/hp9rxl

Box 3.2. Czech Republic – Data sharing between agencies

In the Czech Republic, companies are obliged to file financial statements and other data to the public register which is administered by the Ministry of Justice. However, companies also send financial statements as an attachment to the tax return. Since 2013, negotiations have been ongoing among the Ministry of Justice, Ministry of Finance and General Financial Directorate to allow the transfer of data obtained during the administration of taxes to the registry courts, which would eliminate duplication.

As a result and after solving legislative and technical issues, selected legal entities can ask the income tax administrator to pass on financial statements to the registry court, when they file their tax return and meet both filing requirements at the same time starting from 2022.The transfer of information is not done automatically but it is conditional on the decision of the company.

This new option has led to a decrease of administrative burden and a simplification of the processes for taxpayers. It is also increasing the reliability and trustworthiness of published financial statements as a result of the direct connection with the data given to the tax office. It is expected that approximately 300 000 companies could benefit from this new option.

Source: Czech Republic (2023).

Identity management

All tax administrations, whether required to by law or as a matter of sound business practice, put considerable effort into ensuring the security of taxpayer information. In addition to internal processes to prevent unlawful attempts to obtain information and to ensure taxpayers' rights are protected, all administrations have processes to ensure the person they are dealing with is in fact the taxpayer. Increasingly these approaches, which in many instances have now been extended to multi-step authentication, are making use of biometric information, unique to the taxpayer.

Tax administrations face similar challenges to other organisations in dealing with individuals or organisations that may misuse personal information to impersonate taxpayers in order to commit fraud. The on-going and, in many cases, organised nature of this activity is requiring administrations to devote considerable effort to the prevention of identity theft. Box 3.3. contains examples of the work tax administrations are doing in this respect.

Box 3.3. Examples – Identity management

Argentina – Dual Factor Authentication

All services and digital apps available in the Argentinian tax administration (AFIP) portal have different security levels and with the use of the mobile app "Token AFIP", AFIP has implemented a dual authentication factor process for those taxpayers carrying out sensitive transactions or who wish to enhance the security of their digital procedures with AFIP.

Taxpayers using this service need to:

- Download the mobile app "Token AFIP" to their mobile phone;

- Go to an AFIP office to show proof of identity and activate the token or go to an ATM to show proof of identity to activate the token; and
- Login to the AFIP web site and then activate the app using the tax login code and the one-time password generated by the "Token AFIP".

China (People's Republic of) – Unified Identity Management Platform

The Unified Identity Management Platform is a digital identity centre covering all the stakeholders in the paying taxes/fees ecosystem, including taxpayers, intermediaries and tax officials. As the only portal of tax-related applications across all levels of tax services, the platform provides unified identity management, identity authentication, access control, password service and certificate service.

It utilises different combinations of authentication methods, including names, email account, mobile number, SMS, password, biometrics and so on, to offer five-level authentication, corresponding to different risk levels.

This hierarchical authentication process takes into account both security and convenience. It satisfies the differentiated needs of varied mobile applications in terms of security and privacy protection, and at the same time gives consideration to the taxpayers' needs of easy operation when handling simple business, reducing the cost of verification for taxpayers.

For example, if a taxpayer only needs to make an enquiry they can choose the more convenient static password or dynamic password to complete the authentication. If they need to issue invoices, they can directly switch to the two-factor authentication with face recognition, or use static password and then provide face recognition authentication. The Platform also has the potential to support the State Taxation Administration of China's internal control work as the digital identity of every player involved in a work stream, including those of tax officials, is traceable.

Sources: Argentina (2023) and China (People's Republic of) (2023).

Common approaches to digital identity

Once the domain of multi-national businesses and those involved in international trade, small and medium-sized enterprises and individual taxpayers are now increasingly earning income sourced outside their jurisdiction of residence. As a result of the proliferation of online market-places and sharing and gig economy platforms, it is now easier than ever for example, to rent out holiday homes or sell goods abroad through online platforms.

Tax administrations are facing a raft of issues in supporting and responding to this growth in cross-border activity, including how they manage taxpayer information flows across borders. Previous editions of the tax administration series (OECD, 2019[1]) highlighted two international measures aimed at helping administrations to address these issues:

- The European Union's Electronic Identification Authentication and Trust Services (eIDAS) approach, which was introduced in 2014 and aims at increasing the confidence taxpayers and tax administrations can have in dealing with information flows and being able to manage identity and registration issues across borders.
- The global standard on Automatic Exchange of Information (AEOI) – the Common Reporting Standard (CRS), which together with the United States Foreign Account Tax Compliance Act (FATCA) provides for the exchange of non-resident financial account information with the tax authorities in the account holders' jurisdiction of tax residence.

Following the 2019 OECD report *The Sharing and Gig Economy: Effective Taxation of Platform Sellers* (OECD, 2019[5]), the OECD published in 2020 a set of Model Rules that set the framework for digital platforms to collect information on the income realised by those offering accommodation, transport and personal services through platforms and to report the information to tax authorities. A key objective for the Model Rules is to help taxpayers be compliant with their tax obligations, and to provide a consistent framework to help business provide information to tax authorities. This supports the Model Rules goal of streamlining reporting regimes for tax administrations and platform operators alike. (OECD, 2020[6])

Around the same time, the OECD Tax Administration 3.0 report (OECD, 2020[3]) identified the seamless taxation of platform sellers as a key action for multilateral collaboration. Work is currently ongoing to explore how co-operation between administrations and platforms can be deepened to explore the integration of identification and reporting processes into the applications used by the platforms in order to support tax compliance by platform sellers as well as reducing burdens for all parties.

More generally, common approaches to digital identity that are shared across government, and between government and third parties, will increasingly allow new services to be developed. These services can reduce burdens on taxpayers as third parties can supply information direct to tax administrations, as well as providing richer and more accurate pools of data to tax administrations.

Box 3.4. Netherlands – Trusted Information Partners

In the modern digital world, the need for qualified data and qualified data exchange is growing rapidly, and with that the receiver of data needs to determine the reliability of the data and be confident about the identity of the party. This is very important for the tax administration to improve and even guarantee the integrity of data.

Together with private and public parties the Netherlands Tax Administration (NTA) is creating an ecosystem that makes trusted, qualified information exchange possible. The ecosystem aims to provide standards to parties for implementing qualified, traceable, and secure data exchange. It ensures that the source and authenticity of the data are reliable, and thereby creates confidence in the data exchange for the parties involved. The goal is to make doing business digital, easy and reliable.

Source: Netherlands (2023).

References

OECD (2020), *Model Rules for Reporting by Platform Operators with respect to Sellers in the Sharing and Gig Economy*, OECD, Paris, http://www.oecd.org/tax/exchange-of-tax-information/model-rules-for-reporting-by-platform-operators-with-respect-to-sellers-in-the-sharing-and-gig-economy.htm (accessed on 22 May 2023). [6]

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OECD (2019), *Tax Administration 2019: Comparative Information on OECD and other Advanced and Emerging Economies*, OECD Publishing, Paris, https://dx.doi.org/10.1787/74d162b6-en. [1]

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OECD (2017), *Tax Administration 2017: Comparative Information on OECD and Other Advanced and Emerging Economies*, OECD Publishing, Paris, https://dx.doi.org/10.1787/tax_admin-2017-en. [2]

4 Assessment

This chapter looks at the tax assessment function, which includes all activities related to processing tax returns and payments. It examines the use of e-channels for filing and paying, outlines administrations' efforts to provide pre-filled returns, and discusses the level of on-time return filing and payment. It also provides examples of the impact of technology in assessment processes.

Introduction

The tax assessment function includes all activities related to processing tax returns, including issuing assessments, refunds, notices and statements. It also includes the processing and banking of payments. These activities continue to be an area of significant change and focus as administrations look to take costs out of high-volume processes.

As reported in previous editions of this series, the widespread enabling of electronic filing and payment by taxpayers has helped administrations to reduce their costs and improve the services they provide. This trend has continued with an increasing range of supporting services and options now also being made available.

Tax administrations are also managing an expanding range of data that administrations are collecting electronically, including from a growing number of third-party organisations. This is facilitating a shift towards more intelligent use of data, and more complete pre-filled returns, increasingly driven by the use of artificial intelligence and machine learning. This is also helping to create more upstream compliance approaches that can minimise or prevent errors in returns. As well as updating information on the channels used for filing and paying, this chapter will outline:

- Administrations' efforts to provide pre-filled returns for individual and corporate taxpayers, including the expansion of this approach by some into "no-return regimes";
- The levels of on-time return filing and payment; and
- Examples of how technology and the application of data sciences have improved filing, payment and refund processes.

Use of e-channels for filing and paying

With digitalisation continuing to transform everyday life, it is unsurprising that the uptake in the use of e-filing and payment channels continues to grow. Table 4.1. provides average e-filing rates from jurisdictions that provided details of channels used by taxpayers to file for the years 2018 to 2021. Over that period, around 95% business taxpayers filed their returns electronically. For personal income tax return filers this figure is above 85%. Also, it should be noted that for a significant number of administrations a 100% e-filing rate is the reality across the three main tax types (see Table D.23.).

Table 4.1. Average e-filing rates (in percent) by tax type, 2018-2021

Tax type	2018	2019	2020	2021
Personal income tax (50 jurisdictions)	81.1	83.4	86.6	87.2
Corporate income tax (52 jurisdictions)	92.4	93.5	94.2	94.9
Value added tax (46 jurisdictions)	94.4	96.0	97.1	97.5

Note: The table shows the average e-filing rates for those jurisdictions that were able to provide the information for the years 2018 to 2021. The number of jurisdictions for which data was available is shown in parenthesis.
Source: Table D.23.

Looking at the evolution of e-filing rates over the period 2014 to 2021 shown in Table 4.2., it is clear that e-filing rates have increased significantly – between 17 and 21 percentage points – across the three main tax types. (It should be noted that the table only takes into account information from jurisdictions for which data was available for both years 2014 and 2021, which explains the differences in 2021 averages shown in Tables 4.1. and 4.2.)

Table 4.2. Evolution of e-filing rates (in percent) between 2014 and 2021 by tax type

Tax type	2014	2021	Difference in percentage points
Personal income tax (33 jurisdictions)	65.0	85.1	+20.1
Corporate income tax (35 jurisdictions)	77.2	95.3	+18.1
Value added tax (32 jurisdictions)	81.4	98.7	+17.3

Note: The table shows the average e-filing rates for those jurisdictions that were able to provide the information for the years 2014 and 2021. The number of jurisdictions for which data was available is shown in parenthesis.
Sources: Table D.23. and OECD (2017), *Tax Administration 2017: Comparative Information on OECD and Other Advanced and Emerging Economies*, Table A.8., https://doi.org/10.1787/tax_admin-2017-en.

As for electronic payments rates, as can be seen in Table 4.3., around 90% of payments, measured by number and value, were made electronically in 2021. This represents a significant increase since 2018. The percentage of e-payments by value is slightly higher than the percentage of e-payments made by number, suggesting that particularly larger taxpayers make use of this payment channel. (Due to a change in the definition of the underlying survey question, it is not possible to look at the evolution of e-payment rates since 2014.)

Table 4.3. Average e-payment rates (in percent) by number and value of payments, 2018-2021

Measurement type	2018	2019	2020	2021
Percentage by number of payments (47 jurisdictions)	79.9	82.1	86.3	88.5
Percentage by value of payments (47 jurisdictions)	84.4	85.8	88.4	90.2

Note: The table shows the average e-payment rates for those jurisdictions that were able to provide the information for the years 2018 to 2021. The number of jurisdictions for which data was available is shown in parenthesis.
Source: Table D.32.

There remain a number of jurisdictions where the volume of returns filed using paper as well as payments through non-electronic means remains high. Among those jurisdictions that provided data, more than 57 million returns (for PIT, CIT and VAT) were still filed on paper (see Tables A.83., A.85. and A.87.). However, this is a significant reduction compared to the years prior to the COVID-19 pandemic.

It is to be expected that this figure will further decline over time as more administrations take steps to encourage more taxpayers to use electronic platforms where possible. This will not only lower administration costs but could also reduce the administrative burden on taxpayers over time.

Box 4.1. Examples – E-filing

Hungary – Supporting flat-rate taxation

One of the goals of the National Tax and Customs Administration (NTCA) of Hungary is to reduce the administrative burden from tax returns, and one of the first steps towards this is the development of the Flat Rate Tax Wizard Web Application. Flat-rate taxation can be chosen by self-employed entrepreneurs in Hungary fulfilling specific conditions.

The Flat Rate Tax Wizard helps taxpayers submit their monthly tax and social security contribution returns via an application that communicates with the taxpayer in the form of questions and answers.

The advantage compared to filling a traditional form-based return is that it can be used even without tax knowledge, since the calculations required for the return do not have to be performed by the taxpayer. The tax return is pre-filled with data content based on answers given to questions and the data in the registers of the NTCA relevant for the taxpayer's tax and social contribution returns. In addition to easier fulfilment of obligations, the platform also helps to determine the quarterly personal income tax in advance. The NTCA is now investigating the addition of this service to additional target taxpayer groups.

See Annex 4.A. for supporting material.

Japan – Tax withholding slip automatic entry function via smartphone camera

Thanks to filing assistance provided via the National Tax Agency (NTA) website, when a taxpayer enters the necessary information, income and tax amounts are automatically calculated and the filing data can be transmitted via the "filing through online (e-Tax)" application. During the 2021 filing period, the number of people having filed income tax returns using the filing assistance on the NTA website reached 11.71 million, including those prepared via computers set up at tax office consultation sites. This comprised about 51% of all taxpayers who filed returns and was around 17 times higher than the filings for 2004, when this online filing assistance service was first provided, reflecting steady growth in user numbers.

In addition, among the 11.71 million cases prepared using the filing assistance on the NTA website, about 2.56 million were prepared via smartphone. The NTA is working towards a smartphone-dedicated site for taxpayers. As part of this, a new function has been introduced to the filing assistance on the NTA website, allowing items to be entered automatically, such as amount of earnings from employment, withholding tax and names and address simply by using a smartphone camera to take a photo.

Sources: Hungary (2023) and Japan (2023).

Pre-filled returns

One of the significant innovations in tax return process design over the last two decades has been the development of pre-filled tax returns, often for personal income taxpayers. The pre-filled approach involves administrations "pre-populating" the taxpayer's return or on-line account with information from third parties. The pre-filled return can be reviewed by the taxpayer and either filed electronically or in paper form. (Table 4.4. shows that an increasing number of administrations is pre-filling PIT returns.)

As the extent of pre-population is generally determined by the range of electronic data sources available to the administration, it is critical to this approach that the legislative framework provides for extensive and timely third-party reporting covering as much relevant taxpayer information as possible. The complexities of the legal frameworks governing tax can be a barrier to more automated tax calculations, and to help overcome this some tax administrations are exploring the use of machine-readable legislation which can help automate the calculation process through the use of algorithms. This is leading to reduced errors and reduced burdens for taxpayers.

Table 4.4. Evolution of pre-filling of PIT returns, 2018-2021

Percent of administrations that pre-fill PIT returns

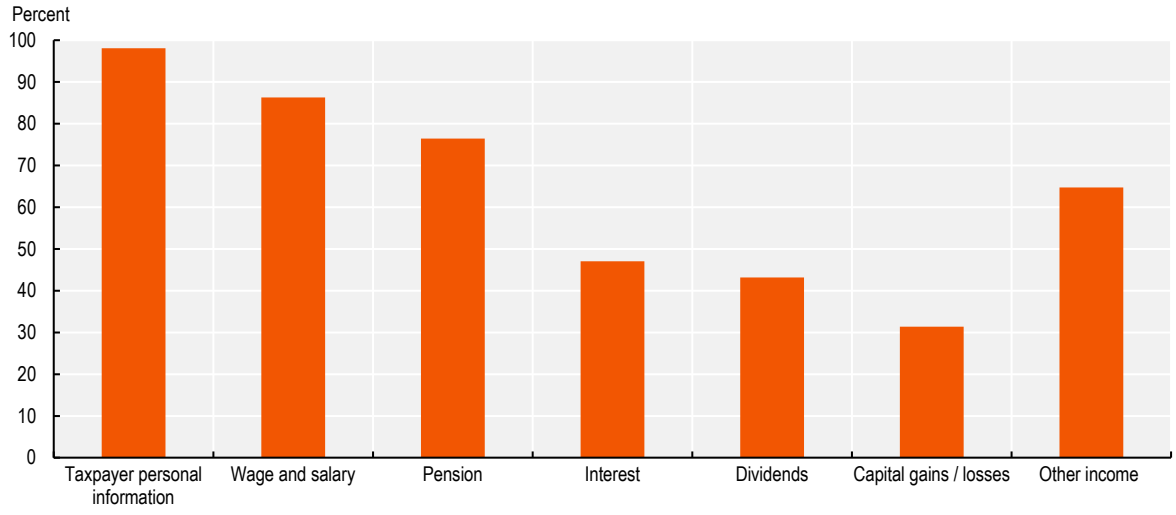
2018	2019	2020	2021	Difference in percentage points (2018-2021)
77.6	79.3	82.8	87.9	+10.3

Source: Table A.79.

Advocates of pre-filling initially encouraged its use with individual tax regimes that allowed relatively few deductions and credits, and where they could be verified with third party data sources. Advances in rules-based technologies, information-reporting requirements and the application of data science techniques mean that the approach can now be considered more widely. For example, survey responses show that in many jurisdictions PIT returns are pre-filled with different income information and deductible expenses such as donations, school and university fees and insurance premiums (see Figures 4.1. and 4.2.).

Figure 4.1. Categories of third-party income information used to pre-fill PIT returns or assessments, 2021

As a percent of administrations that pre-fill PIT returns

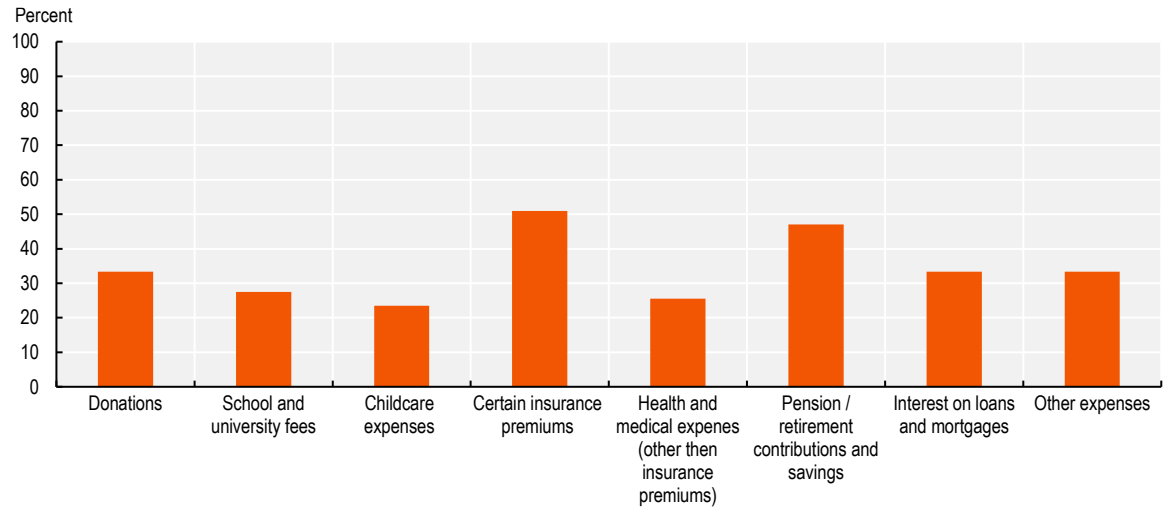


Sources: Tables A.79 and A.80.

StatLink https://stat.link/wexpa2

Figure 4.2. Categories of tax deductible expenses used to pre-fill PIT returns or assessments, 2021

As a percent of administrations that pre-fill PIT returns



Source: Table A.81.

StatLink https://stat.link/sjkdtx

In a growing number of jurisdictions, this concept now goes as far as totally pre-filling PIT returns, which the taxpayer then has to either agree (which may be by deemed agreement after a certain period of elapsed time) or provide further information which may lead to an upwards or downwards adjustment (see Table A.84.). In their most advanced form, complete pre-filled returns are being generated for large proportions of the individual tax base. In addition, the availability of technology solutions and approaches, such as electronic invoicing systems, allows tax administrations to start to go beyond PIT returns and pre-fill corporate income tax (CIT) and value-added tax (VAT) returns (see Tables A.82. and A.86.).

The latest pre-filling developments in some jurisdictions are described in Box 4.2.

Box 4.2. Examples – Pre-filling

Australia – Enhanced prefill

In 2022, the Australian Taxation Office (ATO) introduced enhanced prefill to the individual tax return. Whilst the ATO has prefilled returns for more than 20 years there was a taxpayer behaviour of deleting or changing the prefill information requiring compliance follow up with clients after the return was lodged to resolve the discrepancy. The ATO has piloted the use of its current risk models to prevent taxpayers from changing prefilled Bank Interest information at lodgement unless the client can provide evidence why the amount should change. This has resulted in a 74% decrease in compliance activities after lodgement compared to the previous year. The ATO plans on expanding this approach over the coming years.

See Annex 4.A. for supporting material.

Czech Republic – Real Estate Tax prefilling

In 2021, the Czech Tax Office introduced the „MOJE daně“ (“My Taxes”) project which delivered a significant step forward in the simplification and extension of electronic services available for taxpayers. The efforts to make tax return filing even easier have continued and, in 2022, this lead to a significant advance in the area of real estate tax.

Taxpayers are required to report real estate on their tax return when there are any changes such as purchasing or selling a property. However, the tax return must contain all information about all properties owned by the taxpayer and not just the one where there is a change. Now if the taxpayer uses the “My Taxes” portal, they can have a pre-filled tax return using the data from the previous period.

Another online service which taxpayers can make use of is a cross checking of the data filled in on the tax return with data from the Register of Real Estate. This tool can check for example whether a plot area or a size of share in case of joint ownership declared in tax return is the same as in the Register of Real Estate.

Mexico – Pre-filling of business tax returns

In 2004, the Mexican Tax Administration Service (SAT) established the legal framework for the CFD (acronym in Spanish for Digital Fiscal Receipt). Later, in 2010, a new invoicing scheme was introduced: the CFDI (acronym in Spanish for Digital Fiscal Receipt through Internet), which requires invoices to be sent via the internet to PACs (Authorized Certification Providers acronym in Spanish) - who are entities authorised by SAT -, for validation prior to being received within SAT’s infrastructure. CFDI replaced paper invoices, and by 2014, their use became mandatory for electronic accounting throughout Mexico. Nowadays, CFDI are utilised in 100% of economic transactions. The information derived from CFDI undergoes analysis and automatically populates the taxpayer's tax return for the corresponding period. To ensure accuracy, taxpayers have the option to review and modify the statement via the services provided on the tax administration portal. The implementation of this system yielded significant benefits.

The declared tax base has seen a substantial increase of 150%. Moreover, between 2010 and 2016, it effectively reduced tax evasion from 35.7% to 16.1%. Furthermore, there has been a noteworthy rise in general tax revenue and social security contributions, achieving a 95% increase in revenue compared to the tax period of 2010. Notably, smaller companies are now obliged to utilise electronic invoicing, meaning micro-enterprises are entering the formal economy. This integration grants SAT real-time access to transactional information of registered taxpayers, thereby enhancing the collection and auditing process.

Netherlands – Prefilling profit tax return directly from commercial bookkeeping software

Self-employed find the process of keeping books and records together with tax return filing difficult and burdensome. This target group of SME's makes more unintended errors in filling out a tax return than the bigger enterprises. To make return filing for the self-employed easier and less labour intensive, the Netherlands Tax Administration started working together with developers of bookkeeping software to build a module which automates the transformation from the digital bookkeeping to a prefilled profit tax return. The module provides wizards in plain language, so transformation is easy to perform. This module makes manual actions unnecessary and reduces unintended errors. The aim of the module is to reduce the administrative burden and stimulate compliance.

The module is based on a standard ledger and can be integrated in the commercial bookkeeping software. The module is offered as a service to all software developers. It checks the numbers on the balance sheet and the profit and loss account and will generate ('prefills') the profit tax return automatically with the help of a wizard.

In 2022, the module has been integrated in two commercial bookkeeping software products and has been used by a few hundred taxpayers. An evaluation has been planned and the results are expected to be presented in the second quarter of 2023.

Sources: Australia (2023), Czech Republic (2023), Mexico (2023) and Netherlands (2023).

As the levels of data available to support pre-filling grows, tax administrations are able to develop predictive techniques that can spot errors that taxpayers make as they finalise their return, and also prevent non-compliance. Examples of this have been included in previous editions. See, for example, Box 4.3. in Tax Administration 2022 (OECD, 2022[1]). These can be combined with techniques to prompt action, creating whole new approaches to compliance which are bringing the compliance work 'upstream' into tax administration processes, as Box 4.3. highlights.

Box 4.3. Examples – Preventing non-compliance activity

Argentina – Warnings prior to non-compliance

The Argentinian tax administration (AFIP) is rolling out a communication project that aims to provide vulnerable taxpayers with personalised alerts of potential non-compliance across a range of contact channels. When a tax obligation is due, and prior to becoming a fiscal debt, a specific, systematized communicational strategy is planned to help taxpayer comply with their obligations:

- Prior to due date, messages highlight the need to comply with their obligations and the necessary requirements to do so.
- 5 days after the due date an electronic message is sent with a link to access information on the debt, payment options and the consequences of being in arrears.
- 15 days after the due date there is an automatic outgoing telephone call /contact by Chatbot.

- 25 days after the due date there is an outgoing telephone call from an AFIP employee.

Spain – Predictive model for non-filers

Every year, the Spanish Tax Agency (AEAT) receives a lot of information from different sources related to personal income allocations. Based on this information, and in accordance with current regulations, the set of taxpayers who are required to submit a personal income tax return is determined. Unfortunately, every year, some of these taxpayers do not file the return, leading to a campaign for non-filers, the first step being sending a request to all those taxpayers who have not filed and whose calculated tax amount exceeds a certain threshold.

To improve the efficiency of filing AEAT is implementing an innovative project based on predictive models to identify and contact those taxpayers who are considered most likely not to submit their PIT return on time.

Through this project AEAT aims to:

- Improve taxpayer assistance, through contact during the voluntary filing period, to achieve an increase in the percentage of personal income tax returns filed on time.
- Reduce the number of sanctions and surcharges applied to those taxpayers who do not file a return on time.
- Increase the efficiency of AEAT systems by reducing the amount of non-filers which aims to decrease the number of request to be issued as well as subsequent audit actions.

See Annex 4.A. for supporting material.

Sources: Argentina (2023) and Spain (2023).

On-time return filing

Even allowing for changes occurring because of pre-filled or no-return regimes, the filing of a tax return is still the principal means by which a tax liability is established and becomes payable. As a result, the on-time filing rate is seen as an effective measure of the health of the tax system as well as the performance of the tax administration itself.

Table 4.4. summarises on-time return filing for those administrations able to supply information by tax type. Apart from CIT, the rates are around 85%. The lower rates for CIT may be explained through more complexity in the corporate income tax system and the preparation of financial statements and year-end reports.

Table 4.5. Average on-time filing rates (in percent) by tax type, 2018-2021

Tax type	2018	2019	2020	2021
Personal income tax (37 jurisdictions)	85.6	85.1	85.5	85.5
Corporate income tax (40 jurisdictions)	78.3	79.2	78.2	76.2
Employer withholding (28 jurisdictions)	89.0	88.6	87.1	88.1
Value added tax (42 jurisdictions)	87.1	86.3	86.0	85.7

Note: The table shows the average on-time filing rates for those jurisdictions that were able to provide the information for the years 2018 to 2021. The number of jurisdictions for which data was available is shown in parenthesis.
Source: Tables D.21 and D.22.

Table 4.5. shows the evolution of on-time filing rates. On average, this has remained broadly static between 2014 and 2021, although the underlying data for on-time filing shows significant variation in the evolution of on-time filing rates between jurisdictions. In relation to the recent years 2020 and 2021, this may also be a reflection of the different responses that jurisdictions had to the pandemic. The 2020 report *Tax Administration Responses to COVID-19: Measures Taken to Support Taxpayers* highlighted how some jurisdictions may have required on-time filing, for example to pay out refunds or to provide other government benefits, but allowed delayed payment, while some may have relaxed penalties for late filing (CIAT/IOTA/OECD, 2020[2]).

Overall, it is encouraging that despite the impact of the pandemic on-time filing rates remained stable (except for a few jurisdictions, see Tables D.21. and D.22.). It should be noted that the table only takes into account information from jurisdictions that were able to provide data for both years 2014 and 2021, which explains the differences in 2021 averages shown in Tables 4.4. and 4.5.

Table 4.6. Evolution of on-time filing rates (in percent) between 2014 and 2021 by tax type

Tax type	2014	2021	Difference in percentage points	No. of jurisdictions with a **decreasing** on-time filing rate	No. of jurisdictions with an **increasing** on-time filing rate
Personal income tax (36 jurisdictions)	85.6	86.4	+0.8	13	23
Corporate income tax (36 jurisdictions)	80.0	78.5	-1.5	18	18
Employer withholding (18 jurisdictions)	86.7	89.8	+3.1	11	7
Value added tax (37 jurisdictions)	86.0 (2016)	84.8	-1.2	18	19

Note: The table shows the average on-time filing rates for those jurisdictions that were able to provide the information for the years 2014 and 2021. The number of jurisdictions for which data was available is shown in parenthesis. For VAT, the table compares information for the years 2016 and 2021, as the underlying question was changed with ISORA 2018.
Sources: Tables D.21. and D.22., OECD (2017), *Tax Administration 2017: Comparative Information on OECD and Other Advanced and Emerging Economies*, Table A.6., https://doi.org/10.1787/tax_admin-2017-en and OECD (2019), *Tax Administration 2019: Comparative Information on OECD and Other Advanced and Emerging Economies*, Table D.12., https://doi.org/10.1787/74d162b6-en.

Box 4.4. Behavioural insight to improve filing

Brazil – Improving communications

Simplification can be considered the most basic "nudge" of all: making something simpler and easier to carry out has a very important effect on people deciding to adopt a certain action. However, as common to many tax administrations, communications from the Federal Revenue of Brazil (RFB) to taxpayers use quite a complex language: legal texts, acronyms and jargon, and long paragraphs that cause a great difficulty in understanding.

The need for simple and clear communication is a major challenge for public management, especially when in Brazil according to the last Functional Literacy Indicator Survey (2018), about 30% of Brazilians between 15 and 64 years-old are functionally illiterate and only 12% understand complex texts. In addition, a 2018 report showed only 2% of 15 year-old students in Brazil were top performers in reading, meaning that they can understand lengthy texts and deal with abstract concepts.

In order to face this problem, the Behavioural Economics National Centre (Cecom) developed a Guide ("Simplify in 7 Notes") with seven basic rules for the use of Plain Language in RFB, each one associated with one of the seven musical notes (as a way of facilitating memorization). Based on this Guide, Cecom has been providing workshops for various teams inside RFB. In these hands-on workshops, each team receives training in Plain Language and reviews their own real communications, making them more

effective in promoting compliance. From what is experienced in the workshop, those that prepare the communication are able to change their mindset, understanding the importance of a more transparent interaction with society.

Slovak Republic – Real estate sales: Behaviourally oriented letter campaign

A significant proportion of property sales produce a high net profit, but with no declared income on the side of a seller. A private individual is obliged to declare income when selling a property within five years from its acquisition. However, based on analysis of data from Slovak Real Estate database, only a third of identified sellers was tax compliant before an intervention. A campaign was developed based on a behavioural experiment focused on improving awareness of real estate sales taxation and the collection of personal income tax.

Letters were sent in 2021, just before the due date for filling tax return for the tax year 2020 and two groups of sellers were identified. First, non-declaring taxpayers who sold a property in 2016 – 2019. These were matched with tax revenue data and classified as "overdue". Second, potential taxpayers, who sold a property in 2020 and were expected to declare income of this sale in March 2021. A control group was established and those in the test received personalised communication notifying them of the obligation to declare income of real estate sales. Different letter texts were tested to measure the effect of letter itself and also the different approaches.

The results show the rate of declared income increased by 27 percentage points (p.p.) for non-declaring taxpayers and 14 p.p. for potential taxpayers (in comparison with taxpayers with no letter received). The overall impact of the campaign is additional EUR 2.5 million for the state budget and a 16 p.p. increase in the observed tax compliance at minimal costs for the tax administration. This approach will continue in future years.

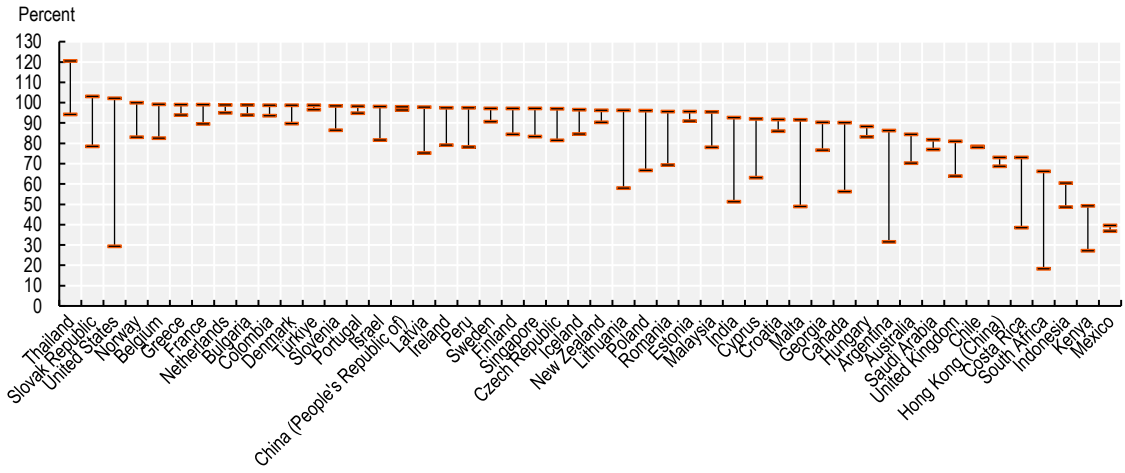
See Annex 4.A. for supporting material.

Source: Brazil (2023) and Slovak Republic (2023).

The variation of on-time filing rates by jurisdiction are also visible in Figure 4.3. which shows the range of on-time filing rates across major tax types. For a number of jurisdictions this range is significant.

Given the impact on compliance rates, many tax administrations are turning to behavioural insight techniques to try and encourage more timely and accurate filing. This is seeing promising results, with tax administrations reporting that 'nudges' at key points in the filing process can increase the timeliness of filing. Not only is this improving compliance rates but it is also freeing up resources that can be used elsewhere.

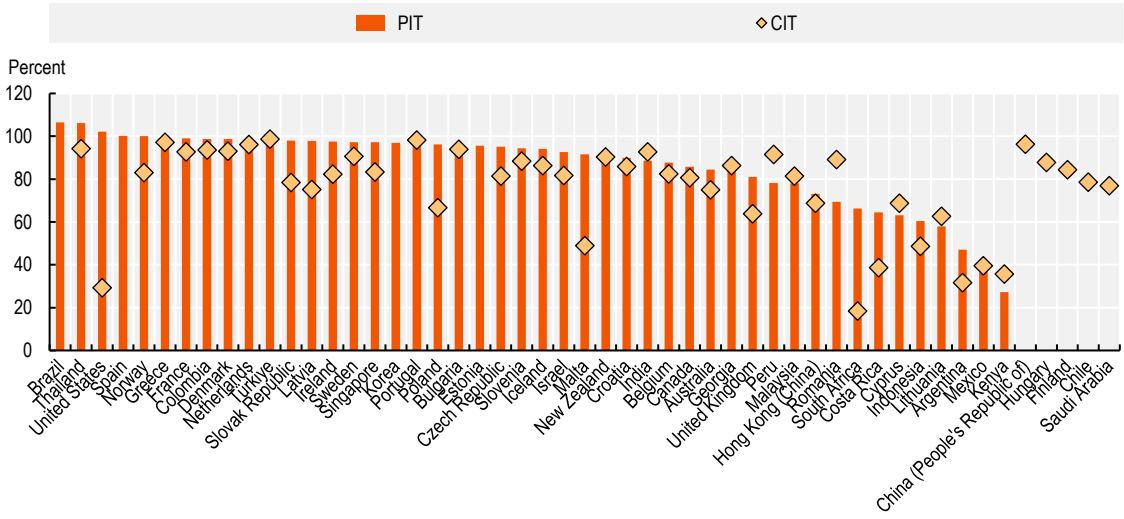
Figure 4.3. Range in on-time filing performance across major tax types, 2021



Note: On-time filing performance is expressed as a percentage of returns expected and can therefore be above 100%. The figure shows for each jurisdiction the range in on-time filing performances in 2021 across the four tax types: PIT, CIT, Employer WHT and VAT (where applicable). It only includes jurisdictions for which information was available for at least two tax types.
Sources: Tables D.21. and D.22.

StatLink https://stat.link/atox6y

Figure 4.4. PIT and CIT on-time filing rates, 2021



Note: On-time filing performance is expressed as a percentage of returns expected and can therefore be above 100%.
Source: Table D.21.

StatLink https://stat.link/f3muc8

On-time payment

Payment of tax constitutes one of the most common interactions between taxpayers and tax administrations, especially for businesses that are typically required to regularly remit a variety of payments covering both their own tax liabilities and those of their employees. Administrations continue to make progress in increasing the range of e-payment options available to taxpayers and to increase their use. This progress not only lowers the cost to the administration, it can also increase on-time payments and reduce the number of payment arrears cases by providing improved access and a better payment experience. One significant development is the growth of payment facilities being built into the natural systems of taxpayers. This is making payment more seamless for taxpayers as they can use their existing banking or accounting software to make payments.

Table 4.7. Average on-time payment rates (in percent) by tax type, 2018-2021

Tax type	2018	2019	2020	2021
Personal income tax (30 jurisdictions)	81.5	81.2	81.0	77.2
Corporate income tax (33 jurisdictions)	84.6	85.1	82.5	83.5
Employer withholding (29 jurisdictions)	94.5	94.3	91.6	91.4
Value added tax (33 jurisdictions)	87.9	88.0	87.0	86.9

Note: The table shows the average on-time payment rates for those jurisdictions that were able to provide the information for the years 2018 to 2021. The number of jurisdictions for which data was available is shown in parenthesis.
Source: Tables D.30 and D.31.

On-time payment rates for those administrations able to supply information by tax type are summarised in Tables 4.6. and 4.7. Table 4.6 shows that in 2020 and 2021 on-time payment rates have fallen when compared with years 2018 and 2019. The range of on-time payment depicted in Figure 4.5. shows a significant gap in on-time payment across the main tax types for a number of jurisdictions, in some cases above 50 percentage points.

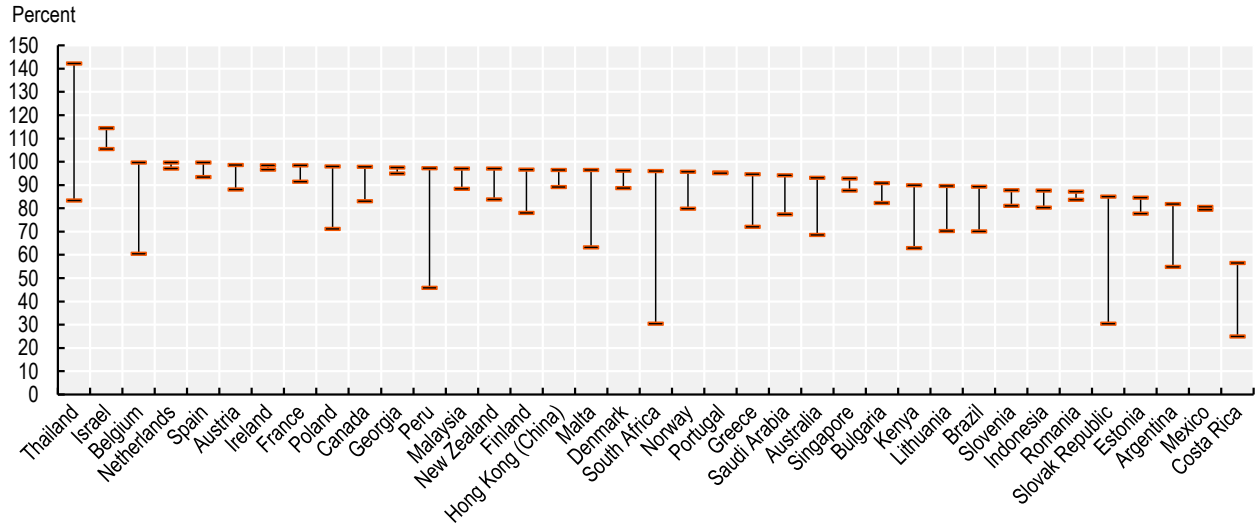
This reduction in on-time payment rates is almost certainly an impact of the pandemic, reflecting the cash flow challenges businesses and individuals may have had. It may also reflect the numerous easements some tax administrations gave on payment timeliness to assist with the challenges of the pandemic, for example where taxpayers may have been required to file on time but had longer time to pay.

Table 4.8. Evolution of on-time payment rates (in percent) between 2014 and 2021 by tax type

Tax type	2014	2021	Difference in percentage points	No. of jurisdictions with a **decreasing** on-time payment rate	No. of jurisdictions with an **increasing** on-time payment rate
Personal income tax (16 jurisdictions)	80.7	80.3	-0.4	9	7
Corporate income tax (16 jurisdictions)	90.1	86.9	-3.2	8	8
Employer withholding (13 jurisdictions)	92.8	93.4	+0.6	5	8
Value added tax (18 jurisdictions)	88.8	88.7	-0.1	8	10

Note: The table shows the average on-time filing rates for those jurisdictions that were able to provide the information for the years 2014 and 2021. The number of jurisdictions for which data was available is shown in parenthesis. Data for Costa Rica has been excluded from the calculations as it would distort the average ratios.
Sources: Tables D.30 and D.31, and OECD (2017), *Tax Administration 2017: Comparative Information on OECD and Other Advanced and Emerging Economies*, Table A.9, https://doi.org/10.1787/tax_admin-2017-en.

Figure 4.5. Range in on-time payment performance, 2021



Note: On-time payments are expressed as a percentage of estimated payments expected by due date and can therefore be above 100%. The figure shows for each jurisdiction the range in on-time payment performances in 2020 across the four tax types: PIT, CIT, Employer WHT and VAT (where applicable). It only includes jurisdictions for which information was available for at least two tax types.
Source: Tables D.30. and D.31.

StatLink https://stat.link/8ezaoq

Future editions of this report will continue to track these trends, and recovering and increasing on-time payment rates should remain an area of focus for administrations given the amounts of revenue involved. This is why some tax administrations report investing resources in this area, to make payments easier and more in real time as can be seen in the example in Box 4.5.

Box 4.5. United Kingdom - VAT Split Payments

The UK Government has announced its intention to further explore the concept of VAT Split Payment, an alternative method of VAT collection which would involve the tax element of a digital payment being taken out and paid directly to His Majesty's Revenue and Customs (HMRC).

Modernising tax collection in this way would tackle the issue of lost tax revenue resulting from overseas traders' VAT non-compliance. Losses happen where online sellers do not account to HMRC for VAT due on the sales of goods or services to UK consumers, which also allows them to undercut and place VAT compliant sellers at a disadvantage.

HMRC has already worked with academia and FinTech collaborators on a payment data carriage technique that does not rely on payment messaging standards. This could allow new data about a payment intervention to be transmitted to a tax authority (for taxpayer reconciliation purposes) outside of existing payments processing channels.

Going forward, HMRC intends using the payments sector and FinTech companies to seek to prove the conceptual viability of taking VAT from a payment in real-time before the money leaves the UK's authority, whilst remaining within the rules set by various payment networks. This paves the way for real-time tax collection, reducing the need for extra administration.

The ambition is to tackle the tax gap driven by overseas non-compliance and ensure more fairness for VAT compliant sellers.

Source: United Kingdom (2023).

Refunds and credits

Given the underlying design of the major taxes administered (i.e. PIT, CIT and VAT), some element of over-payment by a proportion of taxpayers is unavoidable. Excess tax payments represent a cost to taxpayers in terms of "the opportunity cost", which is particularly critical to businesses that are operating with tight margins where cash flow is paramount. Any delays in refunding legitimately overpaid taxes may therefore result in significant "costs" to taxpayers.

Table 4.8. shows the different treatment of VAT refunds, and highlights that the majority of administrations pay out refunds immediately. This is helpful to business but tax administrations need to continue to be cognisant of fraud risks. Tax regimes with a high incidence of tax refunds are particularly attractive to fraudsters (especially via organised criminal attacks) necessitating effective risk-based approaches for identifying potentially fraudulent refund claims.

During the COVID-19 crisis, the importance of paying out refunds quickly was a key issue for many governments, as a significant number of taxpayers were facing severe cash-flow problems. Tax administrations responded to this by prioritising refund applications or adapting refund processes, in some cases fully automating them. (CIAT/IOTA/OECD, 2020[2])

Table 4.9. Treatment of VAT refunds, 2021

Percent of jurisdictions were …			
VAT refunds are automatically paid out immediately	VAT refunds are paid out immediately subject to the availability of funds	VAT refund are established as a 'credit' in the taxpayer's account, until such time as the taxpayer may legally request the refund	VAT refund are established as a 'credit' in the taxpayer's account, until such time as the taxpayer may legally request the refund, subject to the availability of funds
60	5	35	0

Source: Table A.53.

The learning from both the pandemic and previous approaches is now being combined with advances in technology, and the growth of data science to provide tax administrations with new options to mitigate risks and simplify processes. This can lead to reduced administrative and compliance burdens, and the creation of new innovative approaches which can be seen in Box 4.6.

Box 4.6. Netherlands - Selection model for VAT refunds

Refunding VAT is a large process within the Netherlands Tax Administration (NTA). Annually some 2.5 million requests for a VAT refund are submitted. Resource restrictions do not permit manual inspection of this large flow. Even a quick manual scan is practically impossible with this amount of requests.

In 2015, the NTA started to build software that is able to make a selection for manual inspection. The software supports the review of this vast amount of VAT refunds to a significant extent, and simultaneously doubles the effectiveness of the selection, according to an investigation published by the Netherlands Court of Audit in 2019. The software implements business rules as well as several (relatively) simple statistical procedures. Both these rules and statistical procedures were developed in close cooperation with experts from the shop floor. The software includes a Workflow Management System to assist the manual inspection by auditors. A component is included as well that blocks payments for the duration of the inspection.

The latest developments include a focus on clarity of explanation, modernising the selection process, an extension of the software to include foreign businesses that request a VAT refund in the Netherlands, and a tour around the country to collect fresh ideas for improvements from the end-users.

Source: Netherlands (2023).

References

CIAT/IOTA/OECD (2020), *"Tax administration responses to COVID-19: Measures taken to support taxpayers", OECD Policy Responses to Coronavirus (COVID-19)*, OECD Publishing, Paris, https://doi.org/10.1787/adc84188-en. [2]

OECD (2022), *Tax Administration 2022: Comparative Information on OECD and other Advanced and Emerging Economies*, OECD Publishing, Paris, https://doi.org/10.1787/1e797131-en. [1]

OECD (2019), *Tax Administration 2019: Comparative Information on OECD and other Advanced and Emerging Economies*, OECD Publishing, Paris, https://doi.org/10.1787/74d162b6-en. [3]

OECD (2017), *Tax Administration 2017: Comparative Information on OECD and Other Advanced and Emerging Economies*, OECD Publishing, Paris, https://doi.org/10.1787/tax_admin-2017-en. [4]

Annex 4.A. Links to supporting material (accessed on 26 May 2023)

- Box 4.1. – Hungary: Link to a video providing more detail on the Flat Rate Tax Wizard Web Application: https://youtu.be/hSaKYhponBY
- Box 4.2. – Australia: Link to further information on the enhanced prefill solution: https://www.oecd.org/tax/forum-on-tax-administration/database/b.4.2-australia-enhanced-prefill.pdf
- Box 4.3. – Spain: Link to a presentation on the predictive model for non-filers: https://www.oecd.org/tax/forum-on-tax-administration/database/b.4.3-spain-predictive-model-for-non-filers.pdf
- Box 4.4. – Slovak Republic: Link to further information on the behavioural insights letter campaign: https://www.oecd.org/tax/forum-on-tax-administration/database/b.4.4-slovak-republic-real-estate-letters.pdf

5 Services

This chapter examines how tax administrations' compliance goals are met by providing effective and efficient services to taxpayers, increasingly through technology.

Introduction

A core part of supporting taxpayer compliance is the provision of a wide range effective and easy to use services to taxpayers such as specific guidance, appropriate prompts or calculation tools. Tax administrations report that their investment in services is growing, with a focus on providing services that are more relevant to the taxpayer's individual circumstances.

This increased range of services is helping facilitate the drive towards self-service, on a real-time and 24/7 basis. In addition, tax administrations are reporting a rapid growth in the use of technology to transform their operational models. The use of advanced techniques in artificial intelligence, machine learning and machine to machine links are opening up new service options for tax administrations that allow more 'compliance-by-design' style approaches to be made possible. This is a growing trend that is expected to accelerate as tax administrations continue to unlock the power of digital transformation. Box 5.1. provides an example of digital transformation allowing the introduction of new services and access channels.

Box 5.1. Italy – Enhancing taxpayer assistance

Within the innovation framework of the Italian Public Administration, the topic of improving the digital services delivered to citizens plays a central role. The possibility of offering customised, reliable, and easy-to-use services represents a strategic objective of primary importance in the modernisation and digitalisation of the national administration.

All this was achieved thanks to the migration process to Customer Relationship Management, where the Italian Revenue Agency embarked on a digital transformation journey. This aimed at updating the technological tools used to manage requests for assistance and to ensure a greater effectiveness in supporting taxpayers who require assistance or information. Several online services and access channels have been implemented to:

- Manage assistance to taxpayers through different channels (telephone, web mail, SMS);
- Carry out surveys to measure user satisfaction at the end of the service subject of monitoring; and
- Manage surveys, synthetic or analytical, to find out citizen satisfaction in the specific service.

See Annex 5.A. for supporting material.

Source: Italy (2023).

Taxpayer insights

This growth in the use of technology and more personalised services has seen tax administrations focus more on the experience of taxpayers in using these services. This has also led to taxpayer centred service improvements which help improve outcomes for administrations and taxpayers alike. Box 5.2. below contains examples of taxpayer feedback being used to drive service improvements.

Service improvements have often been supported by the use of behavioural insights. Behavioural insights is an interdisciplinary field of research using principles from the behavioural sciences such as psychology, neuroscience, and behavioural economics to understand how individuals absorb, process, and react to information. These principles can be used to design practical policies and interventions based on human behaviour. This can be particularly powerful when combined with insights gathered from the analysis of

the increasingly large volumes of data available to tax administration, both internally and externally generated.

Previous editions of this series have seen and increasing number of tax administrations report employing behavioural researchers and using behavioural insights in specific areas to influence voluntary compliance. This trend has continued with three-quarters of administrations reporting the use of behavioural insight methodologies or techniques in 2021 (see Chapter 6, Figure 6.1.). The 2021 report from the OECD's Forum on Tax Administration Behavioural Insight Community of Interest also contains many examples of this in practice (OECD, 2021[1]).

Box 5.2. Examples – Taxpayer insights

Australia – Deliberate choice behavioural insights letters

In 2022, the Australian Taxation Office (ATO) undertook research to better understand why taxpayers did not resolve their outstanding obligations after receiving reminder letters from the ATO. The ATO conducted two randomised controlled trials (RCT) to test the impact on compliance rates of:

- combining outstanding lodgement and debt reminder letters – a first for the ATO which usually sends separate lodgement and debt letters, and
- using behavioural levers that put responsibility for acting on the client, such as: the surveillance effect, social norms, salient consequences, and enablement messaging.

The ATO found that:

- combining lodgement and debt reminders did not conclusively impact on client's total debt positions but did significantly increase payment plan outcome rates, and
- using behavioural levers improved lodgement compliance rates compared with a softer control letter, and provided similar rates compared with a firmer legal warning control letter.

These results enable the ATO to quantify the value proposition of updating their letter suite to include behavioural levers, payment reminders and promotion of payment self-service channels.

The ATO were also able to leverage the underlying robust RCT datasets to understand the characteristics and traits of sub-populations which respond more, or less favourably to treatment, such as: Does having a tax agent influence the outcome? This enhanced understanding is then fed in as actionable insights into the development of future tailored strategies to re-engage clients with the tax and super systems.

Brazil – Improving fiscal citizenship

The Receita Federal do Brasil (RFB) identified that they needed to invest in programmes that make taxpayers aware of the economic importance of taxes and how taxes provide the resources needed to support public services.

To measure the success of this, the RFB defined an indicator to measure how the Fiscal Citizenship activities affect people's perceptions of taxation. This is done through the analysis of comments made by citizens on the RFB's social networks, where each activity is classified according to whether there was a positive, neutral, or negative comment. This allows the RFB's team of Fiscal Citizenship representatives to identify whether the programme addresses issues that are important to citizens.

Georgia – Feedback mechanism

The Georgia Revenue Service's 2021-2024 strategy document and 2022 action plan commits it to providing taxpayers with an easy access to electronic services accompanied by a feedback system, through which users will be able to share their opinions and experience of using such services.

Therefore, from 2021, users had an opportunity to evaluate the services/information received through the website, contact centre, electronic chat, emails, web portals and so on. As a result, in 2022, the average monthly pieces of feedback received from taxpayers was 1 644, which suggests that taxpayers are active in the feedback system.

This feedback has been used to deliver changes, with for example, English-speaking employees being added to the chat function and call centre, as well as changing the topics available for discussion on the chat function. This has led to increased satisfaction rates amongst users of these functions, rising to 95% by the end of 2022 (from 45% in March 2022). Thanks to this success further departments will be included within the feedback function.

Italy – Improving the delivery of services to taxpayers

Customer Satisfaction (CS) surveys are a fundamental component of the Italian Revenue Agency's "Citizen Voice System" used to determine how well the services, initiatives and tools provided fulfil users' needs.

Qualitative research in the field of CS (focus groups, interviews) can measure not only citizen satisfaction but also test the requirements of a new service. This can identify usability issues in the testing phase and help create a "tailor-made" design in the development of new services.

In particular, the Revenue Agency conducts both in-depth surveys tracing the user experience for the most critical services and a lighter form of survey (CS light) to survey the customer satisfaction on a larger number of services. The latter enables the process owner to identify areas of taxpayer dissatisfaction, intervening promptly with improvement actions and undertaking more detailed analyses to retrace the user 'journey' through the service.

CS light, with few but essential questions, is accessible to the user via a link available at the end of the service. This employs a five-point scale and the possibility for the user to insert comments/ considerations against the selection of the extreme values of the scale. In addition to the overall satisfaction level, two of the reference indicators for comparing the usability of services are used: the Customer Effort Score and the Net Promoter Score. In addition, a survey dashboard allows a greater autonomy in the management of CS survey campaigns on the services identified. In this way, a continuous CS Feedback Survey is achieved, where the return data complement the other elements of the Citizen Voice System (Complaints monitoring and the Service Charter).

See Annex 5.A. for supporting material.

New Zealand – IR Connection Panel

During Inland Revenue's (IR) business transformation to deliver a modern, digital revenue system that makes tax and payments easier for customers, the business question moved from "Should the customer voice be embedded into decision-making?" to, "How can it be done faster and better?". In October 2021, IR's first in-house customer research panel – 'IR Connection' was launched. It enables flexible and timely engagement with customers, giving IR deeper insights into customer experiences, motivations, and emotions. Customer feedback is available in real-time and supports informed and agile decision-making.

A 7 000 strong community has taken the opportunity to contribute to the development of IR's strategies, policies, products and services. 'IR Connection' provides representation across IR's core customer

segments and products, and also allows IR to identify and connect with traditionally hard-to-reach customers, such as new migrants and those living with disability. The community is designed to be inclusive and diverse, with branding in multiple languages to acknowledge the majority of New Zealand's unique communities.

Since its launch, 'IR Connection' has contributed to various initiatives in the organisation, including communication testing for annual tax assessments, concept testing of products and services and gathering insights for a policy review.

'IR Connection' is a genuine way to bring the customer voice into decision-making at IR and it exemplifies the organisation's commitment to being intelligence-led and customer-centric. As it continues to provide insights, IR will be better-positioned to deliver seamless, customer-focused services and solutions that enhance voluntary compliance.

Spain – Assistance portal improvements

The Portal for Integral Assistance to Taxpayers, PACO, (Portal de Asistencia al Contribuyente) is a new programme that brings together guidance and support materials across all functional areas and puts them at the disposal of the officials delivering assistance to taxpayers. The programme allows an easy search of contents to help tax officials give an answer to a specific taxpayer's need, either digital, by phone or onsite, and it is designed to enable continuous updating.

An important part of PACO is the feedback and support mechanism which is at the bottom of every page. Three icons guide this:

- A question mark opens a window for tax officials to send suggestions on improvements or inform on mistakes.
- A "plus or minus show" button allows access to all the information for a functionality or a restricted version with only the most relevant information.
- A 'PACO' button leads to a new window with a summary of useful data for the assistance to a specific taxpayer and informative contents on taxes and other subjects such as PIT, VAT, registration, phone assistance, notifications, legal framework and rulings, frequently asked questions and taxpayer areas. Each section centralises the main information and assistance tools on the subject to facilitate the delivery of the service by tax officials.

See Annex 5.A. for further information.

Türkiye – Applying behavioural insight

The Turkish Revenue Administration has reviewed and evaluated all practices and services to taxpayers across the administration to consider how a behavioural public policy approach can be applied to increase tax awareness and voluntary compliance of taxpayers. This has led to a programme of medium and long-term behavioural public policies, supported by experimental studies. This has required the establishment of a Behavioural Public Policy Development and Implementation section, which is a team of 141 people, established from 17 departments at the headquarters and 30 tax office directorates in the provinces. Studies include:

- Raising awareness of the Pre-Filled Return Filing System; and
- Increasing payment of Motor Vehicle Tax Debt.

For details of the methodologies used, and the results of these studies, see Annex 5.A.

Sources: Australia (2023), Brazil (2023), Georgia (2023), Italy (2023), New Zealand (2023), Spain (2023) and Türkiye (2023).

Managing service demand

An important aspect of meeting taxpayer preferences is getting the mix of channels right. Such strategies of course need to be based on good measurement and understanding of demands and constraints. Table 5.1. highlights the shift to digital that occurred since the pandemic, with use of online channels continuing to grow significantly. The rapid decline of in-person visits to the tax office persisted during 2021, while the use of paper correspondence went back to pre-pandemic volumes. Digital assistance, for example through chatbots, has become an important channel in many jurisdictions. The data hints at a structural shift away from costly and time-consuming in-person visits to online interactions.

Table 5.1. Evolution of service demand by channel between 2018 and 2021

Channel type		No. of jurisdictions providing data	2018	2019	2020	2021
Online via taxpayer account	Number	31	1 130 253 409	1 310 985 136	1 731 456 863	2 292 638 417
	Previous year change in %			+16.0	+32.1	+32.4
Telephone call	Number	52	328 816 038	314 207 157	333 302 424	366 456 409
	Previous year change in %			-4.4	+6.1	+9.9
In-person	Number	35	109 620 990	109 052 857	48 699 279	41 594 555
	Previous year change in %			-0.5	-55.3	-14.6
Mail / post	Number	19	35 045 875	35 167 199	31 998 546	35 602 576
	Previous year change in %			+0.3	-9.0	+11.3
E-mail	Number	29	11 996 438	13 396 755	18 533 129	20 297 619
	Previous year change in %			+11.7	+38.3	+9.5
Digital assistance	Number	28	11 071 830	21 405 307	30 933 041	53 271 347
	Previous year change in %			+93.3	+44.5	+72.2

Note: The table only includes jurisdictions for which data was available for 2018 to 2021.
Sources: Tables A.76. to A.78.

Supporting self-service

The self-service offering from tax administrations continues to grow, with an expanding range of self-services being provided. Common examples of this include the ability to register, file and pay on-line, along with a range of interactive tools. This is leading to efficiency gains in tax administrations, as well as being able to provide a more 24/7-style service to taxpayers. A number of tax administrations are also applying artificial intelligence techniques to the large amounts of data that is collected through these services to help develop them further to better meet taxpayers' needs.

Box 5.3. Examples – Enhancing self-service

Canada – The 'Progress Tracker'

The 'Progress Tracker' is a new digital service, available within secure portals (My Account and My Business Account), that provides clients with a convenient self-service option to track the status of files submitted to the Canada Revenue Agency (CRA) for processing. It also provides users with a target completion date of their requests, as well as e-notifications when the status of their file changes.

The 'Progress Tracker' service was successfully implemented in February 2022 into My Account with the first group of on-boarders:

- The disability tax credit,
- Appeals covering (digital) individuals' notices of objections and requests for taxpayer relief on penalties and interest, and
- The taxpayer services agent desktop for individuals service for contact centre agents.

The May 2022 release made the 'Progress Tracker' service available to users in the My Business Account portal with the second group of on-boarders:

- Charities' services: application and return, and
- Appeals services submitted by paper for formal disputes and taxpayer relief.

Subsequent releases have expanded this further to cover additional business' appeals services, and corporation tax initial assessment and adjustments. The CRA will continue to add additional options for individuals, businesses and representatives in subsequent systems releases.

Japan – Enhanced payments service

The Japanese National Tax Agency (NTA) is striving to make things easier for taxpayers by introducing various measures for national tax payments, and is promoting cashless payments and co-operating with financial institutions and other related entities to deliver new services. These include for cashless payments:

- Transfer tax payment: A tax payment procedure whereby tax amounts are automatically debited from a bank account or savings account.
- Direct type online payment of national tax: A tax payment procedure whereby tax amounts are debited from a designated bank account via a simple operation after using the "filing through online (e-Tax)" portal.
- Online tax payment using internet banking, or ATMs.
- Payment with credit card: A tax payment procedure whereby the required information from a taxpayer's credit card is entered on a dedicated website.
- Payment with smartphone application: A tax payment procedure involving the use of a smartphone application payment service on a dedicated website.

For those who want to pay by cash, tax payments can be made at the counters of financial institutions and tax offices via tax payment slips, or via convenience stores with tax payment slips or 2D barcodes.

See Annex 5.A. for further details.

Netherlands – Prefilled digital payment service

The Netherlands Tax Administration (NTA) experience is that taxpayers make all kinds of accidental mistakes in tax payments. The amount due, the bank account number and the payment reference easily lead to unintended errors in the Netherlands. Furthermore, the process of the payment itself is labour intensive for SME's and results in many cases in late payment with default penalties. The NTA has to put effort into correcting these unintended errors as well. Addressing this issue will lead to substantial reduction of burden in administrative processes for both parties.

In 2018, the NTA started a pilot that enables prefilled digital online payments for SME's. In the pilot phase the service was offered to 4 software developers. The service prefills the amount due; the bank account number and payment reference. Due to the use of this service the error rate made in payments has been reduced from 4% to 0%. The percentage of late payments has been reduced from 8% to 5%.

A survey of users has shown that 99% found paying with the service much easier, giving the service a grade of 9.2 (scale 1-10). This service has proven to enhance compliance due to its easy-of-use. The

ambition for the near future is to provide the prefilled digital payment service for all tax types. Also, the NTA is promoting the use of the payment service to a wider number of software developers.

United Kingdom – Open banking technology

In March 2021, His Majesty's Revenue and Customs (HMRC) became a leader in implementing a bank transfer payment journey using open banking technology via a Payment Initiation Services Provider (PISP).

PISP provides customers with a way of paying most taxes directly from their bank account to HMRC in a few clicks, using prepopulated payment information meaning payments are not misallocated.

Since its launch, 4.4 million payments (GBP 12 billion) have been submitted via PISP with volumes increasing exponentially (50%) in the 12 months to January 2023. This has led to a significant drop in customer errors and subsequent follow-up contact. In February 2022, the service was extended to users of HMRC's mobile phone app, which has taken GBP 200 million in payments, including the largest single payment into HMRC of GBP 9 million in January 2023, via the HMRC app.

Enabling customers to use preferred, and familiar, biometric authentication methods such as fingerprint and face recognition is proving popular, with QR codes scanned 600 000 times in 12 months. The QR code option has been developed for customers logged into their online accounts, allowing people to begin payment on a personal computer and complete it securely and seamlessly on a mobile phone.

During 2023, HMRC will introduce functionality enabling customers logged into their online accounts to set a payment to be made on a future date, helping them to manage their tax responsibilities more efficiently.

Sources: Canada (2023), Japan (2023), Netherlands (2023) and United Kingdom (2023).

Virtual assistants

The previous editions of this series highlighted how a growing number of administrations are using virtual or digital assistants to help respond to taxpayer enquiries and support self-service. As Table 5.2. shows the growth has been significant and these services are now commonly used by many administrations.

Table 5.2. Evolution of use of virtual assistants, artificial intelligence and application programming interfaces between 2018 and 2021

Percent of administrations that use this technology

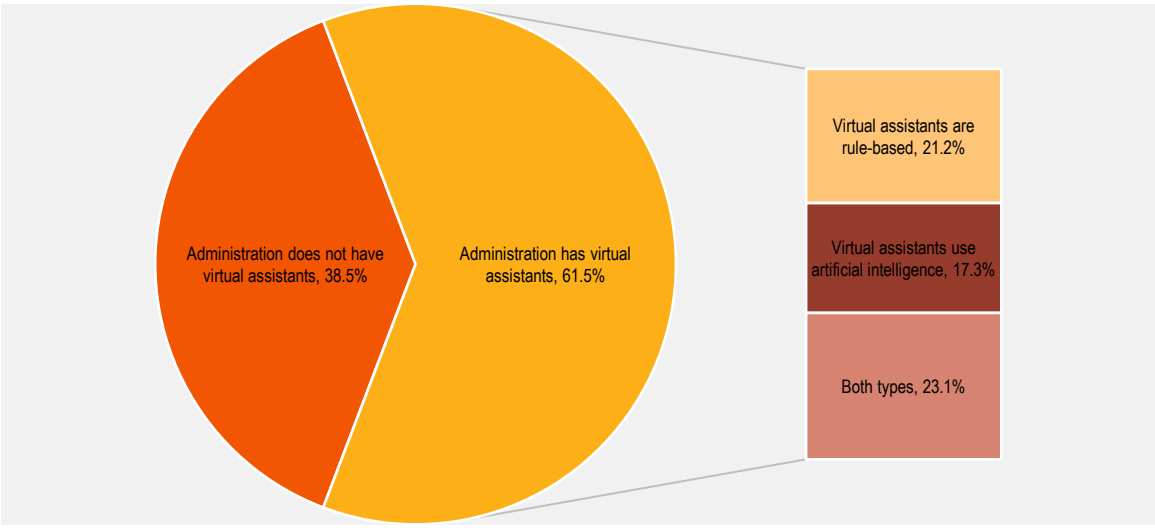
Status of implementation and use	Virtual assistants (e.g. chatbots)			Artificial intelligence (AI), including machine learning			Application programming interfaces (APIs)		
	2018	2021	Difference in percentage points (p.p.)	2018	2021	Difference in p.p.	2018	2021	Difference in p.p.
Technology is implemented and used	34.5	63.8	+29.3	31.6	54.4	+22.8	79.0	93.0	+14.0
Technology is in the implementation phase for future use	13.8	12.1	-1.7	15.8	28.1	+12.3	7.0	5.3	-1.7
Technology is not used, incl. situations where the implementation has not started	51.7	24.1	-27.6	52.6	17.5	-35.1	14.0	1.7	-12.3

Sources: Tables A.91. to A.93.

The success of these services are now being developed further with jurisdictions investigating how they use advances in artificial intelligence (AI) to deliver more sophisticated levels of support. Figure 5.1 shows that 40% of administrations who have a virtual assistant are using AI in some form to improve the service. This can allow the system to cope with more complex questions being asked by taxpayers and/or more personalised answers being given. This is part of the wider trend of the use of AI in tax administration which can be seen throughout this report.

Figure 5.1. Type of virtual assistants, 2022

Percent of administrations



Note: The figure is based on ITTI data from 52 jurisdictions that are covered in this report and that have completed the global survey on digitalisation.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table TT5 (accessed on 22 May 2023).

StatLink https://stat.link/wd9oxb

Box 5.4. Examples – Virtual assistants

Portugal – Enhanced virtual assistant

The Portuguese Tax and Customs Authority's (AT's) virtual assistant 'cATia', available 24/7 on the AT website and social media channels, provides individual taxpayers with answers to the most frequently asked questions, using simple and clear language. On working days, from 9am to 7pm, it is supported by live agents.

One of the advantages of 'cATia' is that, while maintaining users' data privacy and security, it enables AT to channel contacts from face to face and phone services to an automated response service, allowing the standardisation of responses between the different social media platforms. It also allows interactions between the chatbot and social media.

The planned development of the virtual assistant will add speech recognition to the chatbot, enabling voice-bot conversation, and making it available on other social media platforms.

United States – Chatbot

Chatbots, which have handled 2 million chats for collection in the past 6 years, are currently available in both English and Spanish on the Internal Revenue Service (IRS) web page. The chatbots provide taxpayers with self-service options to resolve their Collection notice without calling the IRS. Services offered include information about making a payment, notice clarification and responses to frequently asked questions, with the option to escalate to a live assistor.

The IRS also offers Collection voice bots, which have handled 8.2 million calls in the past 12 months, in both English and Spanish, for taxpayers calling into the Automated Collection System (ACS) and Accounts Management toll-free lines that allow them to use natural language to speak with a bot in a simplified simulation rather than using menu prompts. Voice bots were an important factor in the IRS being able to answer 30% more calls in ACS last fiscal year. Eligible taxpayers can authenticate their identity in a few short steps to receive options to resolve their accounts, such as setting up a payment plan, obtaining a payoff amount, and receiving account transaction information. Additionally, taxpayers can receive unauthenticated services that provide taxpayers with information about making a payment, notice clarification and responses to frequently asked questions.

Taxpayers authenticate their identity by providing their Social Security Number, date of birth, and the caller ID number contained on their collection notice. The taxpayer is then prompted to create a Personal Identification Number that is used to navigate the process.

Sources: Portugal (2023) and United States (2023).

Mobile applications

The recent trend for the increasing use of mobile applications by tax administrations seen in other editions of this series has continued. Mobile applications allow taxpayers to access services on the go and thus provide additional flexibility and support self-service.

While the main use often remains the provision of information and guidance, mobile applications are becoming increasingly transactional, and are becoming a primary way for taxpayers to access relevant records and personal tax accounts, communicate with the tax administration, supply information and tax returns and make payments. Box 5.5. provides latest developments in this area.

Box 5.5. Examples – Mobile applications

Argentina – Biometric authentication

Facial biometric authentication has been incorporated in the Argentinian tax administration's (AFIP) mobile app "Mi AFIP" which can allow taxpayers to validate their identity without the need to be physically present in an AFIP office.

Before facial biometric authentication was in place, citizens needed to go to an AFIP office and show proof of their identity to obtain their tax login code, which in turn would allow them to digitally interact with AFIP.

Nowadays, citizens can certify their identity from their mobile phones, get their tax login code and, using that same mobile device, they can report their economic activity and register themselves in all relevant taxes so they can be authorised to issue electronic invoices and conduct business.

This development streamlines citizen services, reduces time spent on formalities and procedures, and simplifies compliance with tax obligations. It also provides considerable savings for taxpayers living far from an AFIP office.

Germany – Online tax portal app

The German tax administration is offering a mobile application that can be used to scan individual documents and upload them to the taxpayer's user account in ELSTER, the online tax portal.

Using this app, taxpayers will be able to photograph documents with their smartphone camera immediately after receiving them. The photographed documents will then be scanned (using OCR or possibly a QR code) and appropriate values will be extracted from them. The user can also assign these documents to different categories. When the income tax return is prepared, the app will automatically insert the metadata into the appropriate input fields of the tax return.

This will make it significantly easier for taxpayers to prepare their income tax returns. They can efficiently scan individual documents that are relevant for the tax return and manage them in their personal online ELSTER account.

As the app will record the metadata (amounts, date, category), time-consuming searches for documents will no longer be necessary when preparing income tax returns. Furthermore, any problems and errors resulting from transfers between different media formats will be avoided, as all tax-related information will be available electronically and can be accessed online at any time through the user account. This will save users a significant amount of time and extend the range of citizen-friendly online services provided by the tax administration.

The app will also reduce the workload for the tax administration. When the scanned documents are filed in the taxpayer's user account, they can easily be made available to the case worker at the tax office if needed and no longer have to be requested in a laborious written process. This will avoid interruptions in processing tax returns.

Hungary – Vehicle tax via a mobile app

The National Tax and Customs Administration (NTCA) of Hungary took over the assessment of motor vehicle tax from local governments in 2021. In order to support tax assessment and to make the payment smoother for taxpayers, it was necessary develop new IT solutions. During the design process, the NTCA aimed at providing simple and cost-free payment options making it easier for taxpayers to fulfil their obligations thus ensuring the collections of state revenues. Two new payment services were created so that every taxpayer can find the most suitable solution:

- **Payment link** where electronic letters were sent containing a personalised link, which redirects to an online bank card payment interface. This payment service uses customer authentication and also requires credit / debit card data.
- **NTCA-Mobile application** where taxpayers were sent a push notification. In the application, a separate menu item supports the viewing and settling of the motor vehicle tax.

The advantage of these new payment methods is that the vehicle tax can be settled with a few clicks and through an electronic payment. As a result, the number of postal check payments are down by more than 50%.

See Annex 5.A. for supporting material.

Poland – E-receipts

The Ministry of Finance in Poland is working on providing a publicly available service that allows every citizen to download an electronic receipt from a cash register to a smartphone, from a mobile application open to any software supplier, and the service will be fully anonymous via a unique identifier. At the point of purchase the customer will present the barcode identifier to the cashier, the cashier scans it and the cash register sends the receipt to the distribution system. Within a few seconds, the customer can download their receipt from the system to their smartphone. No customer identification data is required to receive the barcode identifier. This service will bring many benefits such as access to the e-receipt at any time, will help to reduce paper use and reduce the shadow economy.

Portugal – Supporting self-employed taxpayers

ATGO is a newly developed mobile application launched by AT that allows individual taxpayers, who are self-employed and without paid accounting support, to easily comply with their tax obligations and manage their professional activities in a single point of access.

By accessing ATGO, taxpayers can view professional activity data, namely consult VAT and PIT schemes, and they can also issue and view their receipts and send them, on the spot, to their clients electronically. Taxpayers are also able to save templates for easier filling, and analyse previous income and expenses to compare them with the same period of the previous year. A "Top 5 clients" feature is also available, either by the amount of income earned or by the number of receipts issued.

Tutorials and help by tax officials are provided to guide taxpayers into all the features. In the near future, the application will have new developments, such as a digital fiscal agenda, alerts on tax compliance, electronic payments through the app, speech recognition in search and invoice issuance, and it will also be available in English.

The development of solutions such as the ATGO application reinforces the technological innovation plans for AT. The goal is to strength the communication and relationship with taxpayers and minimise the costs associated with tax compliance, through an improved and helpful service.

See Annex 5.A. for supporting material.

Spain – Tax debts app

Following a piece of complex analysis work to present taxpayers with redesigned interfaces so that they can proceed to pay their tax debts, request deferral or pay in instalments, the Spanish Tax Agency (AEAT) has implemented a project to make it easier for taxpayers to pay their tax debts via an application. This system allows the payment of several debts through a single payment to be made online by debiting an account or paying by card at any of the financial institutions that collaborate with AEAT.

Additionally, through the "Consult debts" option, which can be accessed either by a taxpayer or their authorised representative, taxpayers can view their total or partial outstanding debts, accessing all the detailed information about them. In addition, an automated system for processing requests for deferment or instalments of debts has been developed, so that in a high percentage of cases the file is resolved almost instantaneously. In this way, and in a matter of minutes, the taxpayer receives an SMS communication from the AEAT of the result of their application.

The application also includes an "Interest and deferral calculator", a personalised tool that AEAT makes available to all citizens so that they can find out the legal or late payment interest applicable to both tax and non-tax debts, as well as deferrals and payment by instalments. At the end of the payment process, taxpayers are offered the possibility of requesting the issuance of a tax certificate of being of up to date with their tax obligations.

See Annex 5.A. for supporting material.

Sources: Argentina (2023), Germany (2023), Hungary (2023), Poland (2023), Portugal (2023) and Spain (2023).

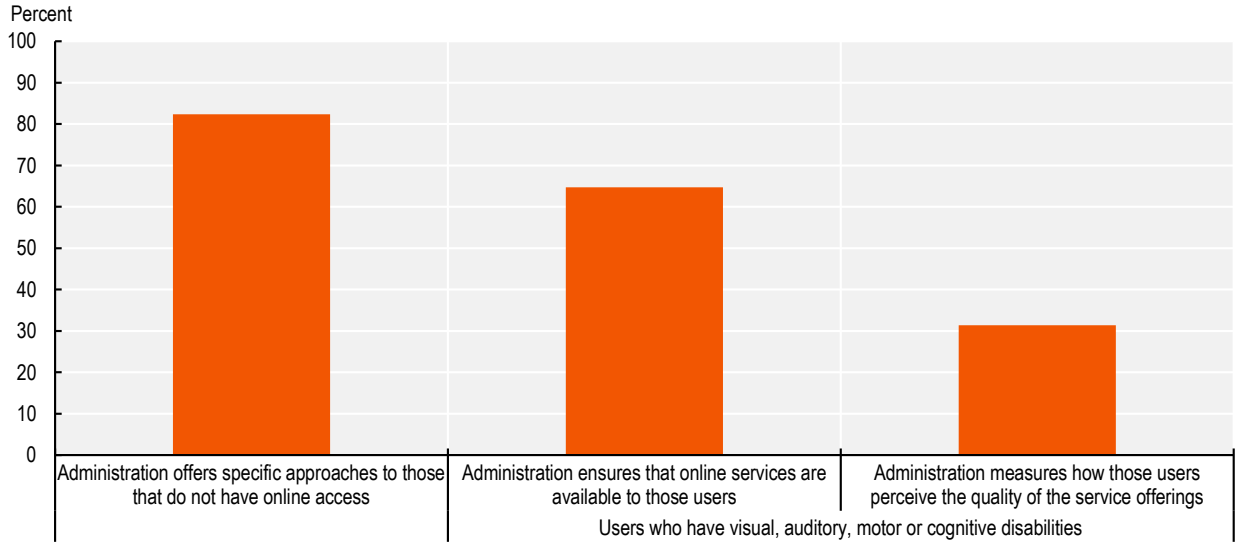
Digital inclusion

Digital services have been critical to tax administrations delivering enhanced services to customers, as well as opening up new service options. While there is an increasing shift to the use of electronic services for both convenience and cost-efficiency purposes, a proportion of taxpayers will not have access to, or be comfortable with such services. This calls for considered strategies as to how to influence channel shift for those for whom it would offer better outcomes without adversely affecting the service offering to other taxpayers.

Figure 5.2 highlights that 80% of administrations offer specific services to support those who are not online, and over 60% make sure their services are available to those with a disability. Whilst more progress clearly needs to be made in this space, these programmes are starting to ensure that all taxpayers are served effectively by the tax administration. Tax administrations are therefore continuing to invest in detailed research to understanding the needs and drivers of these taxpayer groups and to develop considered strategies as to how to serve these taxpayers in the most appropriate way.

Figure 5.2. Non-digital services and services for users with visual, auditory, motor or cognitive disabilities, 2022

Percent of administrations



Note: The figure is based on ITTI data from 52 jurisdictions that are covered in this report and that have completed the global survey on digitalisation.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table TT4 (accessed on 22 May 2023).

StatLink https://stat.link/gulkts

Box 5.6. Examples – Digital inclusion

Canada – Individual Tax Filing Assistance

Through the Individual Tax Filling Assistance (ITFA), dedicated CRA employees can reach out to eligible individuals to direct them towards various options to meet their tax obligations and help them access their benefits and tax credits. Agents begin by promoting Community Volunteer Income Tax Program (CVITP) clinics, including virtual tax clinics; followed by other filing methods, such as certified tax software; or agents may complete the individual's tax return over the phone. ITFA does not replace the services offered by CVITP clinics but is presented as a viable alternative to individuals who may have trouble accessing a clinic or filing on their own.

During the pandemic, the CRA recognised that vulnerable individuals may experience barriers to accessing the CVITP and established a new business model whereby qualified individuals are sent a letter offering the CRA's assistance in helping them access an alternate means to file their individual tax and benefit return. To be eligible for ITFA, individuals must have a modest income, a simple tax situation, and have previously accessed tax preparation services through a CVITP free tax clinic or are currently eligible to use one. Clients must pass confidentiality screening prior to an ITFA agent preparing the return over the phone.

The CRA developed enhanced security measures, including passwords for agents to verify with callers, a specific Canada.ca webpage, and personalised letters to individuals, anticipating the needs and concerns of clients with regards to scams and fraud. The CRA's efforts contributed to strengthening confidence in the integrity of the Agency.

Latvia – New services to support taxpayers not online

The Electronic Declaration System (EDS) was deployed in 2019 as a secure and easy way to submit all tax returns, declarations and other documents to the State Revenue Service (SRS). EDS is open to all taxpayers, and the main advantages are saving time and increased accuracy, as well as improved data security.

'Authorization to complete EDS e-services' was created so that individuals who are not online can still work with the tax administration and submit the information electronically. Two types of services are currently provided: annual tax return submissions and changes to electronic payroll registration.

Private individuals can visit an SRS client service centre with paper documents and have an authorised SRS employee input the information electronically. Data entry is performed in the "employee workplace" solution created in EDS.

Spain – Supporting the elderly

In 2022, AEAT and the Platform for the Elderly and Pensioners (PMP), which is a representative body for this group, signed a protocol setting the basic guidelines of the assistance that AEAT offers to the elderly and a general framework of collaboration for future actions.

PMP brings together the most important organisations, federations, confederations of senior citizens and pensioners in the country, representing 15 079 associations, with more than 5 746 000 affiliated individuals.

The protocol underlines the commitment of AEAT to deliver a customised assistance to the elderly through the promotion of actions that assure them complete and updated tax information. The protocol provides for:

- The creation of a joint committee, composed of members of AEAT and the platform, responsible for the identification and analysis of the specific problems of the elderly;
- An annual plan of assistance to the elderly;
- The development of specific assistance protocols for the elderly; and
- Simplification of forms.

Sources: Canada (2023), Latvia (2023) and Spain (2023).

Collaborative services

As the digital services developed by tax administrations grow, more and more administrations recognise that these services bring opportunities to connect into the systems of taxpayers, often through Application Programming Interfaces (APIs). APIs are allowing connectivity between systems, people and things without providing direct access, and are the critical enablers of many of the innovative services highlighted in this report. It is against this background that 80% of tax administrations are now creating APIs and that three-quarters of them are making the APIs available to third party developers. See Box 5.7. for examples of latest developments in administration regarding APIs and Chapter 10 which contains more detail on the role of APIs in digital transformation.

The OECD report *Unlocking the digital economy – a guide to unlocking application programming interfaces in government* (OECD, 2019[2]) provides an overview of the practices, techniques and standards used to deliver contemporary and effective digital services for taxpayers through APIs. As the services delivered become more sophisticated, and play a greater role in delivering a quality service to taxpayers, tax administrations are having to invest more in the management and oversight of their APIs.

Box 5.7. Examples – Using APIs to provide better services

Latvia – Electronic declaration system API

Using the EDS, which was developed to submit information to the SRS, manual input is reduced to a minimum as information from a company's accounting system is transferred to SRS using a fully automated intersystem interface, the "System to System" principle, and placed in the EDS database. The solution uses recognised standards and protocols to preserve the data structure and content of existing EDS documents. Documents received through EDS are subjected to logic and maths checks, with the results highlighted to the taxpayer, indicating possible errors that can be fixed.

An additional functionality "Taximeters" has been created for the EDS service. Taximeters allows the sending of passenger transportation information to SRS using an authentication and authorisation system for users that can register taxi trips in the EDS.

Mexico – Managing APIs

The Mexican Tax Administration Service (SAT) is in the process of implementing a platform for the management of APIs, which will facilitate the exchange of information between SAT and external entities. This platform aims to streamline APIs administration for users by categorising and classifying the available services. It will also provide the institution with improved oversight of API development and publication. As part of this ongoing initiative, every deployed API will be registered within the platform. The portal will also publish explanatory documentation and serve as the primary access point for obtaining APIs, offering sample code for adaptation. The platform will allow for comprehensive

control by SAT throughout the lifecycle of APIs, including design, implementation, and retirement. Additionally, it will enable the management of API versions and generate detailed usage reports, identifying which users or applications are utilising each API, frequency of usage, and quantifying successful or failed calls.

As part of the evolving project, SAT aims to provide API services that will enhance access to taxpayer information. These services will allow users to verify taxpayer registration status and determine if they are up to date with their tax obligations. The work on implementing these services is currently underway, reflecting the institution's commitment to improving information exchange and streamlining processes.

United Kingdom – API development

In the UK's Making Tax Digital (MTD) programme, taxpayers are required to digitally capture information on a business's transactions, and then submit updates or returns drawn from that data to His Majesty's Revenue and Customs (HMRC), using MTD compatible software.

Businesses send tax information directly to HMRC from their records securely with only a click of a button because of the sophisticated APIs HMRC has developed with the software industry. HMRC sets out technical standards for software providers to follow on cyber-security and the security, storage, management and processing of customers' personal data as a condition of recognising software products as authorised to operate with HMRC's systems.

These APIs allow taxpayers to send summary-level data to HMRC (derived from the underlying transaction-level data) and for HMRC to send through relevant prompts and nudges to the taxpayer. HMRC already receive financial information securely through this channel for over 2.4 million VAT-registered businesses across the UK, and HMRC is expanding this obligation to other taxes and taxpayers in stages.

For income tax, which is on an annual basis in the UK, in-year updates gathered through APIs will allow HMRC to give the taxpayer a notional estimate of the tax they are on course to owe at the end of the year. These estimations have huge potential benefits for taxpayers, allowing businesses to better plan for future tax liabilities and manage cash flow.

See Annex 5.A for supporting material.

Sources: Latvia (2023), Mexico (2023) and United Kingdom (2023).

The new possibilities for service development opened up by APIs means that tax administrations are also deepening their collaboration with an increasing number of organisations outside of government, including in the development of new joined-up services. It is expected that this trend will accelerate and grow as tax administrations digitally transform their operating models and the natural systems of taxpayers and tax administrations become more connected. Box 5.8. illustrates this.

Box 5.8. Examples – Developing collaborative services

Finland – Digital platform for real estate transactions

This project digitised real estate transactions through the "Digital Housing Trade Platform" (DIAS) and was developed in Finland in co-operation with the entire property ecosystem, including real estate agents and banks. The Finnish Tax Administration was also involved in the platform, which makes it possible to carry out real estate transactions electronically.

The initiative to digitise the transactions with residential real estate came from key market players who identified a place for efficiency in their mutual processes. In particular, this project started from the inefficiency of paperwork recognised by commercial operators and the opportunities that today's technology can offer. In parallel, government authorities had already identified opportunities for co-operation as part of the real-time economy project, but there were no natural drivers for co-operation.

As a result of this co-operation, the process became more efficient and faster between banks and brokers. It improved the buyer's experience and automated the reporting and payment of the transfer tax. The definition of common information and process has also made it possible to take a step towards the digitisation of the national, paper-based share capital, of which the implementation period started on 1 January 2023.

See Annex 5.A for supporting material.

Singapore – Redesigning the agent appointment system for banks

As part of the wider drive for digitalisation, the Inland Revenue Authority of Singapore (IRAS) partnered with banks to adopt the use of an encrypted digital listing to improve operational efficiency and eliminate many manual handling processes. Previously, most agent appointment notices were transmitted automatically via secure file transfer to the major banks while hardcopy appointment notices were sent to the remaining banks. The new approach offered a low-cost yet secure and simple digital solution to the banks which can now receive the notice of appointment in an encrypted digital listing format transmitted via email. This approach was well accepted by the banks due to its ease of implementation and cost effectiveness and was fully implemented within 6 months.

The digitalisation of hardcopy appointment notices brought about productivity gains to the banks with the elimination of sorting and distribution processes. Taxpayers also experienced greater convenience as their bank accounts can now be released promptly. IRAS also made subsequent enhancements by using Robotic Process Automation (RPA) to generate the listings and update appointment statuses after responses are received from the banks, which led to further efficiency gains.

The move to digital listings has also allowed for easier identification of digital payments made by banks vs. other agents. The distinctive classification of payments has provided IRAS with insights and allowed IRAS to appoint the most effective agent going forward. About 97% of all bank appointments are now digitalised.

Slovak Republic – E-seizure of bank accounts

In the Slovak Republic, the debt recovery strategy focusses on starting the recovery processes as soon as possible, without giving debtors chance to become insolvent. This depends on swift interactions and the IT tool – IPEX (informative support for tax recovery official) can collate information from banks, the Social Security Agency, as well as the Real Estate Register, and Motor Vehicle Register in just a few clicks. This means that data from organisations like banks can be provided very quickly, often in just a few hours. When these searches indicate there are assets that can be recovered, recovery procedures can begin.

These proceedings are completed electronically, allowing the whole procedure to be carried out quickly, and which prevents debtors from possible fraudulent behaviour. The swift resolution for debtors also helps them get clarity on their position without the need for a long-term freezing of their assets.

See Annex 5.A for supporting material.

United Kingdom – Collaborative services through APIs

The UK's MTD programme was one of the first of HMRC's major programmes to embrace APIs.

HMRC's random audit programme has shown that errors in small business tax returns are more likely to lead to too little tax being paid than too much being paid. Requiring taxpayers to keep digital records and file digitally through API-enabled software reduces transposition and calculation errors and other mistakes, which HMRC expects to lead to better compliance.

A research study found that MTD had reduced errors, leading to additional tax revenue of approximately GBP 115 million in its first year, in line with forecasts from the Office of Budget Responsibility, the UK's independent fiscal institution.

HMRC's API strategy provides the commercial software industry with the ability to build standard functionality into products, which ensure ease of compliance with MTD legislation, while still providing the flexibility to personalise design to best meet the target audience's diverse needs and budgets. Software developers have responded by producing over 500 MTD compatible software options from simple free and low-cost products to fully integrated cloud accounting software.

Many MTD users report that MTD makes it faster to prepare and submit tax returns. Studies have also found that MTD has increased business confidence in using technology. Businesses who respond to new MTD obligations by digitalising their tax compliance operations further can experience considerable productivity gains.

See Annex 5.A for supporting material.

Sources: Finland (2023), Singapore (2023), Slovak Republic (2023) and United Kingdom (2023).

References

OECD (2021), *Behavioural Insights for Better Tax Administration: A Brief Guide*, https://www.oecd.org/tax/forum-on-tax-administration/publications-and-products/behavioural-insights-for-better-tax-administration-a-brief-guide.htm. [1]

OECD (2019), *Unlocking the Digital Economy - A guide to implementing application programming interfaces in Government*, OECD, Paris, http://www.oecd.org/tax/forum-on-tax-administration/publications-and-products/unlocking-the-digital-economy-guide-to-implementing-application-programming-interfaces-in-government.htm (accessed on 22 May 2023). [2]

OECD et al. (2023), *Inventory of Tax Technology Initiatives*, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/ (accessed on 22 May 2023). [3]

Annex 5.A. Links to supporting material (accessed on 26 May 2023)

- Box 5.1. – Italy: Link to more information on the Customer Relationship Management system: https://www.oecd.org/tax/forum-on-tax-administration/database/b.5.1-italy-crm-system.pdf
- Box 5.2. – Italy: Link to more information on the Customer Experience Survey: https://www.oecd.org/tax/forum-on-tax-administration/database/b.5.2-italy-customer-experience-survey.pdf
- Box 5.2. – Spain: Links to presentations with more information regarding the Portal for Integral Assistance to Taxpayers:
  - English version: https://www.oecd.org/tax/forum-on-tax-administration/database/b.5.2-spain-paco-english.pdf
  - Spanish version: https://www.oecd.org/tax/forum-on-tax-administration/database/b.5.2-spain-paco-spanish.pdf
- Box 5.2. – Türkiye: Link to more details of the methodologies used and the results of the behavioural insights studies: https://www.oecd.org/tax/forum-on-tax-administration/database/b.5.2-turkiye-behavioral-insight-studies.pdf
- Box 5.3. – Japan: For more information on cashless payment options, see pages 21 and 22 of the NTA's Annual Report 2022: https://www.nta.go.jp/english/Report_pdf/2022.htm
- Box 5.5. – Hungary: Link to a video with more detail on the mobile app for vehicle tax: https://youtu.be/dtbxc5sT31M
- Box 5.5. – Portugal: Link to a presentation on the ATGO mobile application: https://www.oecd.org/tax/forum-on-tax-administration/database/b.5.5-portugal-atgo-mobile-app.pdf
- Box 5.5. – Spain: Links to videos, a presentation and a flyer on the tax debt application:
  - Video: https://youtu.be/RbQ40o8gvJI (English) and https://youtu.be/RutCSyTm61c (Spanish)
  - Presentation: https://www.oecd.org/tax/forum-on-tax-administration/database/b.5.5-spain-debt-app.pdf
  - Flyer: https://www.oecd.org/tax/forum-on-tax-administration/database/b.5.5-spain-debt-app-flyer.pdf
- Box 5.7. – United Kingdom: Links to further material on the use of APIs:
  - https://www.gov.uk/government/publications/making-tax-digital-review
  - https://www.gov.uk/government/publications/hmrc-third-party-tax-software-and-api-strategy
  - https://developer.service.hmrc.gov.uk/api-documentation
- Box 5.8. – Finland: Link to more information on the "Digital Housing Trade Platform": https://dias.fi/tiedote-29-11-2018.html
- Box 5.8. – Slovak Republic: Link to more information on the debt recovery approaches: https://www.oecd.org/tax/forum-on-tax-administration/database/b.5.8-slovak-republic-debt-recovery.pdf
- Box 5.8 – United Kingdom: Links to more information on the UK's Making Tax Digital programme and its impact:

- https://www.gov.uk/government/publications/making-tax-digital/overview-of-making-tax-digital
- https://www.gov.uk/government/publications/evaluating-additional-tax-revenue-from-making-tax-digital-for-vat
- https://www.gov.uk/government/publications/impact-of-making-tax-digital-for-vat

6 Verification and compliance management

Assessing the accuracy and completeness of taxpayer reported information is a core function of tax administrations and this chapter takes a closer look at tax administrations' work in this area, including how they manage compliance.

Introduction

The audit, verification and investigation function assesses the accuracy and completeness of taxpayer reported information. This function employs on average thirty percent of tax administration staff to verify that tax obligations have been met. While this often happens through conducting desk or field based "tax audits", there is an increased use of automated electronic checks, validations and matching of taxpayer information. The undertaking and visibility of these and other compliance actions is critical in supporting voluntary compliance, including through their impacts on perceptions of fairness in the tax system, as well as creating a 'deterrent effect'. This chapter therefore looks at:

- How tax administrations manage compliance risks, including the use of large and integrated data sets;
- The delivery of compliance actions undertaken by tax administrations including moving field audit work into a virtual environment; and
- The work on tax and crime.

Compliance risk management

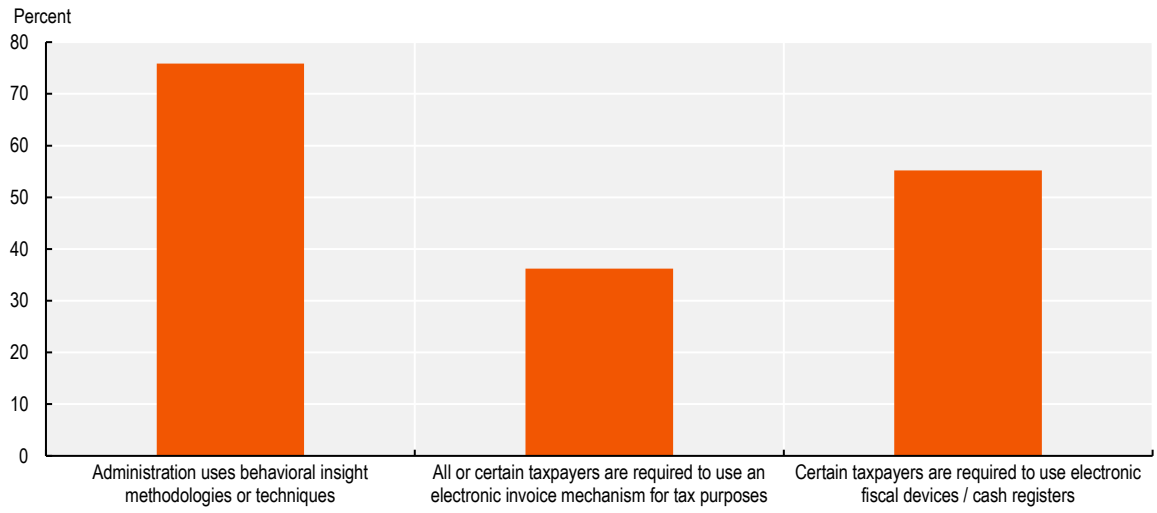
The OECD report *The Changing Tax Compliance Environment and the Role of Audit* (OECD, 2017[1]) looked at the range of incremental changes occurring across tax administrations which, taken together, were changing the nature of the tax compliance environment, allowing for more targeted and managed compliance.

A significant part of this change is driven by the increased availability of data. As digital transformation continues, even more tax related data from taxpayers and third parties is becoming available (for example, data from e-invoicing, online cash registers and financial account information), which is contributing to a clearer understanding of tax gaps. Most tax administrations now apply data sciences techniques and use analytical tools as part of compliance processes (see Table 6.1.), and this is explored in more detail later in this chapter. Box 6.1. also contains some examples of the range of data exploration techniques being used by tax administrations, including the analysis of unstructured data.

Another growing trend is the combination of analytics with behavioural analysis to build a more holistic understanding of compliance risks, behavioural patterns and appropriate compliance interventions. Figure 6.1., shows the percent of tax administrations who are using behavioural insights in their work. This percentage has grown from 62 percent of administrations in 2018 to 76 percent in 2021 (see also Table A.89.).

Figure 6.1. Use of techniques and methodologies to improve compliance, 2021

Percent of administrations that use those techniques and methodologies



Source: Table A.89.

StatLink https://stat.link/vw7n3i

Box 6.1. Examples – Data exploration

Canada – Predictive models

The Canada Revenue Agency (CRA) continuously explores new and innovative ways to better target reporting non-compliance. Advanced analytics, including machine learning and deep learning, are being tested for identifying potential high-risk small and medium businesses for audit.

- Graph database management systems and algorithms are used to automatically link all taxpayers by common ownerships and identify economic entities for population analysis, risk assessment, and workload selection.
- Social network analysis is incorporated to identify influential legal entities in the organisational structures and discover different patterns and characteristics of economic entities to enhance risk assessment.
- Ensemble anomaly detection (isolation forest, local outlier factor, mean shift clustering) and unsupervised learning (K-means, Gaussian mixture model, agglomerative clustering) methods are used to identify high-risk and anomalous segments in the small and medium enterprises population.
- Advanced techniques are used to generate powerful predictors, including incorporating artificial intelligence auto-encoder techniques to compress high dimensional data and a short-term memory neural network to extract information from longitudinal (sequence) financial and economic entity data, as well as economic entities' structure, which are used as predictors to enhance non-compliance prediction.
- Advanced analytics, including deep learning and graph neural networks, are used to identify high-risk small and medium enterprises taxpayers and their associated economic entities.

These predictive models will supplement existing CRA tools that are used for workload development, and risk assessment, including incorporating factors arising from the impacts of the pandemic.

Sweden – Analysing unstructured data

In Sweden, private individuals and businesses can file their income tax returns digitally or using a paper form. Although the Swedish Tax Agency (STA) aims to promote digital tax returns, paper forms will still be needed for years to come. Every year, the STA receives about 150 000 paper forms containing handwritten free-text information. This service analyses and classifies free-text information in income tax return forms which improves the STA's ability to process unstructured data for different types of analyses (risk evaluation, audits, etc.).

The service uses artificial intelligence in two ways. Firstly, to interpret and convert the handwritten text into digital text, and, secondly, to classify the text into one of about 60 subject categories. The text is interpreted using a deep-learning model that has been developed and trained by the STA. AI models are available on the market, but there are few models for the Swedish language, or with the capacity to interpret millions of unique handwriting samples.

The ability to interpret handwritten text can also be useful for a variety of other applications for the STA, as well as for other public authorities, municipalities, etc.

Key benefits of automated interpretation and classification of handwritten text:

- The information reaches the right competence much faster than before
- Increased ability to quantify and analyse the content of free-text information
- Automation of specific cases

Sources: Canada (2023) and Sweden (2023).

Increasing availability of data

As more and more data is stored electronically, and the transfer, storage and integration of data has become easier through the application of new techniques and processes, there has been a huge increase in the amount of data available to tax administrations for compliance purposes. Frequently used data sources include:

- ***Data from devices***: Data can be collected from devices that register transactions such as online cash registers and trip computers for taxis and trucks, and also gate registrations from barriers and weigh bridges.
- ***Data from banks, merchants or payment intermediaries and service providers***: This allows direct verification of income or assets reported by the taxpayer. Some jurisdictions already receive transaction details or transaction totals for taxpayers on a regular basis.
- ***Data from suppliers***: Collecting data from suppliers, either directly or through the taxpayer, allows a more complete picture to be drawn about the activities and income of the taxpayer. This is seen in the increasing use of e-invoicing systems which, as noted in Chapter 4, allows some tax administrations to prefill tax returns.
- ***Data from the customer***: This is easiest in cases where the number of customers is limited and known, but increasingly mechanisms to leverage customers in compliance are being used, for example in the verification of cash receipts.
- ***Unstructured data concerning the taxpayer***: Increasingly electronic traces relevant to business activities and transactions can be found on the internet and in social media.

- ***Data from other government agencies***: Data held by other government agencies for example for licencing, regulatory or social security purposes can be relevant in verifying tax returns or in risk assessments.
- ***Data from international partners***: New international exchanges of data commencing under the Common Reporting Standard and Country-by-Country Reporting is massively increasing the quantity of data available on international activity and providing useful information for audit and case selection processes and in some cases for prefilling of tax returns.

Box 6.2. Examples – Increased availability of data to support innovation

Chile – Income Tax Dashboard

The large volume of available tax data constitutes a big challenge for tax administrations especially in the development of relevant indicators and monitoring mechanisms. The monitoring of relevant indicators and their evolution is important as it allows a better use of the available resources, that can be focussed on the compliance control actions with the most revenue-relevant risk.

The Servicio de Impuestos Internos (SII) has developed interactive reports enabling the analysis of taxpayer behaviour using SII held information, inconsistencies detected on tax returns and third party sworn statements received during the income tax filing process. These reports allow tax officials to monitor and understand multiple issues from different perspectives, for example, most frequent inconsistencies, the amounts involved, geographical location, taxpayer classification and their evolution in the last three fiscal years.

The visualisation of income tax returns and the identified inconsistencies allows the design of corrective actions to be taken according to the level of non-compliance. These actions can include preventive measures for ensuring an accurate tax filing process in the future.

The platform adopted to implement this interactive reporting tool ensures an institutional-wide availability, where information can be shared amongst officials and accessed by multiple users simultaneously, reinforcing the decision-making process.

See Annex 6.A for supporting information.

Finland – The 'Incomes Register'

The 'Incomes Register' is a centralised national database for income information at an individual level. It contains comprehensive data on earned income, pensions and benefits, and implements the principle of one-time reporting.

After each payment, the 'Incomes Register' receives information about wages paid from employers, pensions, benefit payers, etc. The information reported to the 'Incomes Register' is then available in real time both when the wage earner applies for a new tax card and when the National Pension Institute and other operators grant benefits and pensions. The data creates the basis for the processing of insurance claims, and it is also used in occupational health and safety, statistics and the determination of various customer fees.

For those reporting the information, this means that they only need to report once, and they can be sure the data has gone to all relevant parties. For data users, this means that they have access to more accurate information in real-time.

In 2021, some 50 million earnings-payment reports containing payroll amounts, 2 million employer declarations and 65 million benefit information declarations were reported to the 'Incomes Register'. A total of 250 000 different payers reported salary information. Benefits were reported by nearly 400

different payers. Income information was shared more than 800 million times with the 380 information users entitled to access the information. Payroll information is stored in the 'Incomes Register' from 2019 and pension and benefit information from 2021. Payroll and benefit information for a total of 4.7 million people has been reported to the 'Incomes Register'.

See Annex 6.A for supporting information.

Poland – The National e-Invoice System

From 1 January 2022, Polish entrepreneurs can use the National e-Invoice System (KSeF). KSeF is a widely available invoice exchange platform that allows taxpayers to issue, send, receive and store electronic documents (e-invoices) in a structured form. Currently, the use of an e-invoice is optional with mandatory electronic invoicing being introduced in Poland from 1 January 2024.

KSeF will increase the speed of data exchange in contacts between contractors and mutual settlements. Accounting for invoices will become much easier, with the invoice made available to the recipient practically in real time, which allows for automation of accounting processes. At the same time, it will allow taxpayers to reduce errors with manual data entry and save time. This will reduce the business costs associated with handling the invoicing process. KSeF will also strengthen the analytical processes of the tax administration in the fight against tax fraud.

Sweden – Property taxes

The Swedish Tax Agency (STA) is continuously working to improve and simplify the methods for calculating assessment values. Evaluations of previous agricultural property assessments indicate that timber stocks have been one of the valuation factors that have deviated furthest from reality.

To address this, data is now derived from maps that provide a variety of information, including timber stocks. The maps are produced by combining data from the Swedish Mapping, Cadastral and Land Registration Authority ("Lantmäteriet") and field data from the Swedish National Forest Inventory ("Riksskogstaxeringen").

This new method will help to ensure more fair and equal assessment of forest properties, while improving the quality of the STA's registers. The analysis is carried out on an ongoing basis, as it takes about seven years to scan all of Sweden's forests. The STA believes this new method will help to ensure a better service to property owners through higher data quality.

In the process of developing the method, the STA has identified further areas where the use external data could help make the assessment process both more effective and simpler for property owners. One such example is the land types associated with a property.

Sources: Chile (2023), Finland (2023), Poland (2023) and Sweden (2023).

There are, though, some emerging risks to the availability of large data sets. In particular, it is increasingly possible for data relevant to the tax administration in one jurisdiction to be held within the territory of another jurisdiction. In these circumstances, it can be difficult to obtain the data on an automatic basis from the data holder located in another jurisdiction. This could make it more difficult to risk assess in some circumstances, as well as making it more difficult to prefill tax returns and to further develop compliance-by-design processes.

An example of this comes from the growth of the sharing and gig economy facilitated through online platforms which can operate across border. This may become an increasing risk as the online economy grows, particularly if it is accompanied by a shift from salaried employment (and the reporting of incomes by employers) to self-employment. This issue was considered in the OECD report *The Sharing and Gig Economy: Effective Taxation of Platform Sellers* (OECD, 2019[2]). That report looked at a number of

strategies currently being adopted by tax administrations as well as their limitations and recommended the development of standardised reporting requirements to facilitate possible future automatic exchange of information between tax administrations. It also led to the development of:

- A set of Model Rules that when used in legislation require digital platforms to collect information on the income realised by those offering accommodation, transport and personal services through platforms and to report the information to tax authorities (OECD, 2020[3]).
- A Code of Conduct to facilitate a possible standard approach to co-operation between administrations and platforms on providing information and support to platform sellers on their tax obligations while minimising compliance burdens (OECD, 2020[4]).
- A report that explored the practical issues raised by real-time connections between tax administrations and sharing and gig economy platforms (OECD, 2022[5]).

Another risk that has been identified is that posed by digital financial assets (DFAs), such as cryptocurrencies. The owners of DFAs can be very difficult to trace even though they may be linked to the creation of a specific digital wallet (which is somewhat similar to a bank account). Tracking down the individuals or entities behind particular wallet addresses is at best very difficult and resource intensive. In August 2022, the OECD approved the Crypto-Asset Reporting Framework which provides for the reporting of tax information on transactions in Crypto-Assets in a standardised manner, with a view to automatically exchanging such information. (OECD, 2022[6])

While not a risk as such, it should also be noted that data protection requirements could limit the circumstances in which data can be kept, processed or shared. This is a key consideration for administrations in designing systems which rely on large data sets and the retention of data.

Sharpened targeting of risks

Data science

Over recent years, the application of advanced analytics to risk management and risk targeting is becoming increasingly common:

- Figure 6.3. shows 80% of tax administrations reporting using big data in their work, and of those that use big data nearly all are using it to improve their compliance work.
- Of the 58 tax administrations covered by this report, 55 report using data science / analytical tools with the remaining administrations in the process of preparing the use of such tools going forward (see Table 6.1.).
- Similarly, the use of artificial intelligence, including machine learning, for risk assessments and detecting fraud is already undertaken or in the process of being implemented by the majority of administrations covered in this publication (see Table 6.1. and Figure 6.4.).

This increasingly sophisticated use of analytics on expanded data sets is leading to a sharpening of risk management and the development of a range of intervention actions, including through automated processes. A selection of examples is included in Box 6.3. Additionally, the OECD report *Advanced Analytics for Tax Administration: Putting data to work* (OECD, 2016[7]) provides practical guidance on how tax administrations can use analytics to support compliance and service delivery.

Table 6.1. Evolution of the application of data science tools, artificial intelligence and robotic process automation between 2018 and 2021

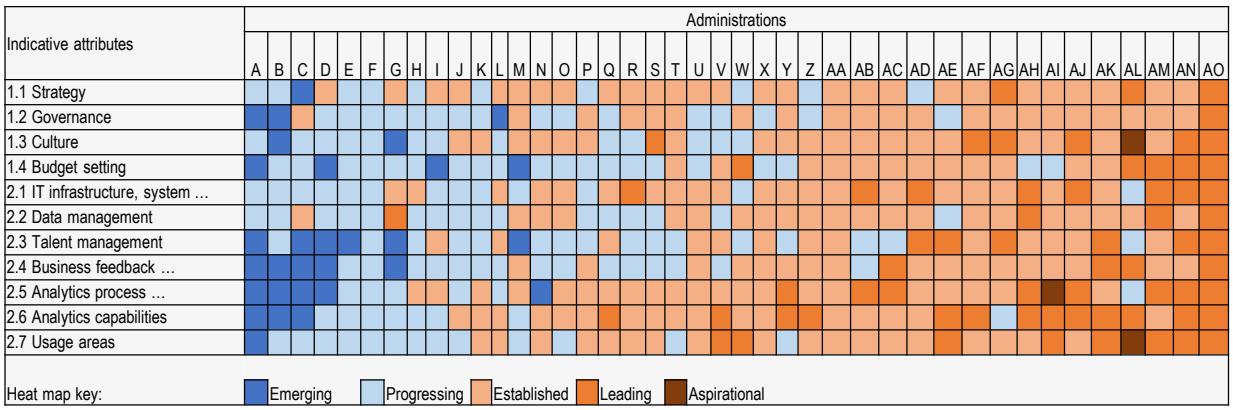
Percent of administrations

	Data science / analytical tools			Artificial intelligence, including machine learning			Robotic process automation		
Status of implementation and use	2018	2021	Difference in percentage points (p.p.)	2018	2021	Difference in p.p.	2018	2021	Difference in p.p.
Technology implemented and used	71.9	94.8	+22.9	31.6	54.4	+22.8	22.8	50.0	+27.2
Technology in the implementation phase for future use	19.3	5.2	-14.1	15.8	28.1	+12.3	14.0	8.6	-5.4
Technology not used, incl. situations where implementation has not started	8.8	0.0	-8.8	52.6	17.5	-35.1	63.2	41.4	-21.8

Sources: Tables A.91. and A.92.

With the use of analytics increasingly becoming a common and integrated part of tax administrations across the world, in developed and developing countries alike, being used in strategic as well as operative usage areas, the OECD's Forum on Tax Administration developed the *Analytics Maturity Model* (OECD, 2022[8]). The model allows tax administrations to self-assess their current level of maturity in their analytics usage and capability, providing insight into current status and identifying areas of weaknesses as well as strengths. As Figure 6.2. shows, it has been completed by over 40 tax administrations, and the results of this are guiding and supporting administrations in their analytics strategies.

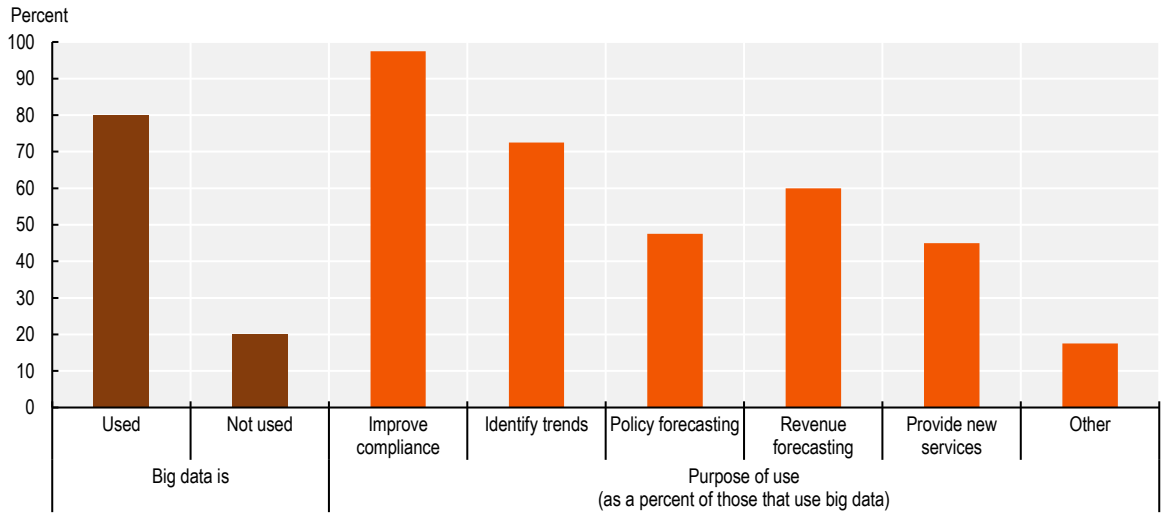
Figure 6.2. Results of the Analytics Maturity Model self-assessments



Source: OECD (2022), Analytics Maturity Model, https://www.oecd.org/tax/forum-on-tax-administration/publications-and-products/analytics-maturity-model.htm (accessed on 22 May 2023).

Figure 6.3. Use of big data for analytical purposes, 2022

Percent of administrations

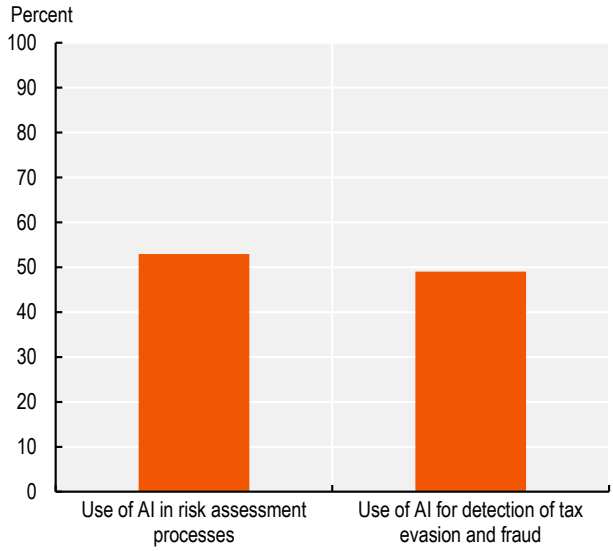


Note: The figure is based on ITTI data from 52 jurisdictions that are covered in this report and that have completed the global survey on digitalisation.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table DM3 (accessed on 22 May 2023).

StatLink https://stat.link/uie5vk

Figure 6.4. Use of artificial intelligence, 2022

Percent of administrations



Note: The figure is based on ITTI data from 52 jurisdictions that are covered in this report and that have completed the global survey on digitalisation.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table TRM3 (accessed on 22 May 2023).

StatLink https://stat.link/4h8vwd

Box 6.3. Examples – Using analytics

Australia – Application of data science and analytical modelling

The COVID-19 pandemic created challenging economic conditions that affected many businesses and communities in Australia. Between 2019 and 2022, the Australian Taxation Office (ATO) experienced a 16% growth in debt accounts and a substantial 70% increase in collectable debt. After pausing many actions during the pandemic, in 2022 the ATO resumed collection activities.

Analytic modelling and data driven insights are integral to delivering on ATO's differentiated strategies and treatments. In 2022, the ATO:

- Made improvements to their Financial Resilience Insights (FRI) suite of analytic models to better cluster similar clients and recognise their assets and income streams.
- Deployed Enterprise Client Profile (ECP) gadgets which surface these FRI analytic insights to staff, enabling them to understand the financial health of taxpayers. Financially healthy taxpayers who have a greater capacity to reduce their debt are encouraged to pay in full or enter in to optimal (shorter) payment plans, while taxpayers who are less financially healthy can be supported with longer repayment terms which analytics indicates are more sustainable.
- Re-configured the analytic model combination which supports delivery of taxpayers to staff for potential firmer actions, pivoting away from some models which had deteriorated in performance (accuracy of predictions) due to limited training data due to the pause on firmer actions.
- Assessed the collection prospects for several populations of special interest, such as Superannuation Guarantee debtors, Small Business debtor and fraudulent credit claims.

Chile – Fraud risk: Taxpayers with tax records or documents to prove

A "taxpayer with aggressive tax behaviour" is defined as any taxpayer who, after having notified the start of trading to the SII and subsequently being authorised to issue VAT documents, goes on to raise doubts as to whether the linked business operations have actually been carried out. To address this, the SII set-up an initiative to identify, based on a predictive model, those taxpayers who might engage in such activity, and to design preventive, corrective or structural treatment actions.

These types of models are used as part of the SII strategy against non-compliant behaviour within the first 3 months of taxpayer registration, and different types of algorithms are used to detect anomalies. The data used is extracted from tax returns, purchase and sales tax documents, and relationships with other relevant actors associated with the taxpayer's commercial operations.

Israel – Analytics Centre

The Analytics Centre is a platform for maximising the yield per hour of any tax administration process by providing diverse supporting analytics products. It consists of two innovative core components:

- An analytics workshop for rapid production of a variety of analytics models such as AI models, graph analytics models, rule-based engines, statistical report generators, etc.; and
- A model cloud for scalable implementation of these models.

Once a model is manufactured in the workshop and registered in the cloud, it is ready to simultaneously serve multiple users through dedicated applications regardless of the model's initiator. This holistic platform drives the continuous growth of analytics usage up to an enterprise-wide level which increases organisational overall productivity. This system has for example produced models for the selection of cases for company, individual or VAT tax audit.

At the beginning of 2022, the company selection model provided a list of 131 companies recommended for audit. By the end of the year, the tax audit process of 43 companies has been completed. This overt process yielded in average an increase in the tax generated from each company.

An AI model for detecting real-estate property owners who do not report rental income was also developed. The model provided a set of 425 suspects with a 50% accuracy rate as 227 suspects responded in less than two months and generated additional annual tax.

Sweden – Improving identification and matching

The STA has developed a service that identifies private individuals and businesses in the Swedish tax registry and matches them to incomplete data received through automatic exchange of information initiatives. The service aims to:

- Increase the ability to identify potential matches;
- Increase the level of certainty that a match is correct; and
- Improve the ability to manage changes in data, technological developments, so that data quality is maintained over time.

To achieve this the STA built a tool based on search engine technology which allows:

- Increased search efficiency through indexing of source data, with the ability to index individual words or variants of words;
- The use of complex queries without time-consuming manual index creation; and
- Advanced scoring for ranking search results.

This approach has been very effective with the percentage of identifications increased from 75% to 90%, while the accuracy of identifications increased from 95.2% to 99.9%.

Sources: Australia (2023), Chile (2023), Israel (2023) and Sweden (2023).

Taxpayer programmes

Another approach for targeted risk management is the creation of units looking into the tax affairs of specific taxpayer segments. Two specific areas where tax administrations have found it advantageous to manage specific groups of taxpayers on a segmented basis are business taxpayers, and high net wealth individuals (HNWIs). The rationale for focusing administration resources on managing these groups revolves around the:

- ***Significance of tax compliance risks***: due to the nature and type of transactions, offshore activities, opportunity and strategies to minimise tax liabilities; and in the case of large business, the differences between financial accounting profits and the profits computed for tax purposes.
- ***Complexity of business and tax dealings***: particularly the breadth of their business interests and in the case of HNWI, the mix of private and tax affairs.
- ***Integrity of the tax system***: the importance of being able to assure stakeholders about the work undertaken with these high-profile groups of taxpayers.

Additionally, in the case of large taxpayers, while being a small number of taxpayers they are typically responsible for a disproportionate share of tax revenue collected. The data indicates that for most jurisdictions between 30% and 60% of their total net revenue, including withholding payments on behalf of employees, was received from taxpayers covered by their large taxpayer programmes (see Figure 6.5.). On average, 2.4% of corporate taxpayers covered by those programmes account for 44% of all revenue collected (see Table 6.2.).

Table 6.2. Importance of large taxpayer offices / programmes (LTO/P), 2021

FTEs in LTO/P as percentage of total FTEs	Corporate taxpayers managed through LTO/P as percentage of active corporate taxpayers	Percentage of net revenue administered under LTO/P in relation to total net revenue collected by the tax administration	FTEs on audit, investigation and other verification function in the LTO/P as percentage of total FTEs in LTO/P	Total value of additional assessments raised through LTO/P as percentage of total value of additional assessments raised from audits
4.0	2.4	43.6	62.8	31.3

Note: The table shows the average percentages across the jurisdictions that were able to provide the information.
Sources: Tables D.16. and D.17.

While the management of these groups of taxpayers is often undertaken as a programme, in a large number of jurisdictions these programmes are also structural involving a Large Taxpayer Office or HNWI unit. The scope of the work of these units varies considerably, ranging from undertaking traditional audit activity, through to "full service" approaches (see Figure 6.6.). However, on average close to two-thirds of tax administration staff in large taxpayer offices or programmes are working on audit, investigation and other verification related issues (see Table 6.2.).

Box 6.4. Examples – Supporting business taxpayers

China (People's Republic of) – Integrated information system for large business

Previously, provincial and municipal offices of the State Taxation Administration (STA) of the People's Republic of China only had access to the information on business within their jurisdiction, meaning they did not have the whole picture of a business operating across multiple provinces or municipalities. Now the STA is building an integrated information system for large business, to monitor taxable income sources, better control risks, provide more tailored services, and improve economic analysis.

This means tax offices at central, provincial and municipal levels can have appropriate access to information on a business and the information is grouped into 11 categories, including tax payments, social security payments, financial statements and so on. With just a few clicks, the system can automatically generate 7 themed reports including an overview, geographic distribution, tax and fee payment, business activities, compliance record, tax source status and customised enquiries. Using a different combination of data sets and administration logic, the STA can also design 24 scenarios for a business, covering the major risk possibilities. The system can also use a special set of risk indicators to identify a group of large businesses for further scrutiny.

The system offers a powerful tool for economic analysis. With data and information at different levels of granularity available, analysts can look at economic pictures of different areas, sectors and industries, supporting policy design and adjustment.

Georgia – Administration of large taxpayers

Large taxpayers make a significant contribution to the Georgia state budget, but the tax risks associated with them are much larger and more complex than the tax risks of other categories of taxpayers, which means they can pose a risk to tax revenues. Therefore, their activities require close monitoring.

To address this, the Office of Large Taxpayers was established in the Georgia Revenue Service, which, by offering highly qualified services and timely response to tax risks, ensures the maximum promotion of voluntary tax compliance of the taxpayers.

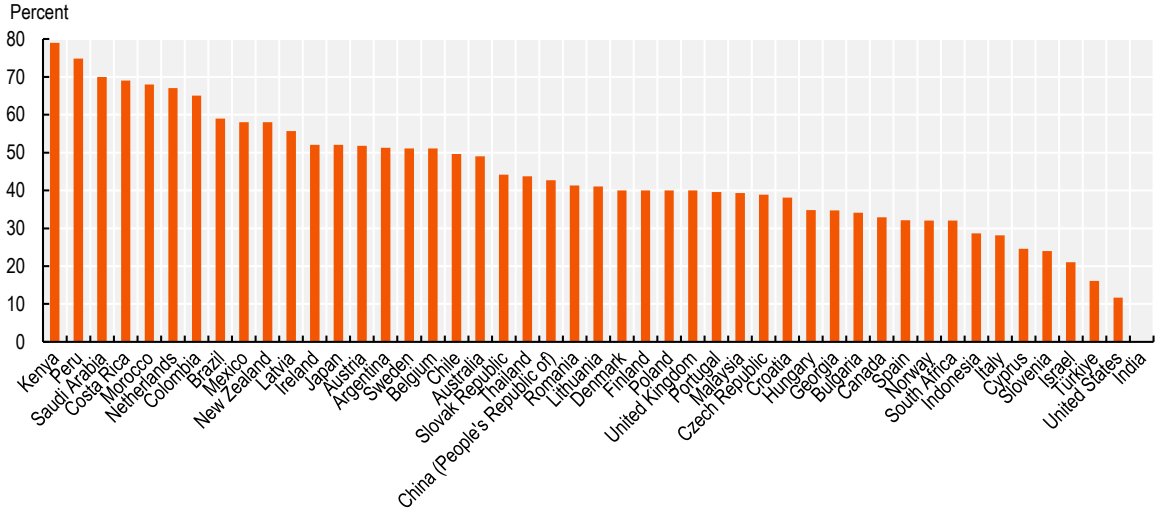
To improve the administration of large taxpayers, the updated Strategy for the Administration of Large Taxpayers for 2022-2024 was developed. This is supported by a standard reporting system through

which various types of information are monitored on a daily basis. The strategy aims to improve the tax administration of large taxpayers through centralised, fair and transparent approaches. To achieve this goal, the following tasks were planned:

- Develop services tailored to the needs of large taxpayers;
- Strengthen risk management process related to tax compliance; and
- Improve human resource capabilities.

Sources: China (People's Republic of) (2023) and Georgia (2023).

Figure 6.5. Percentage of revenue administered through large taxpayer offices/programmes, 2021



Source: Table D.17.

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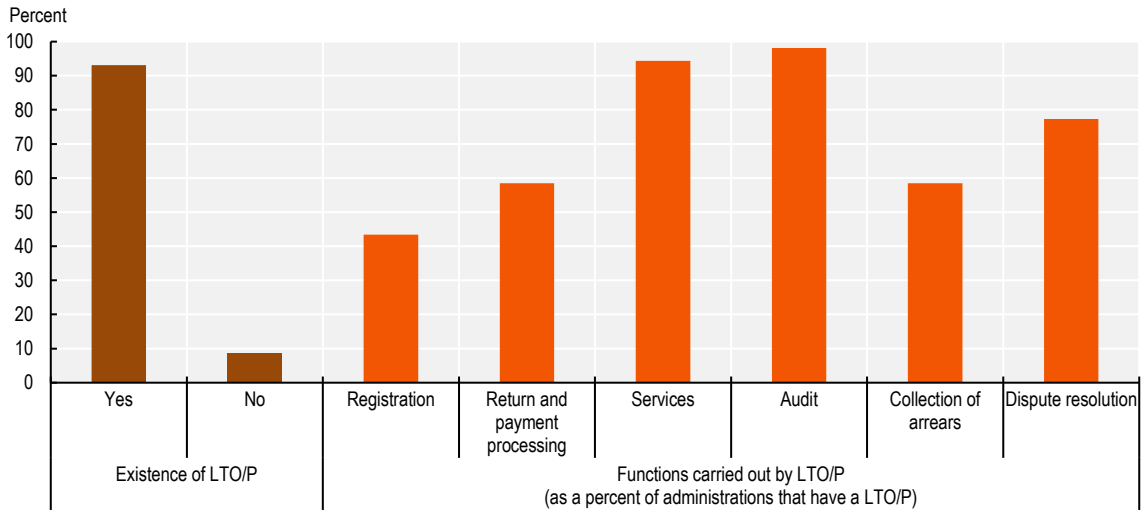
Figure 6.6. Large taxpayer offices / programmes: Existence and functions carried out, 2021

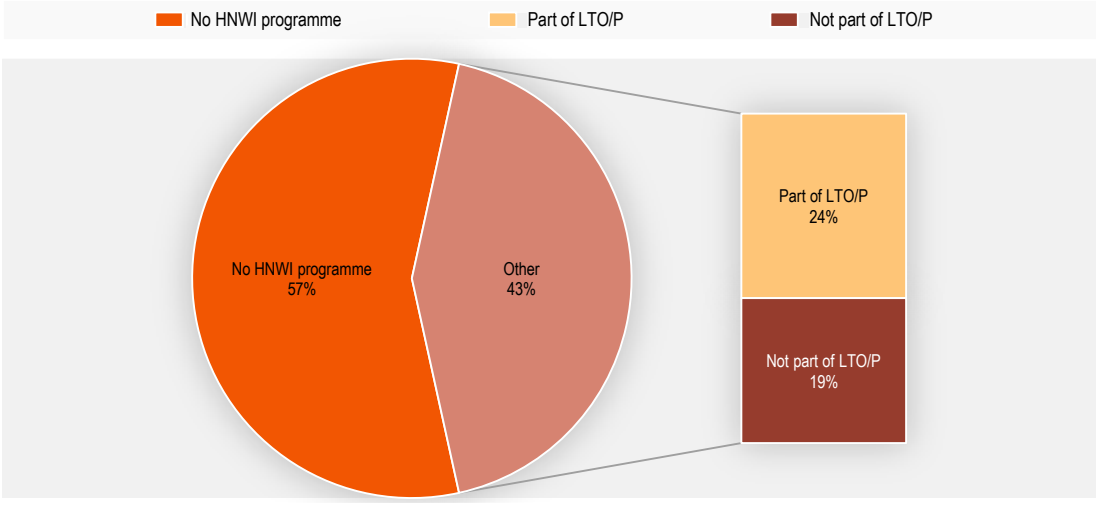


Sources: Tables A.32. to A.34.

StatLink https://stat.link/ngvke1

Figure 6.7. HNWI programmes, 2021

Percent of administrations



Source: Table A.38.

StatLink https://stat.link/z4qlki

Planning for future risks

While it is key for tax administrations to understand current compliance risks and prepare appropriate response strategies, it is equally important to understand and prevent risks which may arise in the future. The increasing availability of data along with the enhanced capacity of tax administrations to handle and analyse that data allows tax administrations to more robustly assess future tax risks. Figure 6.3. highlights the large number of tax administrations who engage in forecasting, which is putting them in a position to assess where new compliance risks may arise and develop in time the necessary mitigation strategies as the ability to identify, understand and manage risks in a rapidly changing environment is a critical element of successful and resilient tax administration.

This is leading to the creation of sophisticated risk management programmes, that can embed risk management across the organisation rather than leaving it in silos across the organisation. It also helps building a risk culture within tax administrations, as Box 6.5. illustrates.

Box 6.5. Examples – Emerging risks

Brazil – Integrated risk management programme

Historically, the Brazilian Revenue Authority (Receita Federal do Brasil – RFB) managed institutional risks based on its organisational structure and operational framework, while tax compliance risks were handled in a fragmented manner by various business units according to their own criteria and understanding of the risks.

Since 2021, and with the technical support of international organisations, a strategic programme was established to restructure the organisation's risk management model supported by a multi-faceted, integrated approach. Programme milestones included a new risk management policy, the design of a National Risk Management Office with regional focal points and revised roles, responsibilities, delegations of authority and governance structures.

The new model is to be applied across all business areas and levels of the organisation and intends to provide better coordination of RFB's risk treatment initiatives, which are identified using an integrated risk assessment system using advanced technology tools. Outcomes generated by the framework are fully integrated into real-time business performance reporting.

Advanced data analytics is leveraged to collect, convert, and process large volumes of data in RFB's databases into clear and readily understandable risk management information to inform proactive decision-making. The goal is to make this information increasingly available in real time and to staff across the organisation. Ultimately, RFB's goal is to have its risk management model embedded into core administration values and reflected in day-to-day behaviours and its organisational culture.

New Zealand – Enterprise risk

New Zealand Inland Revenue (IR) has simplified the language and approach used to manage risks across the organisation, starting with a consolidation of controls for the strategic risks, and ensuring clear ownership – this is aligned to functional accountabilities.

The controls used to manage strategic risks were simplified to align to the functional accountabilities and organisational structure, so there are clear lines of responsibility and action. Assurance of the effectiveness and completion of remediation actions are then linked to existing work programmes and tracked. Additional layers of definition can be added by the control owners to define the controls, or to define specific elements that are effective or being improved. When remediation is underway this often links to initiatives that are approved as part of the enterprise portfolio.

Reporting on risks and controls is managed through a centralised toolset, so there is one source of truth about the effectiveness of a control or the level of risk. The actions and owner of the work are visible and managed through the same toolset, with links to portfolio management, project management and enterprise planning activities. IR's business groups can add their own risks and controls to the toolset and link them to the strategic risks and controls. This is starting to provide a more comprehensive view of the risks being managed by the organisation, and the operational activities this impacts.

The change in approach to a centralised and transparent control framework has allowed IR to start managing the strategic risks in a co-ordinated way that links to operational activities and control improvements.

Sources: Brazil (2023) and New Zealand (2023).

Planning for future risks is particularly important as jurisdictions consider the ongoing impacts of global challenges and how they influence taxpayer's compliance behaviour. This is likely to be challenging as jurisdictions emerge from the pandemic when most administrations reduced or suspended compliance activities, impacting the data available to accurately assess risk. The sophisticated modelling analytics and modelling skills that tax administrations built up before the pandemic have been used to respond to these challenges, and to take account of any changes in taxpayer behaviour.

An interesting development within tax administrations is the recognition that the power of data analysis needs to be decentralised and spread more widely across the organisation. Through this, tax administrations can be ready to identify emerging risks more quickly and identify possible early interventions. As a result, tax administrations are now also exploring how artificial intelligence can be incorporated into compliance processes across the organisation, and it is likely that this will be central to the digital transformation of compliance management, and risk management in the future. Examples of this can be seen in Box 6.6.

Box 6.6. Examples – Use of artificial intelligence

Ireland – Artificial intelligence proof of concepts

To simplify the customer experience and to remove the need for the taxpayer to self-categorise their enquiry, artificial intelligence (AI) was used to automate the process of categorising and routing of enquiries to the appropriate subject matter experts for action.

To deliver this, proof of concept pilots were developed and deployed to determine the best fit for various scenarios. Business and ICT teams worked collaboratively to identify a range of taxpayer enquiries and used these to train the technology models to automate the task. Through a suite of iterative reviews of the data, a model was established using the best-fit technology. As a result, radical simplification of the online user interface was implemented to remove complicated drop-down menus. The original AI technology and models are now being copied and finessed to incorporate other taxpayer cohorts and query types.

Through this work, there was an uplift from 70% accuracy levels of self-categorisation by taxpayers to 97% accuracy in top-level categorisation of enquiries. On average, auto classification has reduced overall routing time to subject matter experts by over 24 hours. The simplified taxpayer user interface means that a taxpayer can now submit an enquiry in 'free text' format without having to consider tax categories and sub-categories. This has encouraged taxpayers to use digital first channels when contacting Revenue by making the submission of an enquiry much simpler, and the more accurate

classification of enquiries gives more business insight into customer requirements allowing more targeted responses.

Israel – Automated logical assessment project

In Israel, the tax authority is using advanced digital tools to promote and streamline their work. For example, an automated real estate tax assessment project combines AI components that simulate the work of the tax inspector who conducts the real estate tax assessment with the computing capabilities of online systems. This reduces the duration of assessment and allows officials to focus on the more complex cases with the potential for high tax return.

The project was driven by a change which made the filing of the sale and purchase of real estate online instead of manual reporting. The automated real estate tax assessment project started gradually in 2022 while examining the programming at each stage and improving the logical mechanism as needed. During 2022, computerised logical assessments were used in 30 500 real estate transactions (approximately 34% of all similar transactions).

The standard time for an assessment, by a tax inspector, in a real estate transaction is one hour. Consequently, in 2022, the automatic system saved 30 500 working hours. In addition, 30 500 sellers and buyers completed the interaction with the tax authority immediately upon submitting the online statement by themselves or through a representative. The parties to the transaction also immediately received tax approvals and relevant necessary documents.

The automatic assessments carried out in 2022 handled transactions exempt from capital gains tax. Transactions that have been logically checked and found to be defective are forwarded to the tax inspector, including an explanation of the deficiency. In 2022, the average tax return per hour of work in the department handling property tax exemption assessments increased by 48% compared to 2021.

Singapore – The 'One Payout Platform'

In 2022, the Inland Revenue Authority of Singapore (IRAS) developed the One Payout Platform, a smart analysis solution, to enhance its capability in detecting attempts to game the system and also in identifying risky payouts. This platform aims to provide a "one-stop" solution to streamline payout risk assessments and assist IRAS officers in identifying potential abusers of various payout schemes.

Incorporated with data analytics and machine learning capabilities, the platform has the following key components:

- A variety of data and anti-gaming models are consolidated and integrated into the platform to assist fast and effective analysis. Officers can directly interact with the models for timely case selection and where required, tweak the model parameters to perform risk simulation in real-time.
- The rule-based risk scoring engine applies business logic for risk assessment, while the predictive models (machine learning) assess the risk severity for the new cases. With the combination of the 2 risk scoring engines, more efficient and robust risk assessment can be achieved for better case prioritisation.
- Intuitive user interfaces allow officers to self-help, perform the analysis and select cases easily. The compilation of relevant information and visual representations into a one-stop portal allows officers to review details of the case at one glance and make fast decisions during case audits.

Through this, the One Payout Platform enables fast and effective detection of potential fraud in new payout schemes, resulting in productivity savings and allowing a much shorter turnaround time to onboard new schemes.

Sweden – Risk evaluation

By using AI to distinguish high-risk and low-risk cases, the STA was able to identify and disallow incorrect tax deduction claims amounting to SEK 300 million (representing SEK 42 million in taxes). By combining AI with other techniques, it was possible to achieve this without significant additional resources.

The STA introduced an automated system, and an AI model is used to recognise patterns in order to identify deduction claims where there is a high likelihood that the individual will not respond to a request for proof to substantiate the claim.

The AI model is trained on data from previously conducted investigations, enabling it to detect characteristics common to those who do not respond to requests for substantiation. A typical example is the presence of conflicting information, such as when an individual claims a deduction for travel expenses to work but lacks income from employment.

The STA's automated system generated 19 000 requests for substantiation that would not otherwise have been issued. The system sends automated requests based on the results generated by the AI model. Failure to respond results in an automatic refusal of the claimed deduction. If the STA receives a reply, the case is processed manually in the usual way.

Sources: Ireland (2023), Israel (2023), Singapore (2023) and Sweden (2023).

Delivery of compliance actions

"Compliance actions" undertaken by tax administrations to determine whether taxpayers have properly reported their tax liability are changing. As set out earlier, the increasing availability of data and the introduction of sophisticated analytical models are allowing administrations to better identify returns and claims or transactions which might require further review or be fraudulent. Furthermore, these models, many of which can operate in real-time, are allowing administrations to conduct automated electronic checks on all returns or on transactions of a particular type.

Electronic compliance checks

While traditional audits (including comprehensive, issue or desk audits) are often the primary verification activities, the use of automated electronic checks or using rules-based approaches to treat some defined risks (for example, automatically denying a claim, issuing a letter or matching a transaction) is providing administrations with more effective and efficient ways to undertake some of this work. Box 6.6. sets out examples of this.

These approaches do, however, raise the question of how to reflect those automated electronic checks in the performance information that administrations report in ISORA data. To include all checking may distort coverage, adjustment and yield rates. However, where it replaces previously undertaken manual actions it would seem appropriate to reflect what administrations are now doing in this area.

In this respect, administrations completing the ISORA survey were invited to break down the total value of additional assessments raised from audit and verification actions into (i) audits and (ii) electronic compliance checks (defined as electronic checks, validation and matching of taxpayer information). Only a few administrations were able to provide information on electronic compliance checks. However, for some of those administrations, electronic compliance checks make-up an important part of the additional assessments raised through all audits and verification actions. (See Table D.39.)

Thanks to the growth in data and more powerful technology resources there is an increasing trend being the development of 'real-time' compliance checks, helping catch errors earlier in the process as Box 6.7. illustrates.

Box 6.7. Examples – Electronic compliance checks

India – eVerification checks

The eVerification Scheme launched by the Income-Tax Department in India, gives taxpayers all the electronic financial information pertaining to them, collected from various sources by the tax administration. Taxpayers can then verify the information for the purpose of accurate and comprehensive determination of the income of a taxpayer.

Three outcomes are possible. Firstly, they may accept the information and include it in their filing. Alternatively, if they may not accept the information as correct and consider there to be a mismatch, then the information is re-verified. Finally, if there is no response from the taxpayer, the reported data is classified as income.

In case of a mismatch, there is electronic communication with the sources of information, such as banks and offices which deal with immovable property transactions, etc. These third-party sources may correct the information or revalidate the existing information as correct. In case the mismatch still persists, a risk assessment of such cases is undertaken. If the data is of no or low risk, the case is closed. However, in case the risk is considered to be high, preliminary verification is undertaken by the tax authorities and the preliminary verification report is matched with the return of income to prepare the final verification report.

If as part of the production of the final verification report it is assessed that the risk involved is low or there is no risk involved, the case is closed. However, in case of high risk, the information is either passed to the tax audit team (in case there is already an ongoing audit) or appropriate action will be taken by the tax department.

Ireland – Real-Time Risk Dashboard

Revenue previously used a rules-based engine to run a risk analysis against PAYE customers when a refund request was triggered. This risk analysis was a nightly batch process which ran a set of predefined rules against PAYE customer data to determine whether the customer is deemed risky. If the customer is high risk the refund is blocked and a risk work item is generated for further investigation.

The newly implemented real-time risk framework contains three different modules: Real-Time Risk (RTR) Dashboard, Rules Manager and Rules Simulator. The RTR Dashboard provides real time statistics and export functionalities to present information to be used in management information and potentially AI processes. The Rules Manager allows the business owners to manage the risk rules allowing the team complete ownership of the application The Rules Simulator provides the business owners the ability to test and simulate new or existing rules before enabling the rules in live.

The new application examines refund/repayment submissions from customers in real-time and blocks risky payments using rules created by the compliance team. Revenue can now respond immediately to new trends by simulating and then enabling new rules. This application is dynamic and the compliance team can turn rules on and off in the live environment. There is the option to analyse previous and current data using the RTR Simulator. A further development is currently underway to enable the frontline compliance team the ability to manage and create rules themselves and independently have a real time solution to risky behaviour.

Lithuania – Controlling risk in real-time

The smart tax administration subsystem (i.KON), which was implemented in 2020, allows for the identification of discrepancies in real-time, ensuring faster and more efficient processing of incoming data, and can assess tax risks more quickly. i.KON automatically selects payers based on various risk criteria.

The efficiency of the i.KON subsystem and the ability of the State Tax Inspectorate of Lithuania to properly exploit and manage the automated processes realised in the subsystem are reflected in high and improving performance. On the basis of the i.KON risk analysis, taxpayers declared an additional EUR 21 million in 2021 and EUR 59 million in 2022. It is noteworthy that these significant and growing results were achieved through relatively small investments - the development of the i.KON subsystem cost only EUR 1.5 million. Since the start of i.KON, the results of the actions carried out on the basis of i.KON risk analysis represent the majority of the results of the monitoring actions.

For a more detailed explanation see Annex 6.A.

Sources: India (2023), Ireland (2023) and Lithuania (2023).

Audits

On average, audit adjustment rates have remained stable over the period 2018 to 2021 (see Table 6.3). However, as shown in Figure 6.8., the rates vary significantly across the administrations covered by this report. The high adjustment rates can of course result from highly targeted audits, particularly during the COVID-19 pandemic where some administrations focused audit activities on high-risk cases such as fraudulent activities (OECD, 2021[9]).

The importance of audits can also be seen when looking at the additional assessments raised. On average, the additional assessments raised from audits correspond to around 4% of total revenue collections. This has been relatively flat over the years 2018 to 2021 (see Table 6.3). Looking at the jurisdiction level data, it can be seen that there are significant differences across the 52 administrations that were able to provide data (see Figure 6.9.).

Table 6.3. Audit adjustment rates and additional assessments raised, 2018-2021

	2018	2019	2020	2021
Audit adjustment rates – in percent (39 jurisdictions)	57.4	58.3	58.6	61.7
Additional assessments raised through audits as a percentage of tax collections (48 jurisdictions)	4.1	4.1	4.5	3.9

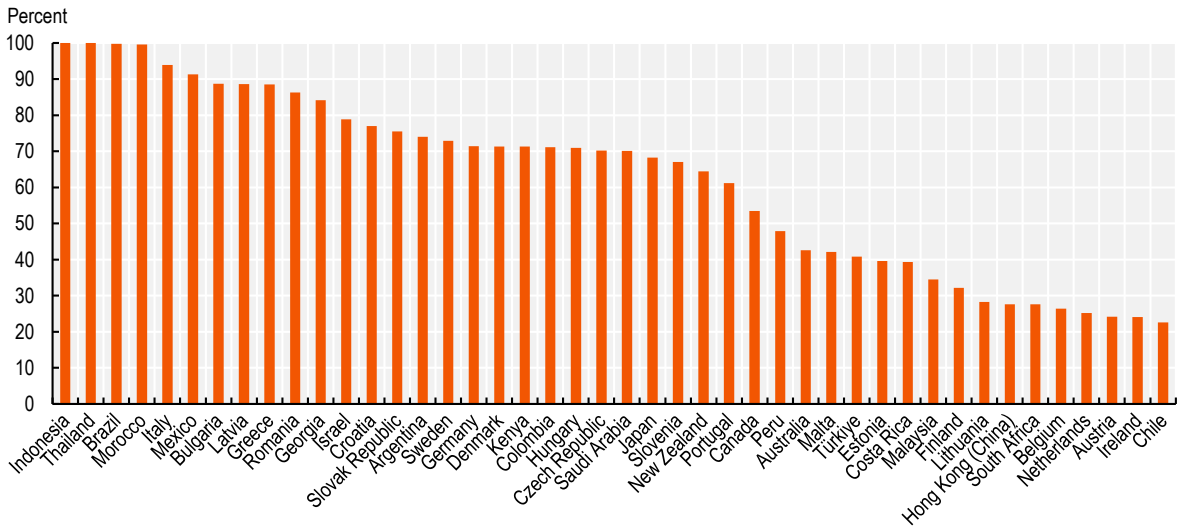
Note: The table shows the average audit adjustment rates and additional assessments raised through audits (excluding electronic compliance checks) for those jurisdictions that were able to provide the information for the years 2018 to 2021. The number of jurisdictions for which data was available is shown in parenthesis.
Sources: Tables D.38. and D.39.

Breaking this down by tax type, it shows that the ratio of additional assessments raised to tax collected is the greatest for corporate income tax (CIT). On average, CIT additional assessment raised as a percentage of CIT collected is 8.8%, more than double the percentage for value added tax (3.6%) and more than three times the percentage for personal income tax (2.4%). (See Figure 6.10.)

In many jurisdictions, the additional assessments raised through large taxpayer offices or programmes (LTO/P) make-up a significant share of the total additional assessments raised from audits (see Figure

6.11.). On average, LTO/Ps contribute around 30% of the total additional assessments raised from audits (see Table 6.2.).

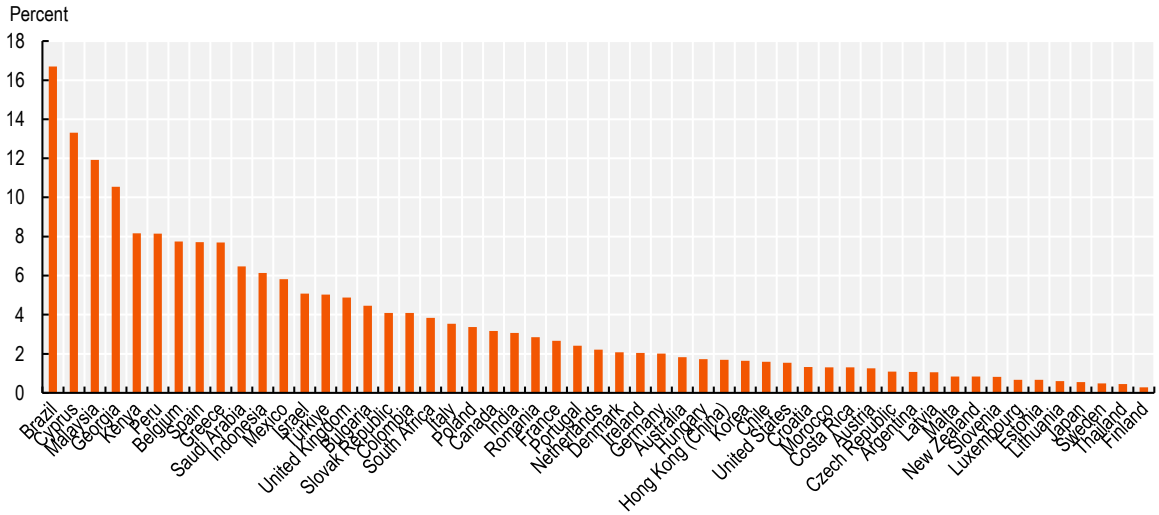
Figure 6.8. Audit adjustment rates, 2021



Source: Table D.38.

StatLink https://stat.link/labn9s

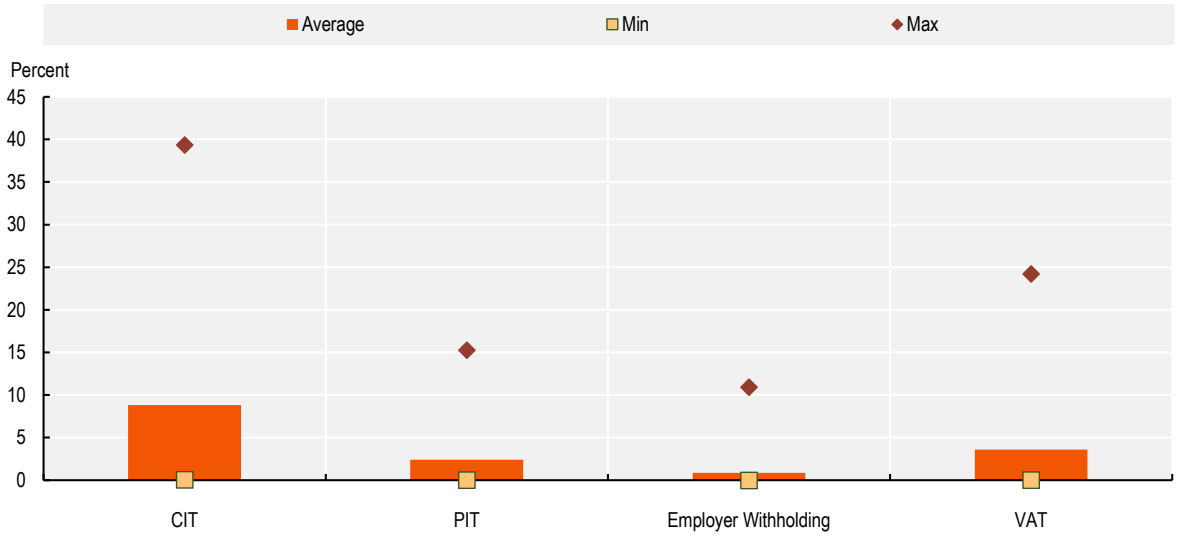
Figure 6.9. Additional assessments raised through audit as percentage of tax collections, 2021



Source: Table D.39.

StatLink https://stat.link/m0xhz5

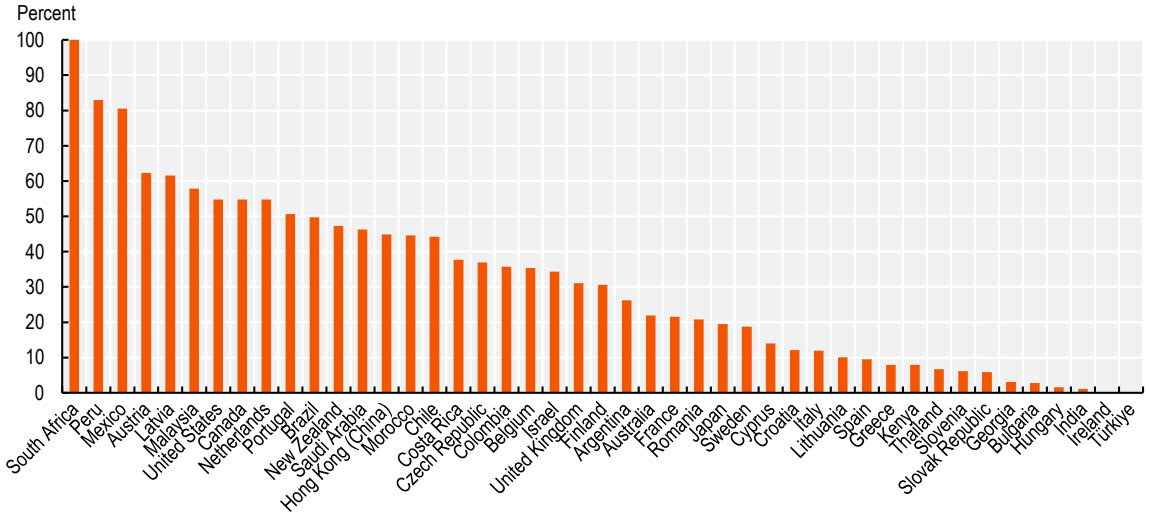
Figure 6.10. Additional assessments raised through audit as percentage of tax collected by tax type, 2021



Note: CIT data for Norway has been excluded from the calculations as it would distort the average ratios.
Sources: Tables D.40. and D.41.

StatLink https://stat.link/23y7im

Figure 6.11. Additional assessments raised from audits undertaken by LTO/P as a percentage of additional assessments raised from all audits, 2021



Source: Table D.17.

StatLink https://stat.link/87vayu

Moving audit work to a virtual environment

Traditionally, administrations apply a variety of different audit types including comprehensive audits, issue-oriented audits, inspections of books and records, and in-depth investigations of suspected tax fraud. Often those audits require the administration to visit the taxpayer's premises (so called field audits).

Advances in technology have led administrations to consider new ways of engaging with taxpayers during the audit process including the electronic submission of audit related documentation. This trend was accelerated as a result of the COVID-19 crisis as the closure of tax offices and the move to remote working for large numbers of tax officials changed how they approached audits.

The 2021 OECD report *Tax Administration: Digital Resilience in the COVID-19 Environment* (OECD, 2021[9]) observed this as well and noted that of the 32 administrations covered by that report, close to ninety percent shifted parts of their field audit work to a virtual / digital environment. Moreover, 76% of those administrations plan to continue moving field audit work to a virtual/digital environment going forward. This is supported by an increased use of technology in audits which is helping drive efficiency. Box 6.8. highlights some leading practices in that space.

Box 6.8. Examples – Technology in audits

Australia – Using automation to influence high risk tax agents

There are approximately 46 000 registered tax agents in Australia who lodge annual tax returns for nearly 6 million individual taxpayers. The ATO's Tax Agent Strategy identifies agents who display high risk behaviour. Using automatic processes, a pilot project identified high risk lodgements and then issued a notice to the tax agent and taxpayer to substantiate work related expense claims within 28 days. Non-response results in the claims being auto-adjusted, with no need for an audit. This resulted in an effective doubling of the number of adjustments that could be completed.

See Annex 6.A for supporting material.

China (People's Republic of) – The internal control of Smart Tax Inspection

Smart Tax Inspection is an integrated platform covering both administrative management and law enforcement aspects of tax inspection. The system can detect common operational problems at the tax official's end, and actively block the process if it does not conform to the prescribed working procedure. It is also equipped with 37 post-event automatic scanning and monitoring indicators, covering important risk nodes with regards to case selection, inspection, review and enforcement. When a risk is identified, one task to be processed will be generated and assigned to the relevant person in charge to handle and provide feedback.

It also has automatic and effective internal control over the closed cycle of tax inspection. For instance, if law enforcement risks occur to the same local inspection agency frequently in 3 consecutive months without any sign of improvement, the system will automatically remind the head of that inspection agency. Another example is, when the risk task is overdue at any link, the system will automatically generate and send reminders up to the Tax Inspection Bureau of STA headquarters, to accelerate the process.

Furthermore, multi-dimensional and smart analytics based on the internal control indicators can be generated automatically, which can help STA to identify and respond to management risks. Significant risks which frequently occur in a certain period of time can also be highlighted and circulated for action in a timely manner.

Mexico – Virtual/digital audits and data rooms

The Mexican Tax Administration Service (SAT) uses remote audit (e-audit), which permits electronic communication between auditee and auditor. The electronic signatures of the representatives of the legal entities being audited are verified by procedures such as identity validation and the Biometric Accreditation Service. The SAT IT department authorises the identity of the audit team members as their own staff or authorised personal; and all of them also use the Biometric Accreditation Service for their electronic signatures. The legal and regulatory restrictions for access to information are observed during the audits and specific information security controls and protocols are implemented for the e-audit. Different procedures are used, such as checklists, questionnaires, and interviews to review evidence, which can be provided in distinct formats (documents, video, and audio recordings).

Slovak Republic – Expert support for tax audits

A new system was developed that enables the central management of tax audits and onsite investigations and thanks to the central registration of all requests for tax audits, the complete life cycle of information is captured from its inclusion in the audit activity plan to the feedback from the actions carried out by the tax auditor.

The system also provides automated support to tax auditors for the purpose of fast and procedurally correct execution of tax audits (including support for new or less experienced tax auditors) and detailed information about the tax entity from all available databases.

It can provide a precisely defined recommended course of action for the tax auditor in the tax audit process (expert decision tree), including applicable legal norms, applicable case law in the form of sub-recommended tasks that the tax auditor is obliged to answer, and provide alerts to changes in the audited entities or related audits, helping preserve deadlines.

This is permitting reports and statistics down to the level of individual findings from the recommended actions as the manager staff gets a better overview of the activities and results of his audit department, each tax auditor's workload, their success rate in relation to commodities, types of fraud, etc. Through this the financial administration as a whole gains more detailed insights into the audit activity, including a real-time view of the performance of the monitored indicators.

Sources: Australia (2023), China (People's Republic of) (2023), Mexico (2023) and Slovak Republic (2023).

Tax crime investigations

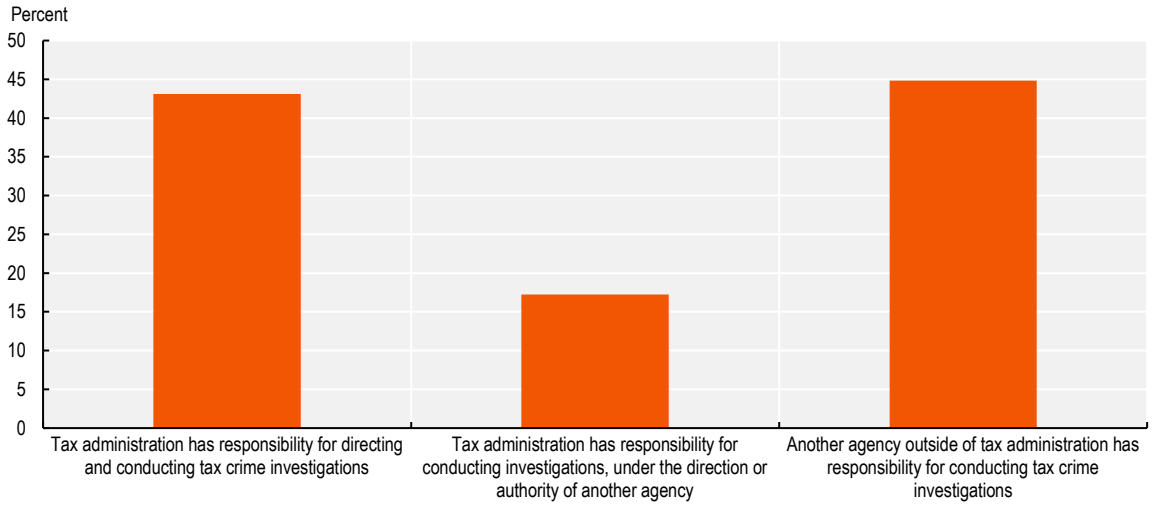
Tax crime refers to a conduct that violates a tax law and can be investigated, prosecuted and sentenced under criminal procedures within the criminal justice system. There is a range of organisational approaches for conducting tax crime investigations and the ISORA 2022 survey looked at the responsibility for directing and conducting those investigations.

The information gathered through the survey shows that 55% of the tax administrations covered in this publication are involved in conducting tax crime investigations (Table A.69.). The majority of those administrations have responsibility for both conducting and directing tax crime investigations, while the others have responsibility for solely conducting investigations, under the direction or authority of another agency, such as the police or public prosecutor (see Figure 6.12.).

In the cases of administrations that do not have any responsibility for conducting tax crime investigations, this work is done by another agency, such as the police or public prosecutor. This could also be a specialist tax agency, established outside the tax administration.

Figure 6.12. Role of administrations in tax crime investigations, 2021

Percent of administrations



Note: In some jurisdictions, the organisational approach for tax crime investigations may depend on the tax offence or tax-related criminal proceedings. In those cases, an administration may have selected multiple answer options. This is why the percentages add up to more than 100%.
Source: Table A.69.

StatLink https://stat.link/an21u4

Table 6.4. shows the total number of cases referred for prosecution during the fiscal year for the 32 administrations that have responsibility for conducting tax crime investigations. While the number of cases referred for prosecution was similar in 2018 and 2019, there was a significant reduction in the number of cases referred for prosecution during 2020 and 2021.

This is also reflected in the jurisdiction level data, which shows that around 70% of administrations that have responsibility for conducting tax crime investigations referred fewer cases for prosecution in 2021 (see Table A.69.).

Table 6.4. Evolution of tax crime investigation cases referred for prosecution between 2018 and 2021

Year	No. of cases referred for prosecution during the fiscal year	Change in percent (compared to previous year)
2018	41 631	
2019	40 426	-2.9
2020	33 874	-16.2
2021	30 490	-10.0

Note: Only includes administrations that have responsibility.
Source: Table A.69.

There could be many reasons for this reduction. This could include a genuine decline in cases, administrations reducing staff in this area as part of a wider reallocation of resources due to the pandemic, or the pandemic may have imposed constraints on the ability to refer cases for prosecution. Future editions of this series will be able to identify if the reduction this year was a 'blip' caused by the pandemic or the start of a long-term trend.

Finding better ways to fight tax crime is a high priority as money laundering, corruption, terrorist financing, and other financial crimes can threaten the strategic, political and economic interests of jurisdictions. Tax administrations, as gatekeepers to a sound financial system, play a critical role in countering these activities and are in possession of information that could be crucial for a successful criminal tax investigation.

Box 6.9. Tax Inspectors Without Borders for Criminal Investigation

Tax Inspectors Without Borders for Criminal Investigation (TIWB-CI) is a joint OECD/UNDP initiative which provides bilateral capacity building assistance in the area of tax crime investigation to developing countries, using the *OECD Council Recommendation on the Ten Global Principles for Fighting Tax Crime* (OECD, 2022[10]) as building blocks. A bespoke bilateral programme, TIWB-CI combines the technical experience of the OECD Task Force on Tax Crimes and Other Crimes (TFTC) and the ground level of presence of the UNDP, complementing other OECD tax crime multilateral initiatives such as the Academy for Tax and Financial Crime Investigation.

The TIWB-CI programme is a three-stage process starting with a country self-assessment exercise through the OECD *Tax Crime Investigation Maturity Model* (OECD, 2020[11]) to assess capacity gaps. During the second phase, the actual implementation process starts with the development of a work plan that defines the scope of the programme based on the self-assessment exercise, to be delivered within 18 to 24 either with the help of experts from a partner administration or a UNDP roster expert. A monitoring and evaluation framework, with success indicators, guides the implementation process.

Given the strong linkages between tax crime and other financial crimes, the TIWB-CI programme focuses on inculcating a culture of the 'Whole of Government Approach' by bringing all enforcement agencies together. Further, the TFTC is currently developing a new *Trust Maturity Model*, to ascertain the current level of trust between different stakeholders involved in financial crime investigation, with the help of a trust barometer and to identify barriers to trust, so that a proactive trust policy can be developed for operationalising the 'Whole of Government Approach'. This online tool would assist enforcement agencies in a jurisdiction develop a common understanding of the challenges posed by illicit financial flows and a joint strategy for countering them, by pooling of resources available to various agencies.

TIWB-CI programmes are currently being implemented in eight developing countries.

Note: For more information on the OECD Academy for Tax and Financial Crime Investigation see https://www.oecd.org/tax/crime/tax-crime-academy/ (accessed on 22 May 2023).

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Annex 6.A. Links to supporting material (accessed on 26 May 2023)

- Box 6.2. – Chile: Link to more information on the income tax dashboard: https://www.oecd.org/tax/forum-on-tax-administration/database/b.6.2-chile-income-tax-dashboard.pdf
- Box 6.2. – Finland: Link to more information on the Income Register: https://www.vero.fi/en/incomes-register/about-us/
- Box 6.7. – Lithuania: Link to a detailed description of the i.KON system: https://www.oecd.org/tax/forum-on-tax-administration/database/b.6.7-lithuania-controlling-risk-in-real-time.pdf
- Box 6.8. – Australia: Link to more information on the ATO's tax agent 'active verification' pilot: https://www.oecd.org/tax/forum-on-tax-administration/database/b.6.8-australia-tax-agent-pilot.pdf

7 Collection

This chapter comments on tax administration performance in managing the collection of outstanding taxes, and describes the features of a modern tax debt collection function. It goes on to provide examples of approaches applied by administrations to prevent debt being incurred.

Introduction

The collection function involves engaging with, and potentially taking enforcement action against those who do not file a return on time, and/or do not make a payment when it is due. Even with the growth in pre-filled or no return approaches over past years (see Chapter 4), the filing of a tax return or declaration still is still required in many jurisdictions participating in this publication. Although 2021 on-time filing rates averaged between 76% and 88%, at least 160 million returns were not filed on time that year (see Tables 4.4. and A.44. to A.47.). It is important therefore that administrations continue to focus efforts on improving the timely collection of late and outstanding returns.

Looking at the collection of late payments, all but one administration participating in the survey report staff resources being devoted to taking action to secure the payment of overdue tax payments (the Chilean tax administration reported not being responsible for debt collection; see Table A.20). Information provided by administrations in ISORA 2022, attributes on average around 11% of total staff numbers to the collection function (see Table D.8).

The legislative framework provides tax officials with powers that enable them to undertake certain actions in relation to the management of debt, the collection of amounts overdue and the enforcement actions that can be taken against delinquent debtors. The 2019 edition in this series had a section summarising the availability of such management, collection and enforcement powers and their usage by tax administrations (OECD, 2019[1]). Since then, the ISORA survey did not take a closer look at this topic. However, it is fair to assume that the availability and usage of such powers has not significantly changed.

This chapter:

- Takes a brief look at the features of a modern tax debt collection function and the elements of a successful tax debt management strategy;
- Comments on tax administration performance in managing the collection of outstanding debt; and
- Provides examples of preventive approaches to debt being incurred.

Features of a debt collection function

To maintain high levels of voluntary compliance and confidence in the tax system, administrations must ensure that their debt collection approaches are both “fit for purpose” and meet taxpayer’s expectations of how the system will be administered. This means not only taking firm action against taxpayers that knowingly do not comply, but also using more customer service style approaches where taxpayers want to meet their obligations but for understandable reasons, such as short-term cash-flow issues, are not able to do so. Increasingly, tax administrations are taking an end-to-end or systems view of their processes and researching the reasons why returns may not be filed or payments made. They are also using information about the taxpayer’s previous history, to identify patterns and/or anomalies. Box 7.1 highlights some new initiatives in this field.

The 2014 report *Working Smarter in Tax Debt Management* (OECD, 2014[2]) provided an overview of the modern tax debt collection function, describing the essential features as:

- ***Advanced analytics*** – that make it possible to use all the information tax administrations have about taxpayers to accurately target debtors with the right intervention at the right time.
- ***Treatment strategies*** – the collection function needs a range of interventions, from those designed to minimise the risk of people becoming indebted, to support taxpayers to make payments and to take appropriate enforcement measures where appropriate.
- ***Outbound call centres*** – which make it possible to efficiently pursue a large number of debts.

- ***Organisation*** – debt collection is a specialist function and is usually organised as such. The right performance measures and a continuous improvement approach help drive desired outcomes.
- ***Cross border debts*** – the proper and timely use of international assistance is crucial, particularly the "Assistance in Collection Articles" in agreements between jurisdictions.

The 2019 report *Successful Tax Debt Management: Measuring Maturity and Supporting Change* (OECD, 2019[3]) provides further insights into the elements of a successful tax debt management strategy, setting out four strategic principles that tax administrations may wish to consider when setting their strategy for tax debt management. These principles focus on the timing of interventions in the tax debt cycle, from consideration of measures to prevent tax debt arising in the first place, via early and continuous engagement with taxpayers before enforcement measures, to effective and proportionate enforcement and realistic write-off strategies. The underlying premise for these principles is that focusing on tackling debt early, and ideally before it has arisen, is the best means to minimise outstanding tax debt. The report also contains an overview of a *Tax Debt Management Maturity Model* and a compendium of successful tax debt management initiatives.

Box 7.1. Examples – Improving debt management

Australia – Disclosure of business tax debt

In Australia, the Disclosure of Business Tax Debt legislation aims to support more informed decision making within the business community by making overdue tax debts more visible, as well as encouraging taxpayers to engage with the Australian Taxation Office (ATO) to manage their tax debts. This reduces the unfair advantage obtained by businesses that do not pay their tax debts on time.

Where taxpayers do not actively engage in relation to their tax debts the ATO can disclose these debts to Credit Reporting Bureaus. ATO action is triggered when a client meets the legislative criteria of having an 'unmanaged' debt of more than AUD 100 000 outstanding for greater than 90 days and they remain in business.

A systems solution has been implemented to automate client selection and initial contact through issuing an Intent to Disclose notice (ITDN). This enables an "all in" approach with all eligible clients treated with minimal manual intervention. Where the ITDN has not prompted action; follow up phone contact is initiated before disclosure is considered. The combination of these steps has proven to prompt significant client re-engagement in managing their tax debts. As a result, by 31 December 2022 1 in 3 relevant taxpayers contacted had taken action to manage their tax debt, and in excess of AUD 2 billion is now under an active payment arrangement.

Georgia – Tax debt management reform

New tax debt management mechanisms have been deployed by the Georgia Revenue Service (GRS) to increase taxpayers' compliance. This has been achieved by:

- Strengthening of preventive mechanisms by informing taxpayers about the possibility of debts accruing and explaining payment methods. This is achieved by sending text messages and electronic messages in the taxpayer's own page of the GRS.
- Improving the rate of debt recovery by detecting taxpayers with debt in a unified database, which also identifies those with increasing debts and targeting them for interventions. This takes into account the financial position of taxpayers and targets collection measures based on the analysis of information available at the GRS and communication with taxpayers. In addition, for those taxpayers who co-operate a payment schedule can be established.

- Reducing of old debt through use of a "Currently Non-collectable Status" for the taxpayer. Repeated placement under the status of "Currently Non-collectable Status" is a prerequisite for writing off bad debt, and debt write-off is now carried out periodically so is does not affect taxpayer's business continuity and economic development.

These measures allow for the creation of a more flexible and effective model of debt management based on the principle of co-operation with taxpayers, which is helping improve the level of voluntary compliance, as this model provides timely information to taxpayers on their rights, obligations and expected collection measures.

Slovak Republic – Removing the driving license of tax debtors

In the Slovak Republic from 2020, unless a debtor's income is reliant on a driving license (for example, a bus driver, lorry driver or taxi driver) a debtor can be prevented from holding a driving license. This procedure begins with issuing a tax notice, giving the debtor a chance to pay the tax overdue and to avoid removing the driving license, along with a chance to appeal the recovery process as such. The recovery procedure is done in close co-operation with the police, as only the police is entitled to withdraw the driving license. The impact on debt collection has been significant, as even tax debts not recoverable for a very long time had been paid by the debtors after launching this new initiative.

Spain – Auction app

In 2022, the Spanish Tax Agency (AEAT) launched a system for searching real estate and goods included in auction procedures. The new functionality aims to increase the number of auctions and make it more accessible to citizen's which should increase the values achieved at auction, benefiting both AEAT and debtors. This is complemented by a dedicated telephone service which provides more details to potential bidders and supports those who win the auction.

The system has been designed to locate easily any property and find goods that meets a user's preferences. It also incorporates the possibility of saving favorite properties and sharing them. In addition, an alert subscription system has been enabled to notify the interested party when an auction that meets the required criteria is launched. Access to the system is granted through various government digital identity platforms, and announcements related to auctions are through the AEAT web portal and social media channels.

United Kingdom – Self-Serve Time to Pay

His Majesty's Revenue and Customs (HMRC) vision for the future of tax administration in the United Kingdom is designed to improve its resilience, effectiveness, and support for taxpayers, ensuring it is as easy as possible for customers experiencing financial difficulties to pay any arrears that may be owed, whether that's in full or as part of a payment plan.

In 2022, HMRC expanded the Self-Serve Time to Pay (SSTTP) service to include Employers PAYE. For the first time, employers with an eligible Employers PAYE debt can self-serve when setting up a Time to Pay arrangement.

Customers have told HMRC they prefer to self-serve when it comes to debt, and this service will also allow HMRC's Customer Service Group to focus on more complex queries and those customers who need one-to-one support when tackling their debts.

The digital service is accessible via several entry points including Business Tax Account, and GOV.UK. The service works by providing eligible customers with the ability to make payments up front and set up a payment plan (by direct debit) for eligible self-assessment and Employers PAYE debts.

In the first two months, around 600 customers set up plans with debt values in excess of GBP 2.5 million. These results have been achieved without active promotion of the service.

During 2023, HMRC will further extend the service, making it available for customers with VAT debts, reducing the burden some of HMRC's most vulnerable customers are experiencing whilst providing reassurance that the tax debt they owe is being managed fairly.

Sources: Australia (2023), Georgia (2023), Slovak Republic (2023), Spain (2023) and United Kingdom (2023).

Performance in collecting outstanding debt

The total amount of outstanding arrears at fiscal year-end remains very large, in the region of EUR 2.5 trillion. For survey and comparative analysis purposes, "total arrears at year-end" is defined as the total amount of tax debt and debt on other revenue for which the tax administration is responsible that is overdue for payment at the end of the fiscal year. This includes any interest and penalties. The term also includes arrears whose collection has been deferred (for example, as a result of payment arrangements).

The total amount of "collectable arrears" at fiscal year-end was around EUR 710 billion. Collectable arrears is defined as the total arrears figure less any disputed amounts, or amounts that are not legally recoverable. It also includes arrears which are unable to be collected, but where write-off action has not yet occurred.

As a result, and despite efforts to make data comparable, care needs to be taken when comparing specific data points as the administration of taxation systems and administrative practices differ between jurisdictions. Care also needs to be taken because of the impact of the COVID-19 pandemic, which is likely impacting on the 2020 and 2021 figures. This is because many governments took action to support individuals and businesses as part of the pandemic by extending payment terms, or suspending collection of outstanding debt. This may well be a major factor in the increase in collectable arrears after 2019. (CIAT/IOTA/OECD, 2020[4]) Future editions of this series will likely continue to reflect the impact of these actions as tax administrations slowly return to pre-pandemic activities.

In 2021, the average ratio for total year-end arrears to net revenue collected was 32% (see Table D.33.). As in past years, it remains heavily influenced by the very large ratios of a small number of jurisdictions that show ratios above 50%. If these jurisdictions are removed, the average reduces to around 14% of net revenue (see Figures 7.1. and 7.2. as well as Table D.33.). *(Note: The percentages mentioned in this paragraph are different from those in Table 7.1. as the table shows average arrears ratios for those jurisdictions that were able to provide the information for the years 2018 to 2021.)*

Table 7.1. Evolution of average arrears ratios between 2018 and 2021

Arrears ratio	2018	2019	2020	2021	Change in percent (between 2018 – 2021)
Total year-end arrears as percentage of net revenue collected (50 jurisdictions)	28.2	27.9	34.7	30.2	+7.0
Total year-end collectable arrears as percentage of total year-end arrears (40 jurisdictions)	50.7	51.5	54.3	54.4	+7.2

Note: The table shows average arrears ratios for those jurisdictions that were able to provide the information for the years 2018 to 2021. The number of jurisdictions for which data was available is shown in parenthesis. Data for Bulgaria was excluded from the calculation of the average for the 'total year-end arrears as a percentage of net revenue collected' as its data for the four years is not comparable (see Table A.55).
Source: Table D.33.

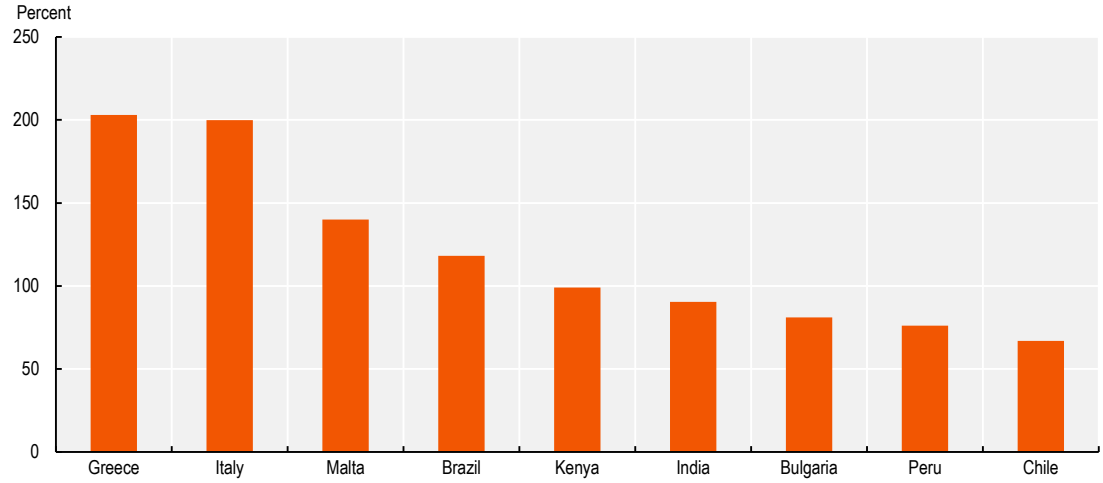
When comparing 2021 and 2020 data, a decrease in total year-end arrears to net revenue collected is visible. This follows the significant increase of the ratio during 2020 – the first year of the pandemic – where the ratio increased on average by more than 20 percent. However, despite this decrease in 2021, the ratio

of total year-end arrears to net revenue collected remains 7 percent above the 2018 values (see Table 7.1.).

This decrease between 2020 and 2021, is also generally reflected in the jurisdiction level data: In 2020 the 'total arrears to net revenue collected' ratio increased in around 85% of jurisdictions, whereas in 2021 the ratio decreased in 68% of jurisdictions (see Table D.33.).

Figure 7.1. Total year-end arrears as a percent of total net revenue, 2021

Administrations with a ratio above 50%



Source: Table D.33.

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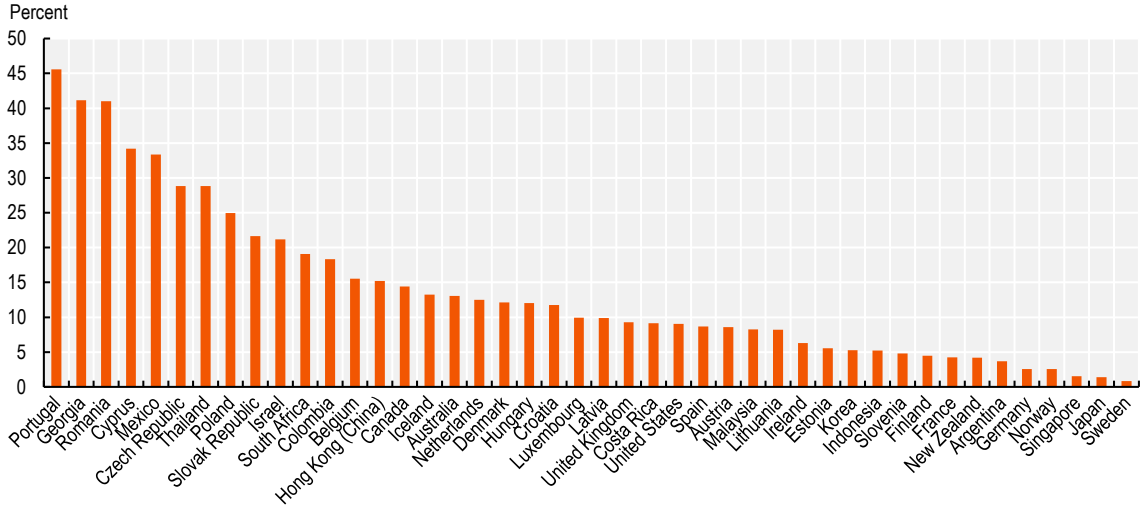
Figure 7.2. Total year-end arrears as a percent of total net revenue, 2021

Administrations with a ratio below 50%



Source: Table D.33.

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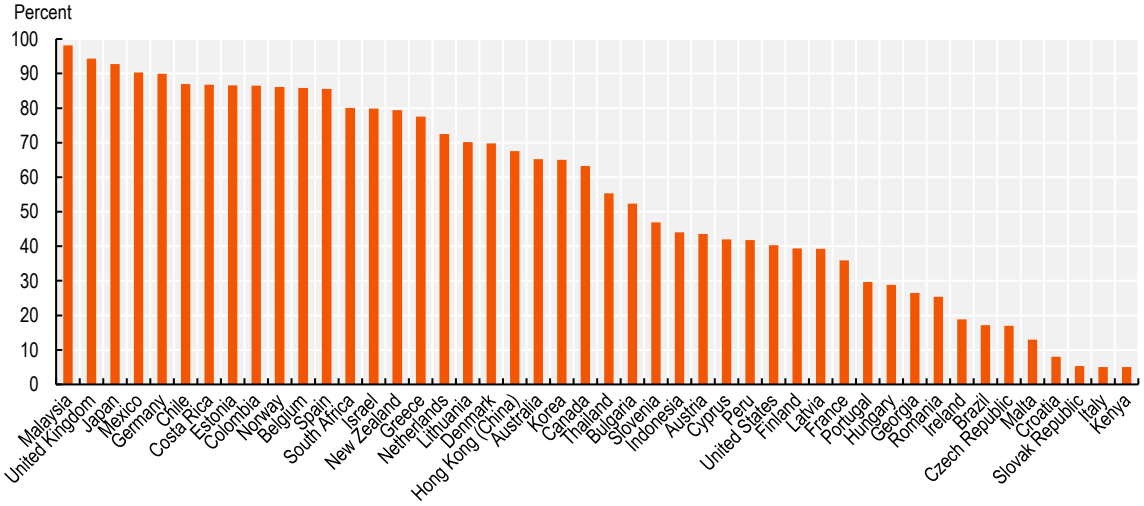
Looking at collectable tax arrears, the 2021 data shows that on average more than half of the total arrears are considered collectable. That is an increase of 7% compared to 2018. (See Table 7.1.) However, Figure 7.3. illustrates well the differences between jurisdictions: in some jurisdictions almost all arrears are considered collectable, while in others almost all arrears are considered not collectable.

Figure 7.3. Total year-end collectable arrears as percentage of total year-end arrears, 2021



Source: Table D.33.

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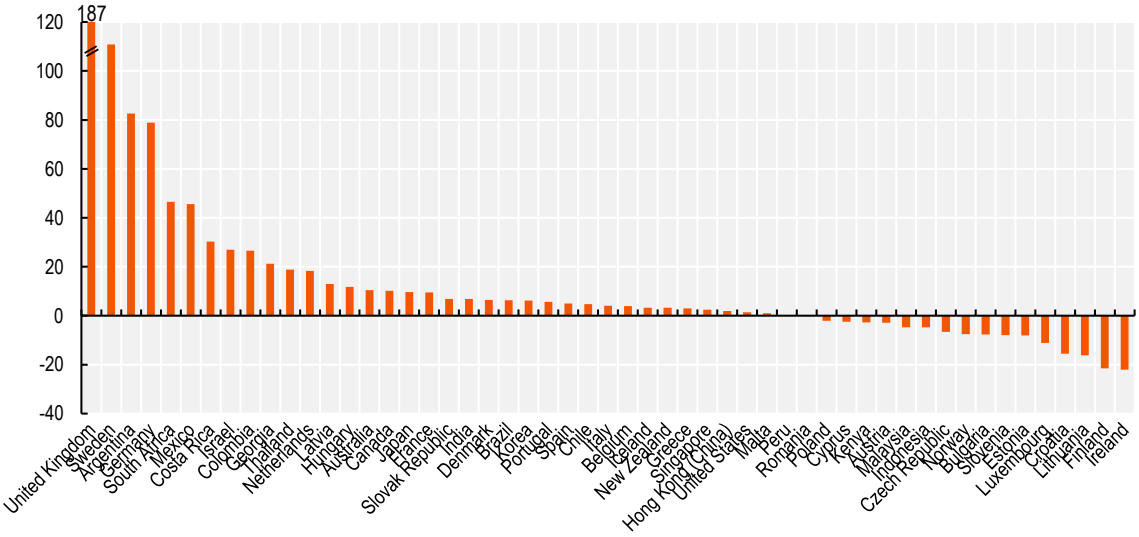
Figure 7.4. Movement of total arrears between 2020 and 2021



Source: Table D.34.

StatLink https://stat.link/5onwt2

Figure 7.4. show the change of total year-end arrears between 2020 and 2021. In absolute numbers, the total year-end arrears increased in 36 out of 53 jurisdictions that were able to provide the information.

In looking at the amount of arrears for the main tax types (see Table 7.2.), it seems that individuals are more likely to pay on time than businesses. The average ratio of corporate income tax (CIT) arrears to CIT net revenue collected and the ratio for value added taxes (VAT) are around 25% in 2021. At the same time, the ratio for personal income tax (PIT) is much lower at 15%.

The data also confirms the difficulties that businesses encountered at the beginning of the pandemic. The average ratios for CIT and for VAT increased significantly between 2019 and 2020 but went back to pre-pandemic levels in 2021.

At around 7%, the ratio is the lowest for employer withholding taxes (WHT). However, this is expected, as employers are responsible for forwarding those taxes to the administration on behalf of their employees and have no right over the amounts.

Table 7.2. Evolution of average ratio of year-end arrears to net revenue collected by tax type between 2018 and 2021

Tax type	2018	2019	2020	2021
CIT arrears as percentage of CIT collected (39 jurisdictions)	24.0	26.8	30.5	24.3
PIT arrears as percentage of PIT collected (42 jurisdictions)	16.2	14.2	15.5	15.0
Employer WHT arrears as percentage of PIT collected (34 jurisdictions)	7.2	6.5	7.2	6.9
VAT arrears as percentage of VAT collected (39 jurisdictions)	23.8	23.5	30.2	25.1

Note: The table shows the average ratios for jurisdictions that were able to provide the information for the years 2018 to 2021. The number of jurisdictions for which data was available is shown in parentheses. Data for Bulgaria was excluded from the calculation of the average for the total year-end arrears as a percentage of net revenue collected as its data for the three years was not comparable (see Table A.55). Further, because they would distort the averages, data for Brazil and Greece was excluded in the calculation of the average for CIT and data for Malta was excluded in the calculation of the average for VAT.
Source: Tables D.36 and D.37.

Preventive approaches

The range of actions undertaken by tax administrations to prevent debt from arising and to collect outstanding arrears continues to evolve. Box 7.2. illustrates the approaches taken by some administrations. Advances in predictive modelling and experimental techniques as reported in the OECD report *Advanced Analytics for Better Tax Administration* (OECD, 2016[5]) and in the compendium of successful tax debt management practices contained in the OECD report *Successful Tax Debt Management: Measuring Maturity and Supporting Change* (OECD, 2019[3]) are helping many administrations better match interventions with taxpayer specific risk. The approaches used fall into one of the following categories:

- Predictive analytics, which tries to understand the likelihood of certain outcomes and, as regards debt collection, includes modelling the risk that an individual or company will fail to pay as well as models that attempt to assess the likelihood of insolvency or other payment problems.
- Prescriptive analytics, which is about predicting the likely impact of actions on taxpayer behaviour, so that tax administrations can select the right course of action for any chosen taxpayer or group of taxpayers. (OECD, 2016[5])

Many administrations are blending both practices and have trialled a variety of approaches aimed at changing “taxpayer behaviour.” As pointed out in Chapter 6, three-quarters of administrations are using behavioural insight methodologies or techniques. These practices have the potential to transform the

approach to tax debt as administrations move away from the 'one-size-fits-all' approaches (where it is cost-effective to do so) and instead try to identify:

- Which cases should be subject to an intervention;
- When to intervene (for example, even before a return or payment might be due); and
- Which type of action would achieve the best cost-benefit outcome.

Box 7.2. Examples – targeting interventions

Australia – Director penalty awareness letters

The most significant impact of COVID-19 on the ATO has been the dramatic increase in unpaid tax debts. As Australian states and territories implemented their roadmaps out of lockdowns so too did the ATO, who remained committed to engaging with company representatives about unpaid tax debt by offering tailored support and assistance rather than enforcement. Where taxpayers didn't engage, the ATO recommenced firmer recovery actions.

Traditionally, the ATO escalates the recovery through a firm action warning letter, a Director Penalty Notice (DPN), which encourages payment and warns company representatives of possible recovery actions. However, the ATO realised that individual directors may not be aware of the debt or their personal liability to the debt until a DPN is issued. Therefore, before considering issuing a DPN, the ATO implemented an awareness strategy to individually inform the director of:

- The company's outstanding debt;
- Their personal liability to unpaid debts under the director penalty regime;
- A director's obligation to make sure the company pays;
- Pathways for them to get the company to re-engage; and
- That the ATO may issue a DPN directly to each director liable if the company does not act.

To date, approximately 70 000 letters have been issued to directors, and as a result with significant amounts of debt have been paid in full, and even more brought under management through payment plans. The outcomes of this campaign have been comparable with activities derived from escalated and firmer action campaigns, yet in this instance have only required the investment of light touch engagements.

Latvia – Combating illegal phoenixing

When an old entity is transferred to a new one, the State Revenue Service (SRS) still has the right to collect from unpaid tax owed by the old entity from the new one, so the SRS must evaluate and check if in fact a transfer has taken place.

The transfer of an entity is evidenced by various facts and circumstances that are evaluated against compliance with general criteria decided in the various legal cases. Depending on the outcome, a warning is sent to the successor entity with a deadline for payment of overdue taxes or a request for submission of evidence that proves that it is not a transfer. SRS also notes that it can offer support in the taxpayer's efforts for voluntary compliance, giving the successor company opportunity to participate in resolution.

If overdue taxes are not paid or an agreement on voluntary fulfilment of obligations is not concluded and the taxpayer does not refute the facts established by SRS, the SRS takes a decision on collection of overdue tax payments that comes into force immediately.

Sources: Australia (2023) and Latvia (2023).

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CIAT/IOTA/OECD (2020), "Tax administration responses to COVID-19: Measures taken to support taxpayers", *OECD Policy Responses to Coronavirus (COVID-19)*, OECD Publishing, Paris, https://dx.doi.org/10.1787/adc84188-en. [4]

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OECD (2014), *Working Smarter in Tax Debt Management*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264223257-en. [2]

8 Disputes

Dispute prevention and resolution are essential to help preserve trust in the tax systems. This chapter explores the strategies put in place by tax administrations to resolve and prevent disputes fairly and efficiently.

Introduction

Taxpayer rights and obligations are frequently set out in law or taxpayer charters. Table 8.1. sets out some of the most commonly reported rights and obligations. Underpinning these rights and obligations is effective access to processes that allow taxpayers to challenge assessments and decisions. This safeguards taxpayer rights and ensures that appropriate checks and balances exist on the exercising of tax powers by administrations. At the same time, tax administrations and taxpayers should also strive to work together to prevent disputes from arising in the first place, thus reducing burdens and uncertainty for both parties.

Table 8.1. Taxpayer's rights and obligations

Right	Obligation
To be informed, assisted, and heard	To be honest
Of appeal	To be co-operative
To pay no more than the correct amount of tax	To provide accurate information and documents on time
Certainty	To keep records
Privacy	To pay taxes on time
Confidentiality and secrecy	

Source: OECD (2019), *Tax Administration 2019: Comparative Information on OECD and other Advanced and Emerging Economies*, https://doi.org/10.1787/74d162b6-en.

This chapter examines the dispute resolution and review strategies in the jurisdictions covered by this report, as well as their performance in this area.

Dispute resolution review mechanisms

All 58 jurisdictions covered in this report provide taxpayers with the right to challenge assessments. Almost all administrations report having an internal review mechanism in place, and a large majority of administrations provide taxpayers with the option to seek an independent review by an external body, which can help improve legal certainty for taxpayers while avoiding potentially lengthy and costly legal proceedings. For those administrations that offer both review mechanisms, approximately 80% require taxpayers to seek an internal review before their case can be reviewed by an external body. (See Figure 8.1.)

Box 8.1. Resolving international tax disputes: Mutual agreement procedures

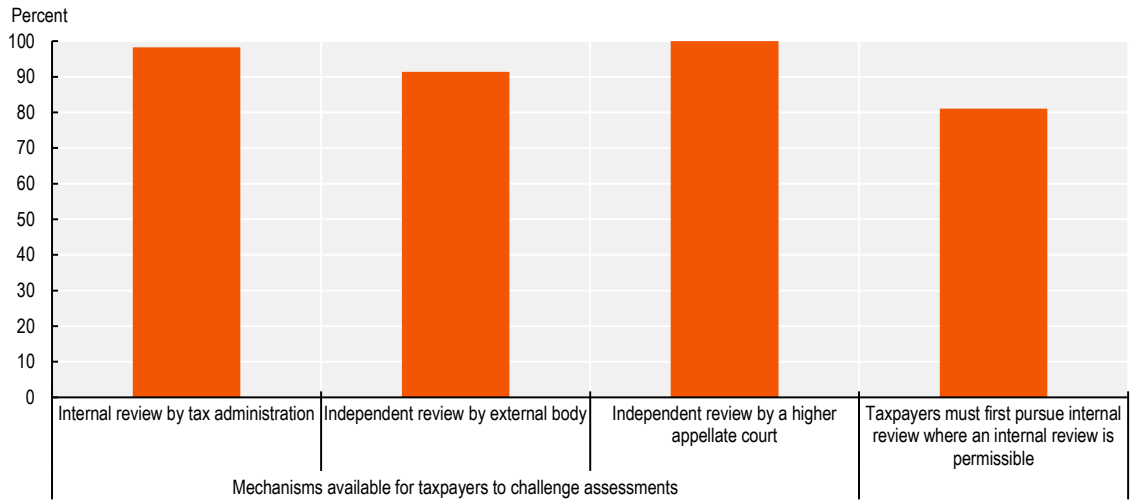
Double taxation of the same transaction or income can have significant economic impacts. Tax treaties, also known as double taxation agreements, usually aim to remove double taxation by setting out mutually agreed rules on the allocation of taxing rights for taxpayers resident in the signatory jurisdictions. They can also provide mechanisms to help prevent tax non-compliance.

Given the complexity of these situations, the parties may disagree on the application or interpretation of those rules. To respond to these situations, the vast majority of tax treaties have a formal process for dispute resolution through a mutual agreement procedure (MAP). Such a procedure is set out in Article 25 of the OECD Model Tax Convention, which is used by most jurisdictions as the framework for their tax treaties. MAP is critical component in ensuring the effective working of tax treaties, and in helping to reduce double taxation.

Source: OECD (2017), "Improving mutual agreement procedures", in *Tax Administration 2017: Comparative Information on OECD and Other Advanced and Emerging Economies*, https://doi.org/10.1787/tax_admin-2017-18-en.

Figure 8.1. Dispute resolution: Available review mechanisms, 2021

Percent of administrations



Source: Table A.70.

StatLink https://stat.link/4xt5de

Performance in dispute resolution

While tax administrations cannot generally control the timing of judicial processes, many of them are working on improving dispute resolution processes to make them quicker. These might include mediation or other non-judicial routes. The examples included in Box 8.2. illustrate how technological advances offer new possibilities for tax administrations to improve the efficiency of dispute resolution.

Box 8.2. Examples – Improving the efficiency of dispute resolution

France – Digital transformation of the legal function

For the legal functions at the French tax administration (DGFiP), both opportunities and challenges are expected in the years to come. These include:

- Responding to increasing activity flows despite a likely decrease in headcount;
- Compensating for the loss of internal knowledge due to retirements;
- Harmonising processing practices;
- Improving the search for information in order to refocus staff on higher added value analytical work;
- Better sharing DGFiP positions with external stakeholders and taxpayers; and
- Remaining competitive in the technological race with law firms and other players.

To address these, the DGFiP has embarked on a long-term project over the 2023-2030 period, to make the most of the possibilities offered by digitalisation. The project will follow a 'modular' approach in order to mitigate the technological, budgetary and operational strains that such a transformation entails:

- A single entry point will be established for all requests, allowing (i) taxpayers to get real-time information regarding the processing of their requests and (ii) internal monitoring and collaborative work using a new software suite.
- A unified document database will be created, gathering all positions taken by the DGFiP, whether in response to requests for rescripts or contentious claims. Expert systems will then be connected to this database.
- Artificial Intelligence will be used to make the most of the unified document base and the flow of information. Tools are envisaged that provide legal staff with proposed responses to simple and recurrent requests, to detect new trends earlier, or even to predict future legal developments.

Georgia – Unified database

The Unified Methodological Base is an online data search platform, which is accessible to employees of the Georgia Revenue Service, and in part to taxpayers. A wide variety of information is available on the database including:

- Legislative acts including international agreements, orders of the Minister of Finance and Director General of the revenue service, government resolutions, etc.;
- Internal regulations and methodological instructions, preliminary decisions, procedural manuals, situational manuals, standard operating procedures, service standards, etc.;
- Guidance on specific topics; and
- Information on hot topics.

The database is helping meet a number of important goals, including:

- Identifying problem areas in the application of tax legislation, and targeting them for further action;
- Reducing complaints and disputes as the working practices are clearer and uniform; and
- Increased predictability of the decisions of the dispute review bodies as information on previous decisions is available.

Italy – Business intelligence portal

Business Intelligence is a web portal that allows the monitoring of various activities of the Italian Revenue Agency, including, for example, those relating to tax litigation, rulings, audit activities and assistance to taxpayers. As regards tax disputes, the portal allows access to reports and applications designed to provide information of a quantitative and qualitative nature, related to the progress of dispute resolution.

In the area dedicated to tax litigation there are different functions available including:

- Analysis, for example on the number of appeals or hearings in the Courts of Fiscal Justice;
- Access to reports of data related to budget objectives;
- Access to registers of appeals which allows accessing data on the compliance with the deadlines for sending requests for appeal, as required by the memorandum of understanding with Legal Council of State;
- A research function for disputes which gives the possibility to follow the development of a selected tax dispute case, and to see the latest counter-arguments lodged at the Court of Fiscal Justice; and
- Access to predefined analysis which contains data on the progress and results of specific operational processes, and each local office may consult the data within its competence.

Sources: France (2023), Georgia (2023) and Italy (2023).

Making effective adjustments to dispute resolution processes requires sound reporting and monitoring mechanisms, and many administrations are active in improving the level of management information available. As a result, this report contains performance information from approximately 90% of administrations.

Tables 8.2. and 8.3. compare the change between 2018 and 2021 in the number of review cases initiated and on hand at fiscal year-end, for both internal and external reviews. Between 2019 and 2020, the majority of administrations reported a reduction in the number of cases initiated and on hand at fiscal year-end. In relation to cases under external review, this result can also be observed for 2021. However, in relation to the number of cases under internal review, the majority of administrations reported increasing numbers in 2021.

Table 8.2. Dispute resolution: Change in number of cases initiated during the year

Percent of administrations that reported an increase or decrease in the number of cases initiated

Movement	Tax cases initiated under internal review procedure			Tax cases initiated under independent review by external bodies		
	Change between			Change between		
	2018 and 2019	2019 and 2020	2020 and 2021	2018 and 2019	2019 and 2020	2020 and 2021
Increase	50	38	58	44	27	44
Decrease	50	62	42	56	73	56

Sources: Tables A.71. and A.72.

Table 8.3. Dispute resolution: Change in number of cases on hand at fiscal year-end

Percent of administrations that reported an increase or decrease in the number of cases on hand

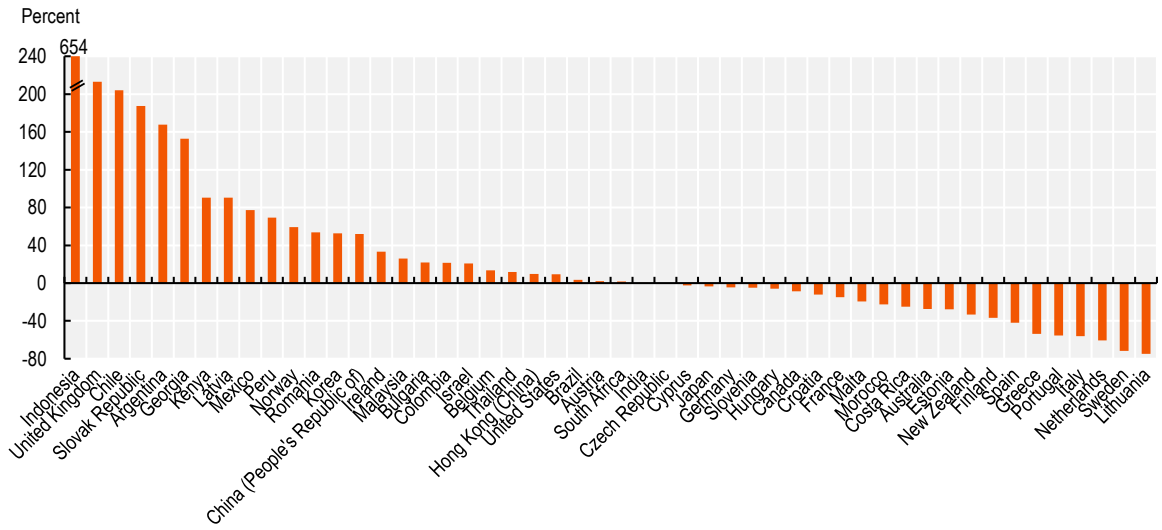
Movement	Tax cases on hand under internal review procedure			Tax cases on hand under independent review by external bodies		
	Change between			Change between		
	2018 and 2019	2019 and 2020	2020 and 2021	2018 and 2019	2019 and 2020	2020 and 2021
Increase	63	46	55	50	33	38
Decrease	37	54	45	50	67	62

Sources: Tables A.71. and A.72.

Figures 8.2. and 8.3. take a more detailed look at the jurisdiction level data and show the change between 2020 and 2021 in the number of review cases on hand at fiscal year-end, for both internal and external reviews. What is interesting to note are the significant increases in the number of internal review cases reported by a few jurisdictions.

At the same time, it should be pointed out that the volume of cases per jurisdiction varies significantly and where the number of cases is very low there can be significant fluctuations between years. This becomes more evident when looking at Figure 8.4., which highlights the wide differences between jurisdictions in the use of internal review procedures. Looking at Table 8.4., which shows the evolution of the average number of internal review cases initiated, it can be observed that the average has been stable between 8 and 9 internal review cases initiated per 1 000 active PIT and CIT taxpayers between 2018 and 2021.

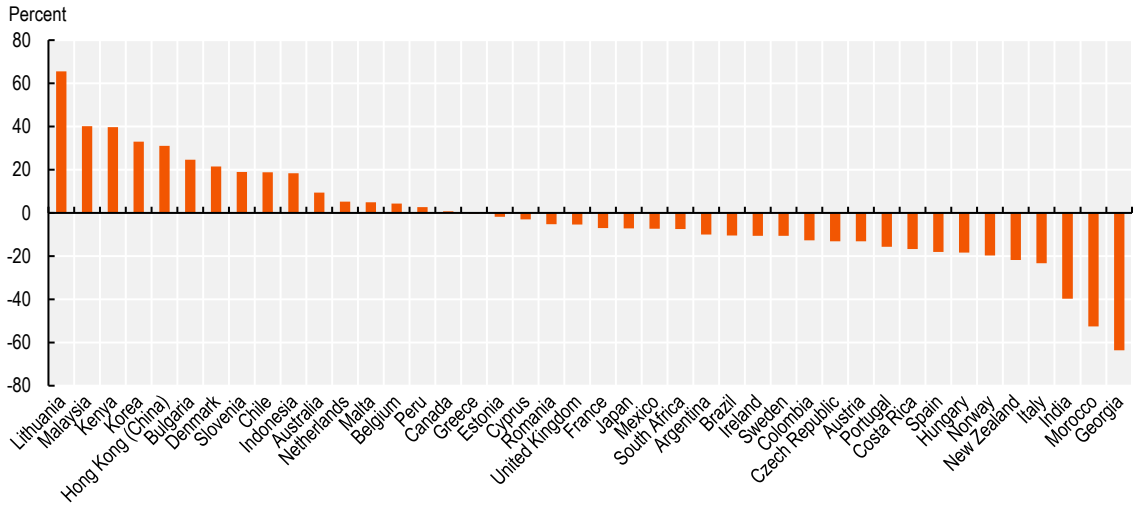
Figure 8.2. Internal review procedures: Change between 2020 and 2021 in the number of cases at fiscal year-end



Source: Table A.71.

StatLink https://stat.link/treh4d

Figure 8.3. Independent review by external bodies: Change between 2020 and 2021 in the number of cases at fiscal year-end



Source: Table A.72.

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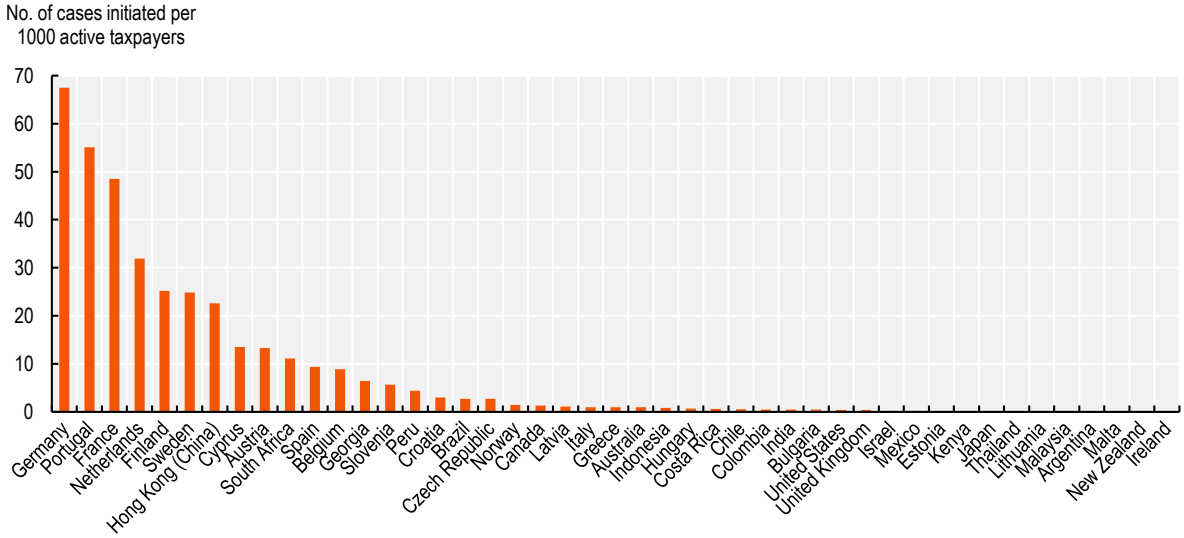
Figure 8.4. Number of internal review cases initiated per 1 000 active PIT and CIT taxpayers, 2021



Source: Table D.42.

StatLink https://stat.link/df3qt6

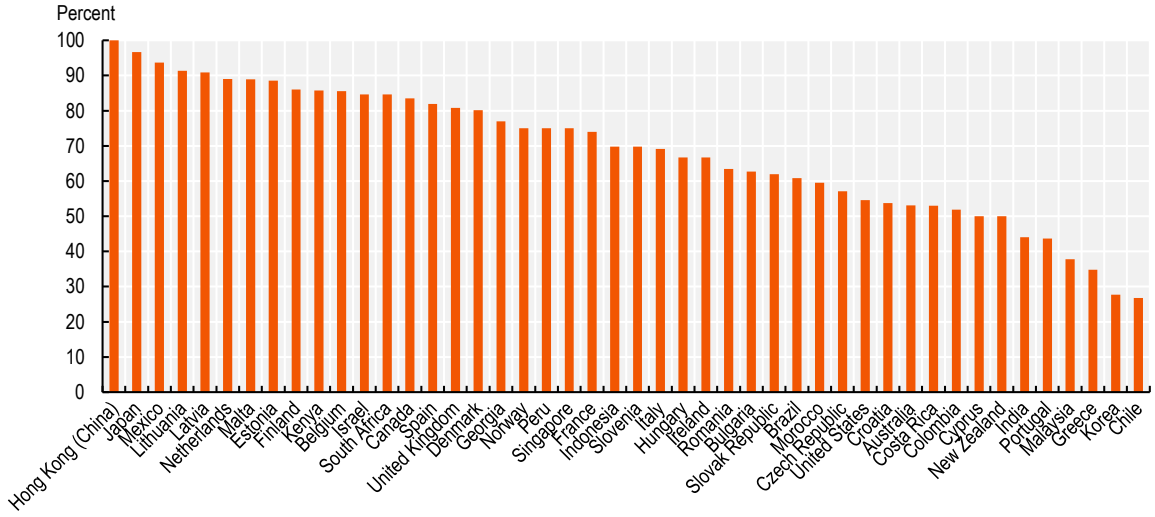
Table 8.4. Evolution of the average number of internal review cases initiated per 1 000 active PIT and CIT taxpayers between 2018 and 2021

	2018	2019	2020	2021
Average number of internal review cases initiated per 1 000 active PIT and CIT taxpayers (40 jurisdictions)	8.1	8.5	8.0	9.0

Note: The table shows the averages for those jurisdictions that were able to provide the information for the years 2018 to 2021. The number of jurisdictions for which data was available is shown in parenthesis.
Source: Table D.42.

Different interpretations of tax law by taxpayers and the tax administration are a normal part of tax administration, and it is not uncommon for these differences to become subject to litigation, once the internal and external review procedures have been exhausted. Whilst tax administrations report that most disputes are resolved without the need for litigation, Figure 8.5. reports the performance of administrations for cases decided upon by the courts. It shows significant differences in the success rate of administrations, although for some jurisdictions the number of cases decided is very low, meaning results can fluctuate significantly between years.

Figure 8.5. Percentage of cases resolved in favour of the administration, 2021



Note: Cases resolved in favour of the administration means those cases where the administration has been successful in more than 50% of the issues contested in each case. For Colombia, France and Korea please see the notes in Table A.73.
Source: Table D.42.

StatLink https://stat.link/rukabg

Dispute prevention

As disputes can be resource intensive processes, preventing them is the most effective strategy, and a key element in the dispute prevention framework is the provision of guidance and advice to taxpayers. Tax administrations often do this as part of their wider service strategy. This can include putting information and interactive tools on their website, publishing guidelines and taxpayer information briefs, and carrying out educational and business support initiatives. In addition, many administrations offer specific dispute prevention mechanisms and some of those approaches are described in this section.

Rulings

As shown in Table A.120 of the 2019 edition of this series (OECD, 2019[1]), as part of tax administrations' commitment to give taxpayers certainty of treatment, it is now common practice for administrations to set out how they will interpret the laws they administer, and how it will interpret the tax law in particular situations, through rulings:

- A ***public ruling*** is a published statement of how an administration will interpret provisions of the tax law in particular situations. They are generally published to clarify application of the law, especially where a large number of taxpayers may be impacted by particular provisions and/or where a provision has caused confusion or uncertainty. Typically, a public ruling is binding on the tax administration if the ruling applies to the taxpayer and the taxpayer relies upon it.
- A ***private ruling*** relates to a specific request from a taxpayer (or their tax representative) seeking greater certainty as to how the law would be applied by the tax administration in relation to a proposed or completed transaction(s). The objective of private rulings is to provide additional support and certainty to taxpayers on the tax consequences of more complex transactions.

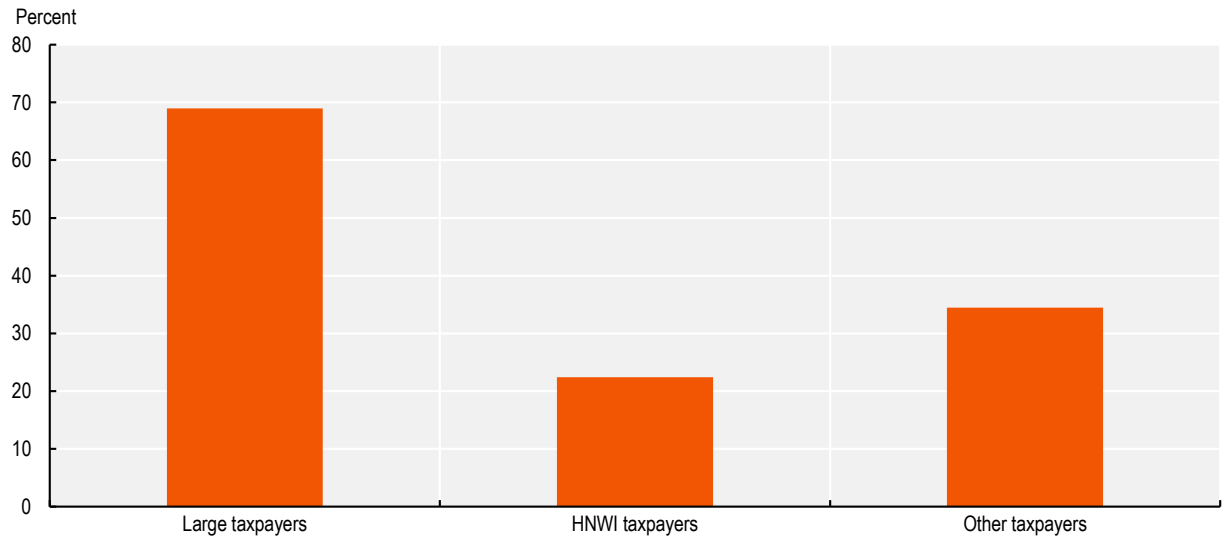
Co-operative compliance programmes

Over the last few years, there has been an increasing focus on the use of co-operative arrangements to manage compliance and enhance tax certainty. These programmes often involve a more transparent relationship between tax administrations and taxpayers, and can involve more proactive approaches to resolving material tax risks. The concept of co-operative compliance has been the subject of several OECD reports, most recently *Co-operative Tax Compliance: Building Better Tax Control Frameworks* (OECD, 2016[2]).

As the operation of a co-operative compliance programme is resource intensive due to the high level of engagement between tax administration officials and taxpayers, traditionally those programmes were reserved for large companies. However, technological advances in risk assessment processes have led to a number of administrations reporting the application of this concept to other taxpayer groups (see Figure 8.6.).

Figure 8.6. Existence of co-operative compliance approaches for different taxpayer segments, 2021

Percent of administrations that have such approaches



Source: Table A.90.

StatLink https://stat.link/21rnkb

International Compliance Assurance Programme

The International Compliance Assurance Programme (ICAP) is a voluntary programme for a multilateral co-operative risk assessment and assurance process. It is designed to provide multinational enterprise groups (MNE groups) with increased tax certainty with respect to certain of their activities and transactions as long as they are willing to engage actively, openly and in a fully transparent manner. ICAP does not provide an MNE group with the legal certainty that may be achieved, for example, through an advance pricing arrangement (APA). However, it does give assurance when tax administrations participating in an MNE group's risk assessment consider covered risks to be low risk.[1] (OECD, 2021[3])

Joint audits

Another tool that can assist in preventing disputes is a joint audit where officials from two or more administrations join to form a single audit team which will examine issues or transactions of taxpayer(s) with cross-border business activities and in which the jurisdictions have a common or complementary interest. By collaborating it may be possible for the participating tax administrations to detect and address differences or potential disputes at an early stage. (OECD, 2019[4])

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OECD (2016), *Co-operative Tax Compliance: Building Better Tax Control Frameworks*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264253384-en. [2]

Note

1 See https://www.oecd.org/tax/forum-on-tax-administration/international-compliance-assurance-programme.htm for more information (accessed on 22 May 2023).

9 Budget and workforce

This chapter looks at the resources devoted to tax administrations and provides information on their workforce. It sets out how administrations are responding to new challenges and maintain their capability while managing a workforce that in many cases is reducing in size despite added responsibilities and on average is getting older. It also explores how technology is helping tax administrations empower their workforce to deliver better solutions for taxpayers as well as provide more flexibility for the administration and its employees.

Introduction

Central to a tax administration meeting its role in collecting revenue and providing services to citizens and businesses, is sufficient financial resources and a skilled workforce that can deliver quality outputs efficiently and effectively. This chapter examines the financial resources available to tax administrations, and how they are spent. It also provides information on tax administrations' workforce, and how working practices are changing.

Budget and information and communication technology

Operating expenditures

The overall level of resources devoted to tax administration is an important and topical issue for most governments, external stakeholders, and of course tax administrations themselves. While the budgetary approaches differ, in most jurisdictions the budget allocated is tied to the delivery of performance outputs which are outlined in an annual business plan.

When looking at the budget figures, close to 80 percent of tax administrations report an increase in their operational expenditure between the years 2020 and 2021. This is slightly more administrations reporting an increasing budget than during the previous periods (see Table 9.1.).

However, this data should be treated with caution. While on paper a significant number of administrations saw increases in their budget, this does not take into the account the increases in responsibilities that many administrations are reporting, especially as a result of additional pandemic responsibilities, as well as any inflationary pressures.

Table 9.1. Changes in operating expenditures, 2018-2021

Percent of administrations

Change	Between 2018 and 2019	Between 2019 and 2020	Between 2020 and 2021
Increase in operating expenditure	75.5	71.7	77.4
Decrease in operating expenditure	24.5	28.3	22.6

Note: The table is based on the data from 53 jurisdictions that were able to provide the information for the years 2018 to 2021.
Source: Table A.16.

This issue is compounded as a significant part of the budgets is needed for salary costs, accounting for on average 73% of operating budgets annually (see Table D.6.). Any increases in budgets can be rapidly consumed by salary increases, which may be a contractual obligation. This mix of greater responsibility, and pressured budgets, is driving tax administrations to find innovative approaches, often using technology, so they can meet budgetary constraints, continue to deliver efficient services to taxpayers, and focus on the relevant compliance risks.

As tax administrations reflect on the working practices established as part of the pandemic response, the impact of longer-term hybrid or remote working is also being considered. This was explored in more detail in the OECD report *Tax Administration: Towards sustainable remote working in a post COVID-19 environment* (OECD, 2021[1]), and the examples in Box 9.1. set out some of the new working practices being adopted after the pandemic.

Box 9.1. Examples – New working practices

Chile – Automatic messaging system of electronic receipts with taxpayers

As a result of the COVID-19 pandemic and the difficulty of on-site tax inspection, the Servicio de Impuestos Internos (SII) needed to find a solution to control the issuance of electronic receipts in near real-time. In this context, a system with the capability to create alerts from the processing electronic receipts, both near real-time and batch, was developed. This system continues to be used post-pandemic.

The model consists of four main components: clustering, definition of alerts, automatic messaging system and data visualisation.

The process starts with the definition of who are the taxpayers that are required to issue electronic receipts. Then, the system clusters some of those taxpayers by business type. Currently, there are ten clusters: liquor store, bakery, restaurant, greengrocers, butcher shop, drugstore, flower shop, jewellers, minimarket, and hardware store.

SII has created a set of alerts based on mathematical algorithms that monitor and detect anomalous patterns in electronic tax documents issuance from these clusters. After identifying the taxpayers obligated to issue electronic receipts, those who meet the conditions to be targeted for a message are identified. Finally, with all the data gathered by the system, a dashboard to visualise the information is created.

See Annex 9.A. for supporting material.

Mexico – Supporting the digital workplace

The Mexican Tax Administration Service (SAT) has invested in mobility services to promote remote work, resulting in increased staff productivity and substantial savings for the institution. A key component of this initiative has been the provision of Virtual Private Networks to enable secure remote access to the institutional network. This measure has not only saved staff time but also allowed the institution to reduce its office-related costs.

Romania – Webinar for meetings with taxpayers

During the pandemic the Romanian tax administration adopted restrictive measures regarding the access of taxpayers to the tax administration offices. In order to maintain service to taxpayers, the Romanian tax administration implemented a webinar service, which was launched in 2022. The webinars are conducted by regional offices representatives and the webinar details are publicised on the tax administration website, which also handles registration for the webinar.

The webinars are organised both to inform the taxpayers of their fiscal obligations and to answer their questions related to the topic, in order to improve voluntary compliance. The webinars last two hours and taxpayers can ask questions either in writing through the question-and-answer section or verbally using the "raise hand" function.

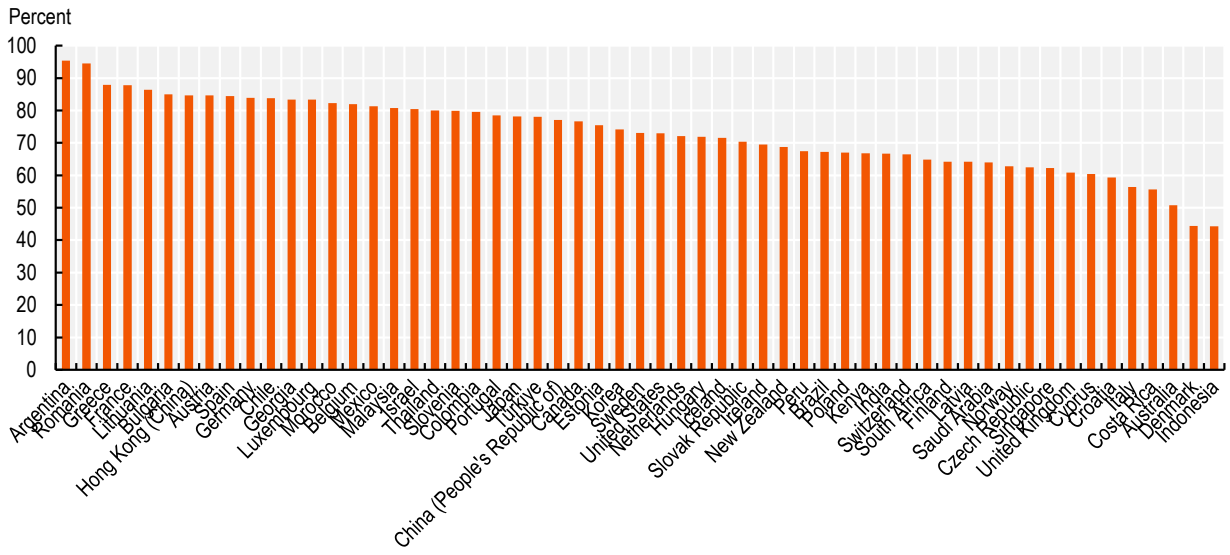
The webinars take place monthly and the platform permits statistical reporting regarding the number of registered people, the number of participants and the number of questions asked through the question-and-answer section.

Sources: Chile (2023), Mexico (2023) and Romania (2023).

Components of tax administration operating expenditure

As stated earlier, the largest reported component of tax administration operating budgets is staff costs, with salary alone accounting for on average 73% of operating budgets annually, even though there are some differences among jurisdictions (see Figure 9.1.). Another important component is the operating cost for information and communication technology (ICT). On average this accounts for 11% of operating expenditure, with a few jurisdictions reporting ICT expenditure above 20% of their total operating expenditure (see Table D.6.). The averages for both items (salary and ICT) have remained stable over the past years.

Figure 9.1. Salary cost as a percent of total operating expenditure, 2021



Source: Table D.6.

StatLink https://stat.link/0myi8v

Capital expenditure

Capital expenditure makes-up about 4.7% of total expenditure on average but varies significantly between administrations. A few administrations report figures below 1% while others report figures above 10% (see Table A.17).

Cost of collection

It has become a fairly common practice for tax administrations to compute and publish (for example, in their annual reports) a "cost of collection" ratio as a surrogate measure of their efficiency / effectiveness. The ratio is computed by comparing the annual expenditure of a tax administration, with the net revenue collected over the course of a fiscal year. Given the many similarities in the taxes administered by tax administrations, there has been a natural tendency by observers to make comparisons of "cost of collection" ratios across jurisdictions. Such comparison have to be treated with a high degree of caution, for reasons explained in Box 9.2.

In practice there are a number of factors that may influence the cost/revenue relationship, but which have nothing to do with relative efficiency or effectiveness. Examples of such factors and variables include

macroeconomic changes as well as differences in revenue types administered. These factors are further elaborated in Box 9.2.

Despite those factors, the "cost of collection" ratio is included in this report for two reasons:

1. The "cost of collection" ratio is useful for administrations to track as a domestic measure as it allows them to see the trend over time of their work to collect revenue and, as pointed out in Box 9.2., they may be able to account for the main factors that can influence the ratio; and
2. The inclusion of the "cost of collection" ratio and the accompanying comments set out in Box 9.2. can serve as a prominent reminder to stakeholders of the difficulties and challenges in using the easily calculated "cost of collection" ratio for international comparison.

Table 9.2. illustrates the change in the "cost of collection" ratios between 2018 and 2021 for the administrations included in this report. It shows that close to eighty percent of the administrations had decreasing ratios between 2020 and 2021, in contrast to the around eighty percent of administrations which had increasing ratios over the period 2019 to 2020. Figure 9.2. looks at the movement in the "cost of collection" ratios between 2020 and 2021 from a jurisdiction-level perspective. However, as mentioned in Box 9.2., the chart and the underlying figures have to be interpreted with great care.

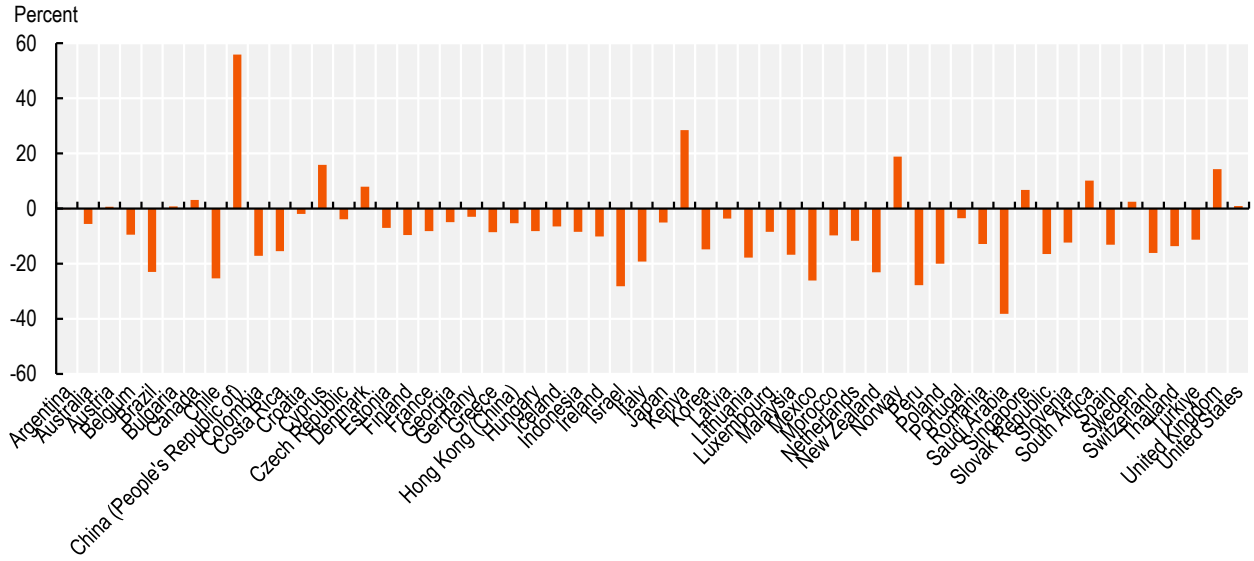
Table 9.2. Changes in "cost of collection" ratios, 2018-2021

Percent of administrations

Change	Between 2018 and 2019	Between 2019 and 2020	Between 2020 and 2021
Increase in cost of collection	45	82	22
Decrease in cost of collection	55	18	78

Note: The table is based on the data from 55 jurisdictions that were able to provide the information for the years 2018 to 2021.
Source: Table D.6.

Figure 9.2. Movement in "cost of collection" ratios between 2020 and 2021



Note: When interpreting this chart the factors mentioned in Box 9.2. should be taken into account. Data for India has been excluded, see note in Table A.16.
Source: Table D.6.

StatLink https://stat.link/xicsal

Box 9.2. Difficulties and challenges in using the "cost of collection" ratio as an indicator of efficiency and/or effectiveness

Observed over time, a downward trend in the "cost of collection" ratio can appear to constitute evidence of a reduction in relative costs (i.e., improved efficiency) and/or improved tax compliance (i.e., improved effectiveness). However, experience has also shown that there are many factors that can influence the ratio which are **not** related to changes in a tax administrations' efficiency and/or effectiveness and which render this statistic highly unreliable in the international context:

- **Changes in tax policy**: Tax policy changes are an important factor in determining the cost/revenue relationship. In theory, a policy decision to increase the overall tax burden should, all other things being equal, improve the ratio by a corresponding amount, but this has nothing to do with improved operational efficiency or effectiveness.
- **Macroeconomic changes**: Significant changes in rates of economic growth etc. or inflation over time are likely to impact on the overall revenue collected by the tax administration and the cost/revenue relationship.
- **Abnormal expenditure of the tax administration**: From time to time, a tax administration may be required to undertake an abnormal level of investment (for example, the building of a new information technology infrastructure or the acquisition of more expensive new accommodation). Such investments are likely to increase overall operating costs over the medium term, and short of offsetting efficiencies which may take longer to realise, will impact on the cost/ revenue relationship.
- **Changes in the scope of revenues collected**: From time to time, governments decide to shift responsibility for the collection of particular revenues from one agency to another which may impact the cost/revenue relationship.

From a fully domestic perspective, an administration may be able to account for those factors by making corresponding adjustments to its cost or collected revenue. This can make tracking the "cost of collection" ratio a helpful measure to see the trend over time of the administration's work to collect revenue. If it were gathered by tax type, it may also help inform policy choices around how particular taxes may be administered and collected.

However, its usefulness with respect to international comparison is very limited. While administrations may be able to account for the above factors from a domestic perspective, it will be difficult to do this at an international level as such analysis would have to consider:

- **Differences in tax rates and structure**: Rates of tax and the actual structure of taxes will all have a bearing on aggregate revenue and, to a lesser extent, cost considerations. For example, comparisons of the ratio involving high-tax jurisdictions and low-tax jurisdictions are hardly realistic given their widely varying tax burdens.
- **Differences in the range and nature of revenues administered**: There are a number of differences that can arise here. In some jurisdictions, more than one major tax authority may operate at the national level, or taxes at the federal level may be predominantly of a direct tax nature, while indirect taxes may be administered largely by separate regional/state authorities. In other jurisdictions, one national authority will collect taxes for all levels of government, i.e., federal, regional and local governments. Similar issues arise in relation to the collection of social insurance contributions.
- **Differences in the range of functions undertaken**: The range of functions undertaken by tax administrations can vary from jurisdiction to jurisdiction. For example, in some jurisdictions the tax administration is also responsible for carrying out activities not directly related to tax

administration (for example, the administration of certain welfare benefits or national population registers), while in others some tax-related functions are not carried out by the tax administration (for example, the enforcement of debt collections). Further, differences in societal views may influence what an administration does, how it can operate and what services is has to offer. The latter may have a particularly significant impact on the cost/revenue relationship.

Finally, it should be pointed out that the "cost of collection" ratio ignores the revenue potential of a tax system, i.e., the difference between the amount of tax actually collected and the maximum potential revenue. This is particularly relevant in the context of international comparisons – administrations with similar cost/revenue ratios can be some distance apart in terms of their relative effectiveness.

Information and communication technology

On average ICT expenditure accounts for about 11% of operating expenditure. However, reported levels of ICT expenditure vary enormously between administrations. For those administrations able to provide ICT-related cost, around 50% reported an annual operating ICT expenditure exceeding 10% of the administration's total operating expenditure in 2021 and another 20% reported figures between 5% and 10% (see Table D.6). While some of this variation can be explained by the different sourcing and business approaches, some cannot and point, at least on the surface, to expenditure levels that maybe somewhat below the support needed to provide the rapidly changing electronic and digital services administrations are increasingly being called upon to deliver. In parallel to this, administrations report that they are investing more in their cybersecurity practices, which are needed to protect the integrity of their system and maintain taxpayer trust. Box 9.3. and Chapter 10 on digital transformation highlight some of the practices in this field.

Box 9.3. Examples – Investment in cyber security

Australia – System integrity measures against cybercrime

One of the Australian Taxation Office's (ATO's) innovations to fight cybercrime is the implementation of the new System Integrity Program and its Vulnerability Assessment Methodology. This contemporary methodology seeks to understand weaknesses in existing business processes and user pathways, and test the exposure to external fraud and cybercrime threats across the end-to-end tax and superannuation ecosystem. The method allows the ATO to consider where additional countermeasures may be needed to prevent cybercrime and external fraud occurring from a whole-of-system perspective.

See Annex 9.A. for supporting material.

Mexico – Innovations in the fight against tax cybercrime

Event correlation is using analytics to identify and understand patterns in historical and online data to better locate and mitigate potential security threats. Its main objective is to identify anomalous behaviours and support the establishment of responsibilities in registered actions, using the activity audit trails generated by network connections, browsing history, user accounts, among others.

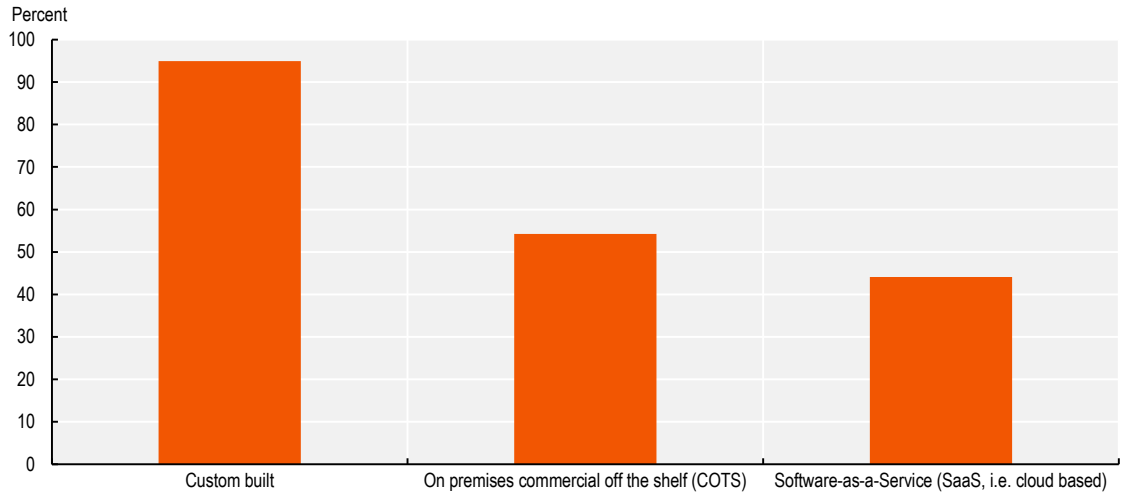
SAT uses a specialized system for the collection and analysis of information systems records (SIEM) as well as specialised infrastructure for the analysis of the information contained in the SIEM. In addition, staff are trained in the use of analysis tools and the investigation of information systems records Current legislation must be constantly reviewed in terms of information retention periods. In addition, attention must be paid to preserving the integrity of the logs, developing event correlation rules to generate alerts to those responsible for them and monitoring, updating and retraining of analytical models.

Sources: Australia (2023) and Mexico (2023).

As regards the operational ICT solutions (i.e., solutions that are used to fulfil the tax administration's mandate and include systems for registration, return processing, payment processing and auditing), almost all tax administrations report using custom built ICT solutions, while 55% report also using commercial-off-the-shelf (COTS) solutions (see Figure 9.3.).

Figure 9.3. Basis of ICT solutions of tax administrations, 2021

Percent of administrations that have such solutions



Source: Table A.21.

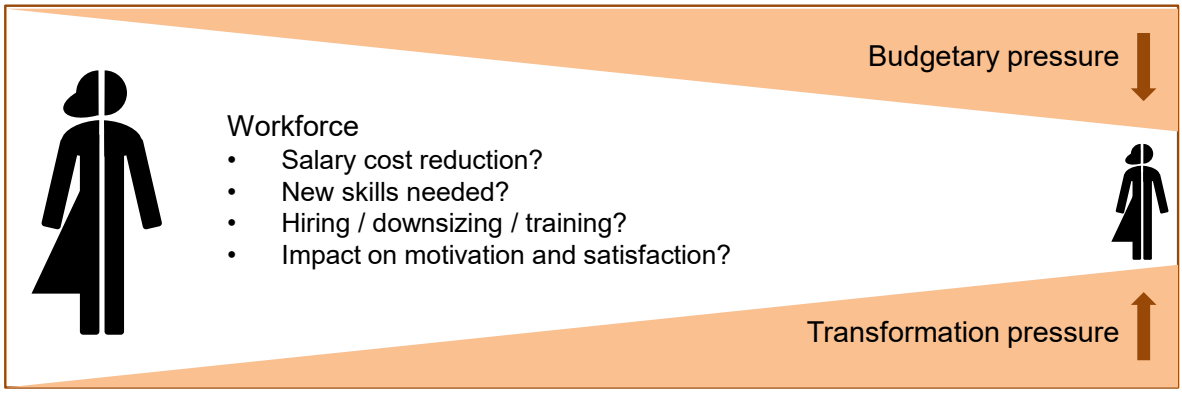
StatLink https://stat.link/c1jqm4

In addition, around 45% of the administrations report using software-as-a-service (SaaS) solutions. These are software licensing models where the tax administration pays for a subscription license and the cost depends on the usage. The software is installed on third party computers, not on tax administration computers, and is accessed by users via the internet. One of the main barriers to adopting SaaS more widely, is the storage of sensitive tax data on these third-party systems. As more legislative and technological solutions are identified, including regarding the encryption of data, it is possible the use of SaaS will increase.

Workforce

In 2021, the administrations included in this report employed approximately 1.7 million staff (see Table A.18.) making the effective and efficient management of the workforce critical to good tax administration. Having a competent, professional, productive and adaptable workforce is at the heart of most administrations' human resource planning. With salary costs averaging more than 70% of operating expenditures, any significant budget change invariably impacts staff numbers. The "double pressure" created from reduced budgets and technology change, mentioned in the 2017 edition (OECD, 2017[2]) (see also Figure 9.4.), continues to be a significant management issue for most administrations. The challenge is compounded for some administrations which, due to contract restrictions or government mandates, may find it difficult to strategically down-size their operations other than through the non-replacement of staff who leave of their own accord.

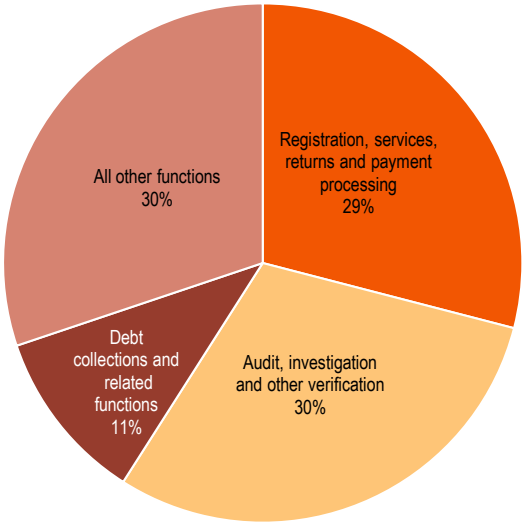
Figure 9.4. Double pressure on the workforce



Staff usage by function

Figure 9.5. provides average allocation of staff resources (expressed in full-time equivalents) across four functional groupings used to categorise tax administration operations.[1] While the detailed data for each administration in Table D.8. shows a significant spread of values and a number of outliers for each function, on average the "audit, investigation and other verification" function and the "registration, services, returns and payment processing" function are equally resource intensive, each employing on average thirty percent of staff. Both ratios have remained stable over recent years.

Figure 9.5. Staff usage by function, 2021



Note: Excluding administrations that were unable to provide the break-down for all functions.
Source: Table D.8.

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Staff metrics

ISORA 2022 also gathered key data concerning the age profiles, length of service, gender distribution and educational qualifications of tax administration staff: see Tables D.10. to D.15. and A.24. to A.31. In interpreting this data there are two main considerations to bear in mind:

- Combined tax and customs administrations were allowed to use their total workforce for answering the underlying survey questions as it may be difficult for them to separate the characteristics of the tax and customs workforce.
- Since ISORA 2020, staff metrics information is collected for the total number of staff, whereas in previous ISORA rounds (i.e., ISORA 2016 and 2018) staff metrics information was collected for permanent staff only. Trend analysis comparing staff metrics across the different ISORA surveys should therefore be conducted with caution. In particular for administrations that employ a significant number of non-permanent staff, this change in methodology may cause a shift in staff-metric-percentages that is not based on regular staff fluctuations but rather a result of including a different group of staff.

Age profiles

While there are significant variations between the age profiles of tax administration staff (see Tables D.11. and D.12.), it is interesting to see that there are also differences when viewed across different regional groupings. This may be the result of a complex mix of cultural, economic, and sociological factors (for example, economic maturity, recruitment, remuneration, and retirement policies).

Figure 9.6. illustrates that staff are generally younger in administrations in the regional groupings of “Asia-Pacific” and “Middle East and Africa” where, on average, around thirty percent of staff are below 35 years of age, whereas in the “Americas” and “Europe” this percentage drops to below twenty percent. At the same time, administrations in the “Americas” and “Europe” have a large percentage of staff older than 54 years.

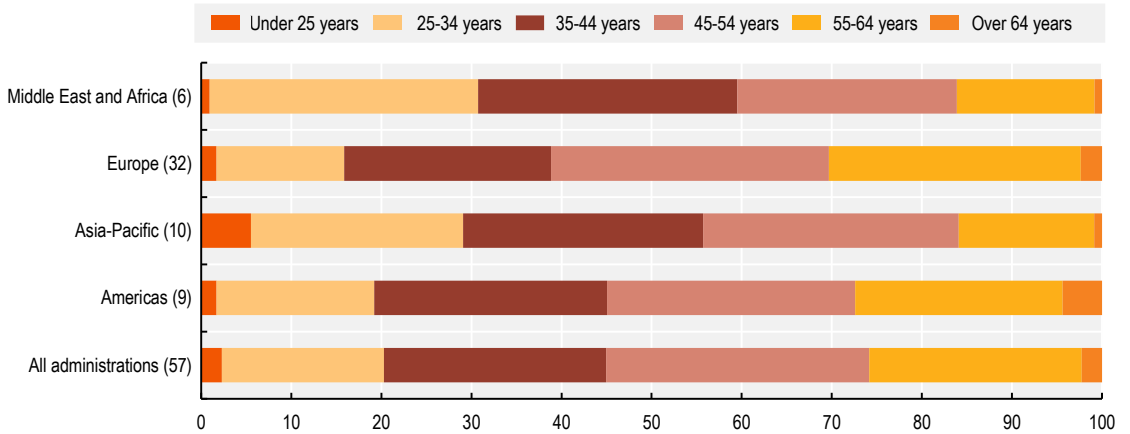
Looking at the jurisdiction specific data, the percentage of staff older than 54 years grew in two-thirds of administrations over the period 2018 to 2021 (see Figure 9.7.).

Length of service

The difference in age profiles is also largely reflected in the length of service of tax administration staff. Figure 9.8. indicates that a significant number of administrations will not only face a large number of staff retiring over the next years, but that many of these staff will be very experienced, thus raising further issues about retention of key knowledge and experience.

Figure 9.6. Age profiles of tax administration staff, 2021

Percentage of staff by age bands for selected regional groupings



	All administrations (57)	Americas (9)	Asia-Pacific (10)	Europe (32)	Middle East and Africa (6)
Under 25 years	2.3	1.7	5.5	1.7	0.9
25-34 years	18.0	17.5	23.5	14.2	29.8
35-44 years	24.7	25.8	26.7	23.0	28.8
45-54 years	29.2	27.5	28.4	30.9	24.4
55-64 years	23.6	23.1	15.1	28.0	15.3
Over 64 years	2.2	4.4	0.9	2.4	0.8

Percent

Note: The following administrations are included in the regional groupings: Americas (9) – Argentina, Brazil, Canada, Chile, Colombia, Costa Rica, Mexico, Peru and the United States; Asia-Pacific (9) – Australia, China (People's Republic of), Hong Kong (China), Indonesia, Korea, Malaysia, New Zealand, Singapore and Thailand; Europe (32) – Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland and the United Kingdom; Middle East and Africa (6): Israel, Kenya, Morocco, Saudi Arabia, South Africa and Türkiye.
Source: Table D.12.

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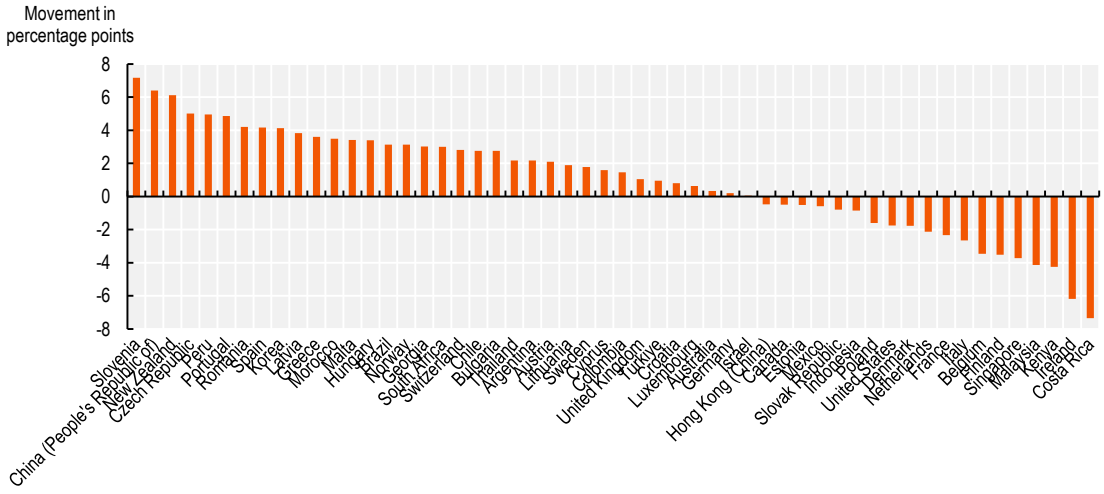
Figure 9.7. Staff older than 54 years: Movement between 2018 and 2021



Note: Only includes jurisdictions for which data was available for both years. Data for Iceland and Saudi Arabia has been excluded due to the mergers of the tax administration with the customs administration.
Source: Table D.12.

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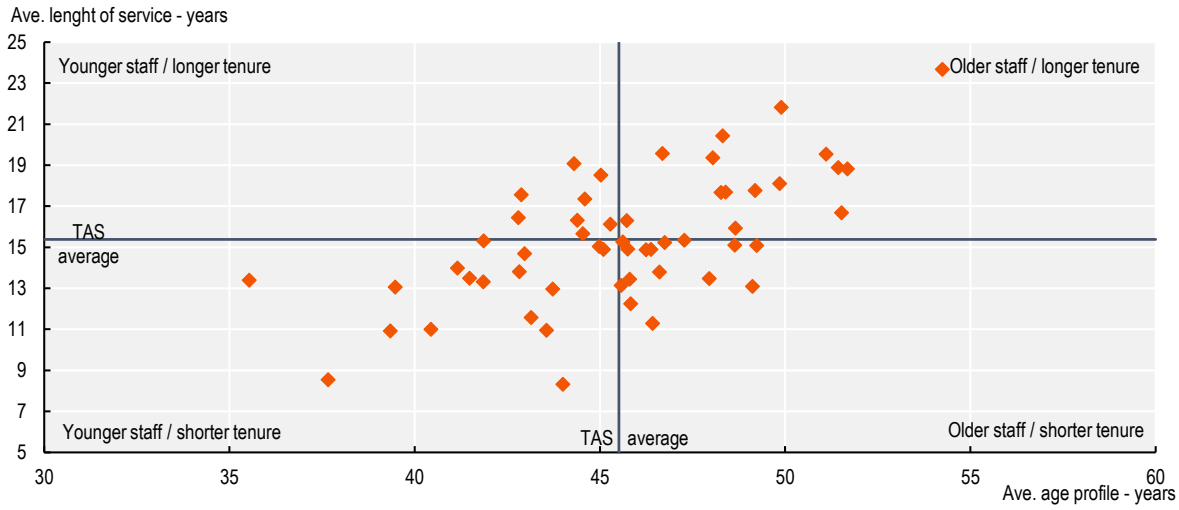
Figure 9.8. Average length of service vs. average age profile, 2021



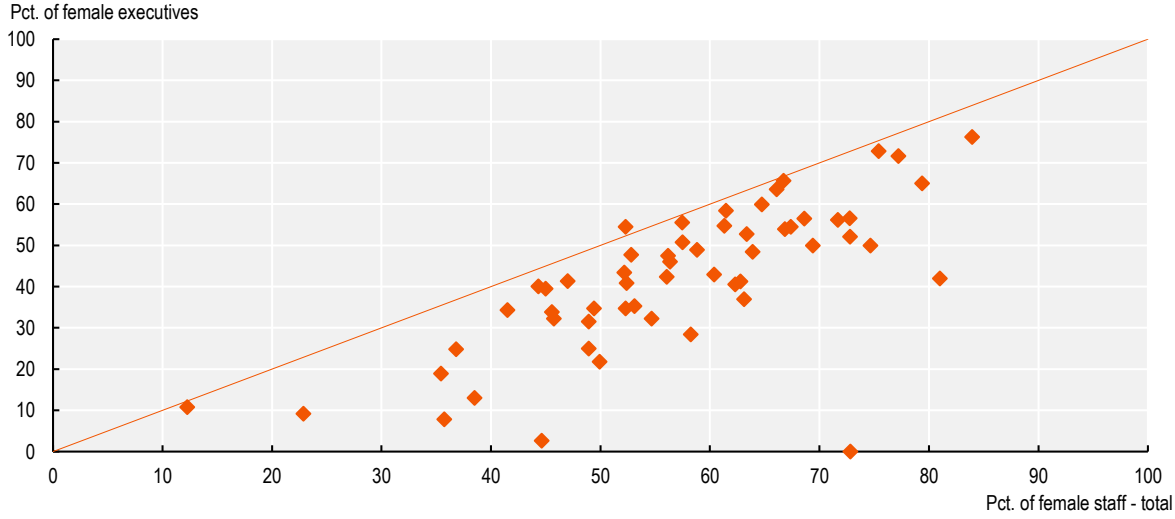
Source: OECD Secretariat calculations based on Tables D.11 to D.14.

StatLink https://stat.link/mahndt

Gender distribution

In light of the strong public interest in gender equality, administrations were invited to report total staff and executive staff respectively by gender. As can be seen in Figure 9.9., while many administrations are close to the proportional line, typically female staff remains proportionally underrepresented in executive positions and significantly underrepresented in a number of administrations, something that has remained unchanged since the 2017 edition of this report (OECD, 2017[2]).

Figure 9.9. Percentage of female staff – total female staff vs. female executives, 2021



Source: Table D.15.

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Looking at the overall averages, whilst there are variations between jurisdictions (see Table D.15.), on average the share of female employees of total staff and executive staff has remained largely unchanged since 2018, with a very small increase of around 4 percent of female executives (see Table 9.3.). The jurisdiction-level data shows that in about two-thirds of administrations the percentage of female executives has increased since 2018 (see Table D.15.).

Table 9.3. Evolution of share of female staff and female executives (in percent)

Staff category	2018	2019	2020	2021	Change between 2018 and 2021 in percent
Female staff (56 jurisdictions)	56.9	57.6	57.5	57.6	+1.2
Female executives (55 jurisdictions)	40.2	41.9	41.6	42.6	+4.2

Note: The table shows the share of female employees of total staff and executive staff for those jurisdictions that were able to provide the information for the years 2018 to 2021. The number of jurisdictions for which data was available is shown in parenthesis.
Source: Table D.15.

The ISORA survey also asked administrations to indicate whether staff has self-identified as neither female nor male (referred to as "other" gender for the purposes of the survey). Table A.31. shows that two administrations, Australia and New Zealand, reported having staff who self-identified as "other".

Staff attrition

Staff attrition, also called staff turnover, refers to the rate at which employees leave an organisation during a defined period (normally a year). High attrition rates may result from a variety of factors, such as downsizing policies, demographics or changing staff preferences. The attrition rate should be considered together with other measures, such as the hire rate, which looks at the number of staff recruited during a defined period, when evaluating the human resource trends of an administration.

While a high attrition rate combined with a low hire rate is usually associated with a general downsizing policy – and may therefore be accepted – administrations should be concerned where both rates are high. Recruitment is costly, not only the recruitment process itself but also the cost and time for training and supporting new staff members, and the significant down time before new staff are fully operational or able to perform at the highest level. Having high attrition rates are generally to be avoided.

Having attrition rates that are too low may also not be ideal. While an organisation is growing, a low attrition rate may be accepted. However, in situations where both the attrition rate and the hire rate are low, an organisation may not have the ability to recruit new skills as all positions are filled. This could be an issue particularly for administrations that are undergoing transformation and therefore are in need of staff with skills that are different from what is currently available within the administration.

While what is considered a "healthy" attrition rate differs between industry sectors or jurisdictions, the average attrition rate for administrations participating in this publication of 6.8% in 2021 and the average hire rate of 5.9% in 2021 would seem to present a reasonable range for tax administrations of between 5% and 10%. It is worth noting that the average hire rate for 2021 continues to be below those reported in 2018 and 2019, which may be a pandemic related impact. At the same time, the average attrition rate for 2021 is now back to pre-pandemic levels. (See Table 9.3.)

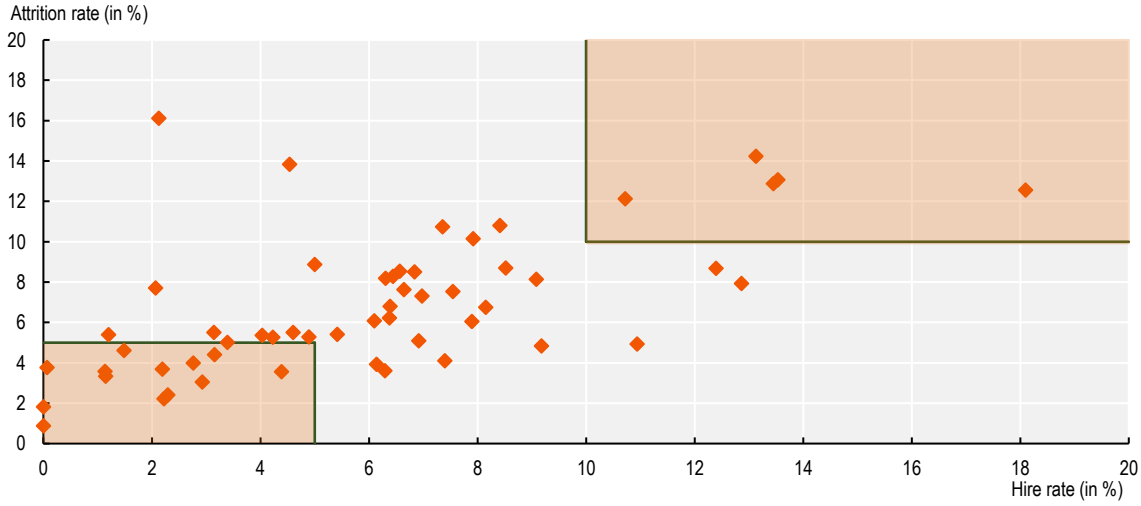
Table 9.4. Evolution of attrition and hire rates (in percent)

	2018	2019	2020	2021	Change between 2018 and 2020 in percent
Attrition rates (50 jurisdictions)	6.6	7.1	6.0	6.8	+2.8
Hire rates (50 jurisdictions)	6.8	7.0	5.8	5.9	-11.9

Note: The table shows the average attrition and hire rates for those jurisdictions that were able to provide the information for the years 2018 to 2021. The number of jurisdictions for which data was available is shown in parenthesis. Data for China (People's Republic of), Iceland, Norway and Saudi Arabia were excluded from the calculation as the result of extraordinary staff transfers over the period 2018 to 2021 which were recorded as recruitments, thus distorting their averages for those years (see notes in Table A.23).
Source: Table D.9.

However, when looking at specific administration data, it becomes apparent that "attrition and hire" rates cover a very broad range. Figure 9.10. shows the relationship between tax administration attrition and hire rates. It illustrates that there are a number of administrations with attrition and hire rates well above 10% (upper-right box), while others show very low attrition and hire rates (lower-left box).

Figure 9.10. Attrition and hire rates, 2021



Note: Attrition rate = number of staff departures/average staffing level. Hire rate = number of staff recruitments/ average staffing level. The average staffing level equals opening staff numbers + end-of-year staff numbers/2.
Source: Table D.9.

StatLink https://stat.link/yd8igh

Whilst recruitment rates may vary by year, the challenge of training and knowledge transfer are constant. The COVID-19 pandemic brought these issues into sharp focus as HR processes that previously relied on face-to-face contact, had to be conducted remotely. Tax administrations report that these practices brought significant benefits to the administration and candidates, and as a result they are now being adapted for the longer term. Box 9.4. illustrates some of the innovative approaches being used both to attract candidates to the tax administration and to also digitise those processes.

Box 9.4. Examples – Enhancing HR processes

France – Changing recruitment processes

The French tax administration (DGFiP) has significant recruitment needs to meet the demands of its various departments and to compensate for retirements. In 2022, it has recruited more than 3 700 new employees, two-thirds of whom were hired through competitive examinations and one-third through contractual arrangements.

Recruitment by contract is on the rise, which means that in a context of tension on the labour market, recruitment techniques must be optimised to increase the pool of candidates and the diversity of profiles. In this context, the DGFiP is experimenting with innovative tools such as sourcing and pre-recruitment:

- Sourcing, based on criteria defined upstream, analyses the data present on the many professional platforms, job sites, CV libraries, and other social networks. This method makes it possible to detect the profiles that best meet expectations. The results produced by these algorithms combine both the quantity and quality of the selected profiles.
- Once the pool has been constituted, the recruitment phase begins. In order to better assess the aptitudes, interpersonal skills and reasoning of candidates, new IT solutions make it possible to create an evaluation process centred on the candidates, inviting them to complete a circuit composed of a series of mini-games assessing different cognitive skills. This playful, innovative and original method also ensures a more attractive image for the DGFiP employer brand.

The use of these new tools will make it possible to transform the recruitment method by going beyond the classic analysis of the curriculum vitae. It will reveal the true potential of candidates while ensuring a fairer and more diversified recruitment.

Japan – Recruitment of digital talent and human capital support

In June 2021, the National Tax Agency (NTA) published its 'Digital Transformation of Tax Administration - Future Vision of Tax Administration 2.0' which sets out how to improve tax administration by exploiting the advantages of digital technology.

For this to be successful, it is crucial to recruit and retain people from science and engineering backgrounds who are considered to have a background in information and communication technology. Accordingly, from fiscal year 2023 onwards, the NTA has created a new entry examination category with subjects such as mathematics and computer science, which are more familiar to students in science and engineering fields.

The NTA has also focused on developing human resources through a training system based on data literacy with levels from Entry to Expert that allows staff to build their knowledge in this crucial field. At the Expert level staff have sophisticated expertise in statistical science and machine learning, and the development of a predictive models.

See Annex 9.A. for more information.

Latvia – Digitisation of recruitment processes

Job advertisements posted on the State Employment Agency portal automatically migrate to the State Revenue Service portal vacancies section, indicating the place of work (in person, partially remotely, or completely remotely).

After evaluation of applications, candidates are forwarded to the next round for a remote test. On the day of the test, a test task or a link to the platform is sent to the applicant's e-mail. Candidates are also invited to participate in a remote interview via video call.

Successful candidates are informed digitally, and the subsequent induction and training takes place both remotely and in person, depending on the specifics of the job.

Sources: France (2023), Japan (2023) and Latvia (2023).

Supporting staff

The changes tax administrations are managing, whether technology, policy or budget driven, are constant. In addition, the wider digital transformation of the economy is changing the service expectations of taxpayers, and staff need the right tools and support to adapt. As a result, tax administrations are considering the best way to support staff through these changes, as well as ensuring they have the right tools for the tasks.

Tax administrations are also reporting that they are investing in services that can help 'frontline' staff better understand taxpayer needs and provide better services to them. This can cover a range of channels from call centres through to social media. These investments are allowing tax administrations to provide improved services, and their staff feel better equipped to deliver those high-quality services. Tax administrations also report that sophisticated analytics are being used to match staff skills to taxpayer needs. Box 9.5. highlights how France is using the sizeable amount of data it has on staff to build management tools that give insight into the staff profiles and where development gaps exist.

Box 9.5. France – HR data lake

The DGFiP has more than 97 000 employees, spread across over a 100 local divisions and several hundreds of physical locations. It has set up a data lake into which all of its data will be stored. This will include all data concerning human resources (HR), in order to stimulate their use through data visualisation tools.

In the future, all the data stored in the various HR-related applications will be put into the data lake, whether the data concerns personal information about employees, their career path, including outside the DGFiP or their vocational training. Data related to DGFiP's recruitment efforts will also be included. It will therefore become possible to run data analysis on all of this information, which until now is stored and processed separately, and to ensure, for instance, a better knowledge and understanding of the employees' profile.

Already, thanks to the pooling of data and using the possibilities offered by data visualisation, the DGFiP is building a dashboard designed to facilitate the management of human resources. The dashboard presents a large number of indicators in a lively and interactive manner. Indicators belong to 6 categories: headcount, vocational training, working time, health and safety, recruitment, and equality and diversity. Offering up-to-date and easy-to-use information, the dashboard is a very useful management tool. Most of the indicators offer a national view with a depth of several years, which makes it possible to identify trends and even structural changes. In addition, the tool offers the possibility to quickly make comparisons between local directorates and reveal possible disparities between territories.

Source: France (2023).

Anecdotal evidence, gathered through numerous Forum on Tax Administration (FTA) meetings, shows that tax administrations put considerable efforts into supporting staff during periods of transition, considering issues such as:

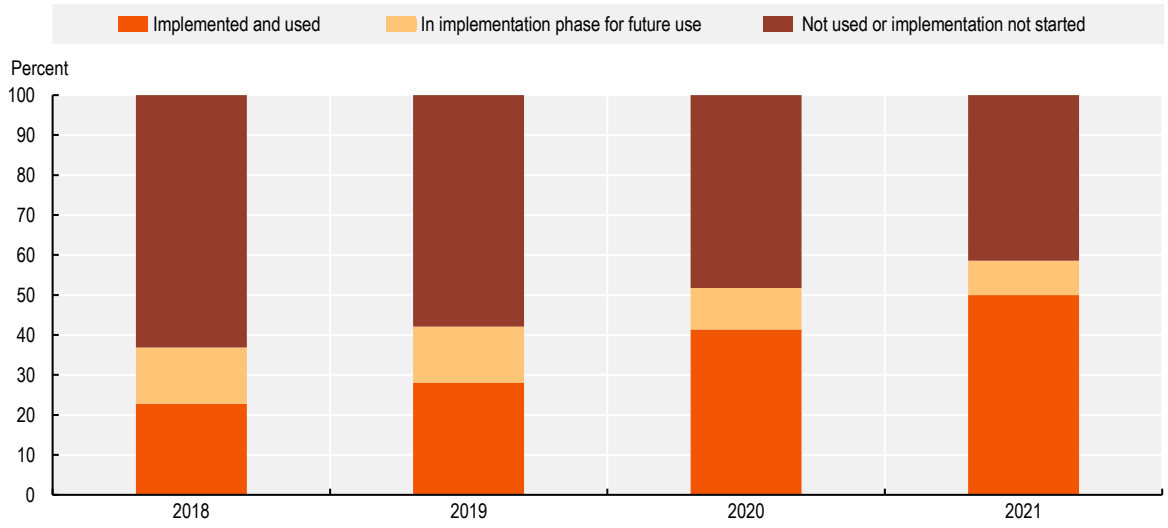
- **Staff welfare**, which includes looking into staff motivation and satisfaction, health and safety related issues, work-life balance, assistance programmes, and ergonomic office equipment; and
- **Staff training**, which includes how to best support those that have been given new tasks, those that have to perform their tasks from home instead of the office, as well as those that are leading partially or wholly virtual teams for the first time.

Technology is also providing new opportunities to analyse existing processes to look for efficiencies, including through the use of artificial intelligence, machine learning and robotic process automation (RPA) to automate some of the core tasks within a tax administration. Box 9.6. illustrates the wide range of uses that automation is being put to.

Table 6.1. in Chapter 6 highlights the rapid growth in the use of such services with for example, more than 50% of administrations reporting that they now using or planning to use RPA. (See also Figure 9.11. for the up-take of RPA by tax administrations over the years.) This is helping tax administrations respond to budgetary and workforce pressures as it is freeing up resource for staff to be focussed on more complex tasks.

Figure 9.11. Evolution of the implementation and use of Robotic Process Automation, 2018 to 2021

Percent of administrations



Source: Table A.92.

StatLink https://stat.link/02vywr

Box 9.6. Examples – Automation in tax administration

Argentina – Digital single file

Under this project the Argentinian tax administration (AFIP) will have a single digital file of all the documentation submitted by taxpayers, meaning that once submitted it can be used across a wide range of areas and procedures.

This means that if, for example, a taxpayer files a title deed digitally, the document will not have to be submitted again in the future and it can be used for other procedures such as for a tax audit, or an application for a fiscal benefit.

This saves the taxpayer time and money as the document will not have to be certified again and removes the need for AFIP to store the same document in multiple units.

Canada – Digital Document Management Program

In May 2022, the Digital Document Management Program (DDMP) was established to enable the Canada Revenue Agency (CRA) to transition from internal paper-based processes and to enhance its existing digital processes. Despite the shift towards digital services, there continues to be a high volume of paper mail received by the CRA. The intent of the DDMP is to reduce the overwhelming burden of incoming high volume paper mail by converting incoming documents from taxpayers into a digital format.

The DDMP offers five standardised capabilities to onboarded programmes. It operates in partnership with an external contracted Managed Service Provider (MSP) to which mail is re-directed and prepped for imaging. Images are digitised and uploaded into a digital document repository, where internal CRA users can virtually view documents and access workloads. These documents are well defined, catalogued and easily accessible so that users can view and share information within a timely fashion. Data from each in-scope document can also be extracted by the MSP and delivered to the CRA, ready to be incorporated into the CRA systems. The repository can also store digitised documents received through the CRA's Submit Docs channel, which solicits and receives digital copies of records from taxpayers and can also receive eFax submissions from various sources.

France – Automation in VAT refunds

A digital assistant is software that allows the automation of certain actions (typing, clicks, etc.) and that interacts as an agent would through a screen and a mouse. This automation of processes by robotics reproduces the tasks that agents perform routinely. It is suited to repetitive tasks that do not require complex intellectual analysis and are particularly time consuming.

The French tax administration has developed several digital assistants, including one that compares daily lists of beneficiaries of VAT credit refunds about to be issued with lists of collection orders for which the deadline for a payment date has passed, in order to identify VAT credit refunds that may be subject to administrative attachment.

Currently, the digital assistant is used for so-called non-fiscal debts (for example, penalties issued by various administrative bodies that the tax administration is responsible for collecting) but its extension to fiscal debts is being considered.

On average, it takes about 6 months and costs approximately EUR 400 000 to develop a digital assistant, making it a cost effective tool. Operating a digital assistant also brings many benefits which makes it an even more attractive solution:

- A lighter and smoother workload for staff, who can refocus on higher value-added activities.
- Shorter processing times.
- Increased traceability and reliability.
- Lower material costs (toners, paper, storage, postage, etc.).
- Harmonisation of practices and increased cross-services co-operation.
- Optimised management of activity through the automated production of statistics and reports.

Ireland – Automation in software quality assurance and software deployment

As Revenue continues to enhance its IT services, it also enhances its software development and software quality assurance approaches. Traditional end of project testing is no longer suitable for the timely release cycles, especially in large and intricate systems. Building on the initial benefits from the use of electronic "record-and-playback" style repetition of manual tests, predominately for regression and end of cycle testing, Revenue has expanded its automation test capability to implement continuous API and functionality testing that would not otherwise be feasible.

Revenue has embedded test automation as a key enabler of its "shift left" approach which enables testing earlier in the cycle, improves the feedback loop to developers, reduces system delivery times, increases automated test coverage and improves software quality. By implementing the "shift left" ideology and agile approaches, Revenue is successfully using test automation to facilitate a broader range of concurrent and continuous testing to reduce delivery time and improve software quality assurance.

Mexico – Automation in the processing and management of incoming service requests

SAT has made investments in systems capable of processing complaints and emails, that utilise automated classification based on keywords. This technological advancement plays a crucial role in fulfilling the administration's core objectives of promoting voluntary, accurate and timely compliance. This system establishes mechanisms that facilitate voluntary compliance, providing taxpayers with tools that make the process easy while ensuring close monitoring.

By enhancing the complaint and investigation process, the system enables prompt follow-up on potential acts of corruption. This sends a strong message to taxpayers that their grievances are taken seriously, as they are quickly identified by the system. Moreover, it streamlines the efficient processing of service requests by swiftly directing them to the appropriate department within the institution. Consequently, this system significantly contributes to improving the public's perception of SAT.

Sources: Argentina (2023), Canada (2023), France (2023), Ireland (2023) and Mexico (2023).

Developing staff capability

While ISORA 2022 did not survey administrations as regards their strategy and approaches towards increasing staff capability, this remains a key topic for all administrations. This report highlights many areas of change that are taking place within administrations, and effective change relies on the capabilities of staff being developed. This is particularly important with digital transformation, as this frequently requires new skill sets. (See Chapter 10 for a more detailed discussion on this.)

In parallel, tax administrations report moving their training programmes into a virtual environment as shown in previous editions of this report, for example, using live online training sessions or pre-recorded videos/webinars (OECD, 2021[3]). While moving to a virtual training environment may have some up-front costs, it may save costs in the longer term as once produced, pre-recorded training material can be viewed at any time, from anywhere. Remote training can reduce travel expenses and can allow staff to learn at their own pace and convenience as well as increasing the number of staff members that can follow a course. New technologies are also helping facilitate the collaborative learning aspects, increasing the quality of the training experience. The latest approaches taken by the French tax administration are described in Box 9.7.

Box 9.7. France – E-learning solutions

In the DGFiP, improving staff skills increasingly relies on the development of e-learning solutions. The "mechanics" of e-learning obliges learners to be involved in their training journey and to measure how much the educational message has been understood. This has led to the four solutions outlined below:

- A digital skills learning path is offered to all members of staff, which allows everyone to self-assess and progress over time in their mastery of digital tools.
- A web app showcasing the DGFiP was created which offers an interactive and fun course lasting 10-15 minutes, designed to provide a uniform welcome message and a preliminary overview of the DGFiP to the roughly 5 000 new employees recruited every year. The web app is available to the general public (including on smartphones), which means it can also be used as a dynamic promotional tool in DGFiP's recruitment efforts to bolster their attractiveness.
- Another web app was developed to help staff members familiarise themselves with the main ethical and professional secrecy obligations of DGFiP employees. Staff follow the adventures of a "trouble agent" through five episodes before taking a final test. With this app, ethical obligations – a major subject that must be understood by all personnel in a tax administration – are approached in a clear and entertaining way.
- Since October 2022, the initial training of DGFiP newcomers combines traditional physical classroom learning with remote sessions using a dedicated machine system learning platform during which the trainees learn independently.

See Annex 9.A for supporting material.

Source: France (2023).

References

OECD (2021), *Tax Administration 2021: Comparative Information on OECD and other Advanced and Emerging Economies*, OECD Publishing, Paris, https://doi.org/10.1787/cef472b9-en. [3]

OECD (2021), *Towards sustainable remote working in a post COVID-19 environment*, https://www.oecd.org/coronavirus/policy-responses/tax-administration-towards-sustainable-remote-working-in-a-post-covid-19-environment-fdc0844d/. [1]

OECD (2017), *Tax Administration 2017: Comparative Information on OECD and Other Advanced and Emerging Economies*, OECD Publishing, Paris, https://dx.doi.org/10.1787/tax_admin-2017-en. [2]

Note

[1] Previous editions reported the allocation of staff resources across seven functional groupings: (i) Registration and taxpayer services; (ii) Returns and payment processing; (iii) Audit, investigation and other verification; (iv) Debt collection; (v) Dispute and appeals; (vi) Information and communication technology; and (vii) Other functions. Starting with ISORA 2020 those seven groupings were reduced to the four groupings shown in Figure 9.5.

Annex 9.A. Links to supporting material (accessed on 26 May 2023)

- Box 9.1. – Chile: Link to a presentation on the automatic messaging system: https://www.oecd.org/tax/forum-on-tax-administration/database/b.9.1-chile-automatic-messaging-system.pdf
- Box 9.3. – Australia: Link to an overview slide on the ATO's System Integrity - Vulnerability Assessment Methodology: https://www.oecd.org/tax/forum-on-tax-administration/database/b.9.3-australia-system-integrity.pdf
- Box 9.4. – Japan: Link to a website with more details on the new NTA's job category "Science, Engineering, Digital": https://www.nta.go.jp/about/recruitment/digital/index.htm
- Box 9.7. – France: Link to the web app showcasing the DGFiP: https://bienvenuedgfip.veryup.pro/

10 Digital transformation journeys

This chapter examines how tax administrations are addressing the challenges presented by digital transformation, and how technology is changing their operating models.

Introduction

Over the past decade, tax administrations have invested resources in the digitalisation of tax administrations. This has seen tax administrations across the world moving away from paper based, or in person based systems to ones that embrace the digital revolution that has happened in wider society.

In parallel, digital services in the wider economy have transformed the way citizens and business complete transactions, or access services. These wider changes bring both challenges and opportunities for tax administrations, and the future of tax administration is transforming their operating models so they can take full advantage of the opportunities widespread digital technology can offer.

This is digital transformation, and it is the vision of Tax Administration 3.0 (OECD, 2020[1]), the landmark report published by the OECD in 2020. It urges tax administrations to think about how their existing processes can be reformed to become truly digital. Without fulfilling this vision, tax administration will not keep pace with the digital transformation of wider society, will find it harder to reduce burdens, create new policy approaches, and reduce compliance gaps. Tax Administration 3.0 is an ambitious vision and achieving it is an evolutionary journey, where progress will be more rapidly in some areas, and more slowly in others. Over time though this combines to form a more fully digitally transformed tax administration.

Tax Administration 3.0 identifies 6 core building blocks in digital transformation. These building blocks will provide benefits in their own right, but it is the fitting together of the building blocks over time that will achieve the more significant benefits of seamless and frictionless tax administration.

This chapter is not intended to make judgements on individual jurisdictions and the progress they are making as each digital transformation journey is unique and depends on the unique circumstances and priorities of each jurisdiction. Instead, it aims to highlight the trends in the digital transformation journeys that are being undertaken by tax administrations, against those 6 building blocks:

- Building block 1: Digital Identity
- Building block 2: Taxpayer touchpoints
- Building block 3: Data management and standards
- Building block 4: Tax rule management and application
- Building block 5: New skill sets
- Building block 6: Governance frameworks

As well as using examples of leading practice to highlight progress, this chapter draws on data from the Inventory of Tax Technology Initiatives (ITTI) (OECD et al., 2023[2]) which contains data on technology tools and digital solutions implemented by tax administrations globally. Going forward as new ITTI data becomes available, progress on these complex journeys can be revisited.

Building block 1: Digital Identity

As tax administrations deliver more and more of their services online, digital security, digital verification and digital identity is becoming the cornerstone of tax administrations' work. Tax administrations are leveraging their expertise and data sets to not only give taxpayers greater self-service access to tax administration services, but also to third parties and to wider government systems. Common digital identities are critical to these programmes. As Table 10.1 shows below, all administrations now have some sort of digital identity system in place for individuals, and almost all for businesses, laying a good foundation for digital transformation. The growing trend is for these digital identity systems to provide access to services from other parts of government or third parties.

Table 10.1. Use of digital identities, 2022

Percent of administrations that have the respective process in place

Taxpayer type	Taxpayers are required to use an approved digital identity (DI) to access secure digital services	DI used to access the services can be provided by *(multiple answers possible)*			DI offered by the tax administration can also be used to access services from	
		Tax administration	Another government body	Private sector body	Another government body	Private sector body
Individual	100	69	63	39	37	14
Business	94	67	50	35	47	9

Note: The table is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database. For the purpose of the ITTI survey, digital identity is defined as 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.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Tables DI1 and DI2 (accessed on 22 May 2023).

With the digital identity becoming more common place and more useful, Chapter 3 of this report highlights some of the recent work that has been done by tax administrations to add greater security to digital identity systems such as multi factor authentication and biometric information. However, as Table 10.2 shows all administrations use some type of authentication method to verify the digital identity when used online. The type of verification method varies, however, as can be seen in Table 10.2. password-based authentication is used by 87% of administrations, followed by multi-factor authentication and mobile app. A few administrations are also using facial recognition or finger print to authenticate the digital identity of a taxpayer. Half of the administrations reported that their use of different authentication methods is based on the level of security required for certain types of interactions.

Table 10.2. Digital identity authentication and authorisation, 2022

Percent of administrations that have the respective process in place

Authentication methods used by the tax administration						Use of different authentication methods based on the level of security required for certain types of interactions	Taxpayers can authorise third parties to access digital services
Password-based authentication	ID card	Mobile app	Facial recognition	Finger print	Multi-factor authentication		
87	38	42	13	13	62	50	87

Note: The figure is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Tables DI5 and DI6 (accessed on 22 May 2023).

Box 10.1. Thailand: National Digital Identity Project

In Thailand, the National Digital Identity Platform (NDID) aims to provide a flexible and highly secure method of self-identification for any Thai citizen, and will be designed to leverage any reliable identity the user currently holds. By adopting NDID, the Thailand Revenue Department (TRD) expects to deliver a trustworthy and transparent solution which gives new users an adequate level of confidence in the security. In addition, NDID will provide users with safe and secure ways to manage and protect their ID online, including on their mobile devices. NDID can also improve the convenience and effectiveness of both government and private sector services.

In collaboration with the Bank of Thailand, the commercial banks and the National Digital ID Company Limited, TRD is developing a digital identification system via the NDID Platform to facilitate and safeguard online transactions and prevent fraud, starting with a pilot project on Personal Income Tax e-filing. Many taxpayers have logged in via the NDID Platform since 18th March 2021, but the pilot project has also uncovered some challenges, such as a lack of awareness of the opportunities offered by digital ID and the NDID Platform. Following up the results of the pilot, TRD and partner banks continue to encourage enhanced user adoption of the service. Furthermore, the banks will allow for self-identification via bank applications for access to the TRD's website, enabling user access to further services in the future. Some of the benefits of TRD Digital ID Authentication via the NDID Platform include:

- Improved authentication and verification standard
- High levels of accuracy
- Enhanced security
- Lower operational costs
- A better customer experience
- Integrated government agency services

Source: Thailand (2023).

Building block 2: Taxpayer touchpoints

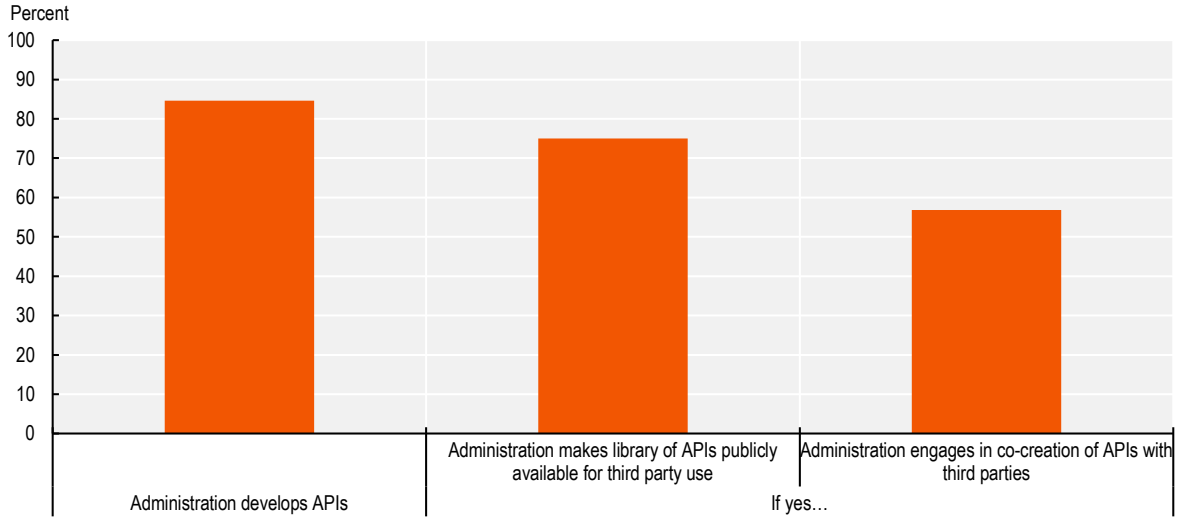
Embedding services and processes in the natural systems used by taxpayers in their daily lives and businesses is at the heart of the Tax Administration 3.0 vision. While this helps to improve tax compliance, it also reduces administrative burdens and frees up time that owners can use to grow their businesses.

To drive these collaborations and open up new services, Figure 10.1. shows that the vast majority of tax administrations are now creating Application Programming Interfaces (APIs) and that 75% of them are making the APIs available to third party developers. Further, as part of the process of developing APIs, close to 60% of tax administrations are engaging in co-creation with third parties.

The growth of APIs is facilitating connectivity between systems without providing direct access. The example in Box 10.2 highlights how APIs can be used to transform functions across an administration. Table 10.3 highlights the wide range of uses across tax types, which is expected to grow as the digital transformation journey continues, and Table 10.4 highlights how tax administrations are increasingly connected on a machine-to-machine basis with third parties.

Figure 10.1. APIs: Development for third party use and co-creation, 2022

Percent of administrations



Note: The figure is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table TT7 (accessed on 22 May 2023).

StatLink https://stat.link/evyj87

Box 10.2. China (People's Republic of): The Natural Systems Project

In 2022, the Natural Systems Project was proposed as an innovation based on "fully digitised e-invoice" and direct connection between tax authorities and enterprises. In line with the concept of "taxpayer touch-points" in the Digital Transformation Maturity Model of the OECD, the State Taxation Administration of China (STA) set up a Natural Systems pilot to explore the practice and effects of seamless taxation administration.

As a result, STA now publishes tax-related business rules and application programme interfaces (APIs), for taxpayers to embed in their own business systems (natural systems), independent of third-party service providers, and tax authorities conduct compliance audit using business data uploaded by taxpayers. In addition, the unified business rules help to reduce gaps in the administration among provincial STA offices, offering greater consistency and certainty to taxpayers.

Taxpayers can now become co-issuer of invoices, whereas previously, STA was the issuer of invoices. In the case of "fully digitised e-invoice", taxpayers can have solely issue invoices in line with the relevant rules.

The Natural Systems Project integrates business, finance and taxation through an invoice data model with "additional elements", and taxpayers can determine those additional invoice elements for themselves. For example, an e-commerce platform can add order and logistics information as additional elements to the invoice data model by itself, so it can meet its own need of enhanced order management.

Source: China (People's Republic of) (2023).

Table 10.3. Interactions for which administrations have published APIs by tax type, 2022

Percent of administrations that have published the respective APIs

Interaction type	Personal income tax	Corporate income tax	Value added tax
Registration for tax	18	30	30
Filing tax returns	43	43	43
Making payments	30	32	32
Requesting extensions of deadlines	11	9	11
Asking for payment arrangements	7	5	5
Making taxpayer confidential enquiries	11	21	18
Filing tax related objections	0	2	5
Dealing with correspondence	25	27	27
Uploading data files onto tax administration's systems	25	30	32
Other interactions *(not by tax type)*		34	

Note: The table is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Tables TT8, TT9 and TT10 (accessed on 22 May 2023).

Table 10.4. Receiving data from taxpayer business systems and third parties, 2022

Percent of administrations that have the respective process in place

Administration receives data directly from taxpayer business systems (beyond PAYE systems)	If yes…		Administration receives data directly from third parties	If yes…	
	Some data can be sent automatically from machine-to-machine without human involvement	Some data can be uploaded manually via dedicated interfaces		Some data can be sent automatically from machine-to-machine without human involvement	Some data can be uploaded manually via dedicated interfaces
80	83	93	86	91	89

Note: The table is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Tables DM1 (accessed on 22 May 2023).

As the services delivered through APIs become more sophisticated, and play a greater role in delivering a quality service to taxpayers, tax administrations are having to invest more in the management and oversight of their APIs. Chapter 5 considers this in more detail, but at the heart of this work is effective collaboration with third parties to ensure that the systems work smoothly, are accurate and secure and continue to deliver for taxpayers.

Furthermore, as the data received from tax administrations is just part of the wider flow of data within the ecosystem that Tax Administration 3.0 envisages, underpinning the digital transformation journey is the utilisation of data sciences techniques and use analytical tools, and this is explored in more detail later in this report. However, it is worth highlighting that tax administrations now routinely:

- **Use of large and integrated data sets**. Manipulating and managing data is now a core part of a tax administration's functions, with the use of analytics tools and techniques being incorporated into all areas of tax administrations. Around 90% of tax administrations report using data science and analytical tools, and this is facilitating the use of data in all aspects of an administration's work.
- **Use of artificial intelligence and machine learning**. As tax administrations become more comfortable with managing large data sets and computing power increases, the use of artificial intelligence and machine learning is opening up new approaches in risk management. Figure 10.3

(see the section on building block 4) highlights that around 50% of tax administrations report that they are already using artificial intelligence in their compliance risk assessment work.

This sophisticated use of data from an increasingly connected system is allowing the development of new platforms and services that can bring significant changes to the operating models of a tax administration as illustrated in Box 10.3.

Box 10.3. Singapore: Digital transformation of IRAS' core tax administration system

The Inland Revenue Interactive Network (IRIN) is the Inland Revenue Authority of Singapore's (IRAS) core tax administration ICT system. IRIN provides taxpayers with access to eServices via MyTaxPortal which caters to all individuals and business, allowing taxpayers to make payments, electronically file their taxes and manage their account. IRIN also facilitates core processing, enforcement and analytics capabilities for IRAS officers.

In line with IRAS' digital transformation plan to redefine tax officers' and taxpayers' experience, the refresh of the core tax administration system, via the implementation of IRIN 3, was identified as a key technology enabler for IRAS's business transformation.

IRIN 3 is a multi-year programme that has been designed and planned for implementation over 3 Phases. Phase 1 has seen the implementation of a Document Management System and Digital Notice Platform. Phase 2 has introduced the foundation of IRIN 3 with the implementation of microservices architecture on Government Commercial Cloud for Stamp Duty. Phase 3 will progressively extend the implementation across Individual Income Tax, Property Tax, Corporate Tax, Goods and Services Tax, and all other tax types.

With IRIN 3 Phase 2, IRAS revamped its Integrated Stamp Duty System and migrated it to cloud for better scalability and availability of commercial capabilities, building on microservice architecture to enable agility and speed to market. Taxpayers can now manage Stamp Duty matters anytime, anywhere with a mobile-friendly portal. e-Stamping is now made simple with quick overview access to statuses of documents, records and digital services. The system has also been enhanced to enable payment of multiple records at once. Since the launch of the IRIN 3 Phase 2 up till Feb 2023, more than 120 000 stamp certificates have been generated.

Source: Singapore (2023).

Building block 3 Data management and standards

As this use of data grows, information confidentiality and security is even more essential to the relationship between tax administrations and taxpayers. It also underpins the exchange of information in tax matters between governments, as in a system where sensitive data is moving on an automatic basis, and in real time, all parties need to be confident in the frameworks that ensure data is managed correctly, securely and to the relevant standards.

These frameworks are also essential for defining how the administration manages data most effectively to maximise compliance and minimise burdens. In particular, this concerns the choices around where data is processed for different tax functions (within the administration, within the taxpayers' natural systems or both), and the requirements for quality, availability and reporting of tax relevant data as well as metadata on the operation of taxpayers' systems. As Box 10.4 highlights these changes can require structural shifts

in the way a tax administration manages its IT systems, but doing so creates a solid foundation for new digital projects and services.

Box 10.4. China (People's Republic of): Improved management of IT systems

With the wider development of "digital China", the digital transformation of tax administration has been growing. To support this, the State Taxation Administration of China (STA) built a platform for the management and control of its whole IT systems, managing all the components in the systems including software, hardware and data. There are four building blocks, namely software, hardware, data and internal control. In the software part, each of the thousands of pieces of software in the system is given a unique ID. In the hardware part, all the equipment and assets are registered and matched with relevant software. In the data part, trillions of data entries are recorded and a so-called data dictionary is compiled. In the internal control part, rules and regulations are put in place to supervise the interaction among systems, tax officials, suppliers and other stakeholders.

This uses the following technological approaches.

- Artificial intelligence, including natural language processing is utilised for comparison and de-duplication analysis
- Rules and regulations are integrated into the business process in the platform with full automatic flow, operation marks and task reminders, which significantly improves the quality and efficiency of information management. For example, with the launch of "data dictionary", means tasks can be completed in hours from 2 days previously.
- The classification and gathering, of analysis and the visual presentation of key information are realised in the platform laying a solid foundation for evidence based decision-making. In asset management and control, resource gaps and redundancies can be discovered via association and matching of hardware and software.

Source: China (People's Republic of) (2023).

Table 10.5. Data governance, 2022

Percent of administrations that have the respective process in place

Comprehensive data management strategy exists	Data quality of reported data is assessed	Data ethics framework in place	User data access and security is controlled	Unauthorised access is automatically detected	Data Privacy Officer is employed	Cyber security unit exists	External parties hired to test the security of systems
66	88	74	100	84	90	90	82

Note: The table is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table DM4 (accessed on 22 May 2023).

As Table 10.5 illustrates, the implementation of mechanisms to protect and manage data is now commonplace across administrations, and is a critical function of tax administrations. These support wider data governance processes, and in turn help maintain the taxpayer trust in the system as well as meet legal obligations. It is worth noting that as data systems become more connected, so the importance of cyber security is growing, and Box 10.5 shows some of the latest practices from tax administrations in this space.

Box 10.5. Examples: New cybersecurity strategies

Australia

The Australian Taxation Office (ATO) remains committed to improving its cyber security resilience by investing in new technologies and initiatives through the Cyber Security Program. The ATO Cyber Program focuses on modernising and maturing cyber security capabilities and applying sufficient mitigations to the overall cyber risk profile to ensure confidentiality, integrity, and availability of ATO systems. The Program is in the process of deploying new technologies that uplift the ATOs cyber capabilities including:

- Recording of endpoint activities across the ATO, providing a view of threats and alerts in real time and intelligence of trending activities across the digital ecosystem.
- Ability to scan all IT assets for vulnerabilities providing regular reporting to application and infrastructure support teams and partners of exposures including out of support software.
- Deployment of an enterprise solution to centrally manage privileged accounts and access across the ATO's environment.
- Strengthening network security by segmenting the flow of traffic.
- Implementing initiatives to protect against malicious code by only allowing approved interactions to execute on ATO applications.

The ATO employs a 'defence in depth' approach to mitigate cyber security incidents by utilising security technologies layered across the ecosystem. In 2022 the ATO migrated to a contemporary Secure Internet Gateway (SIG) capability protecting the ATO's perimeter.

The ATO is also involved in carrier level SMS blocking, and regular international intelligence sharing to discuss tax impersonation scam observations, emerging methodologies, awareness, and scam disruption and prevention on a global scale.

Hungary

The 24/7 security operation centre (SOC) is essential for the Hungarian National Tax and Customs Administration (NTCA) because it provides an opportunity not only to implement IT security-oriented system supervision in addition, but also it makes it possible to detect and prevent new, previously unknown or unrecognised attacks as well. Through SOC the NTCA is able to detect incidents as soon as possible and provide an immediate solution to them.

This increases the administration's resilience to cyber threats. and performs significant preventive work. The core pillar of this work is the interconnection of automated cyber-threat detection, vulnerabilities detection systems and traditional border protection systems in the NTCA. With these, the firewall rules are modified, clarified and filtered without human intervention using threat indicators from the vulnerability detection tool.

Security awareness plays a strategic role in the life of the NTCA but security can only be maintained if the employees are aware of it. Despite continuous IT security improvements, the user is still the weakest link in the chain, so users should not be left out when designing and implementing systems protection solutions.

Social engineering techniques and the increasingly sophisticated forms of psychological manipulation pose a significant threat to NTCA, therefore more and more attention needs to be paid to the security awareness training of users. To this end, the IT security department of the NTCA conducts regular

training, safety awareness assessment and evaluation. Theoretical and practical tests are also included in the assessments, which are already showing a continuous improvement.

See Annex 10.A. for supporting material.

Mexico

The Mexican Tax Administration Service (SAT) adopts a layered security approach that enhances protection against and detection of advanced threats. One of these measures involves the automated analysis of emails to identify ransomware threats and command and control codes embedded within downloaded files. For instance, if an attack commences with an email containing a zero-day ransomware threat, which is specifically designed to bypass traditional security techniques, the SAT's security approach promptly sends the attached file to a controlled sandbox environment.

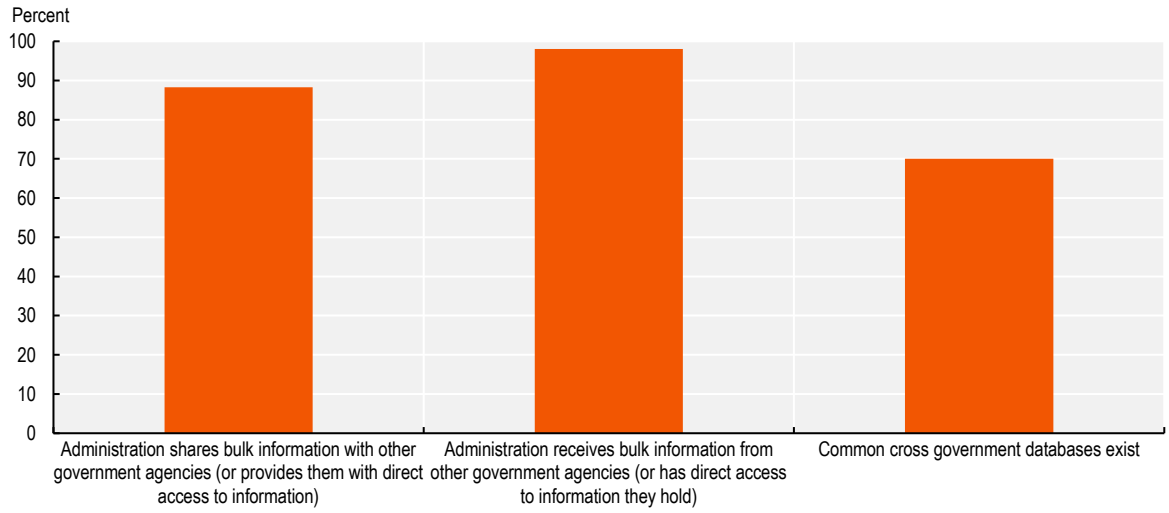
Within this environment, the file's behaviour undergoes analysis, enabling the identification of the attack's nature. In real-time, a response is generated with a flagged identification of the file, leading to automatic blocking should it be encountered elsewhere in the future. This proactive approach significantly strengthens the Administration's ability to mitigate potential threats and swiftly neutralise them.

Sources: Australia (2023, Hungary (2023) and Mexico (2023).

As Figure 10.2 highlights data management is now evolving towards a “collect once, use many times” across government approach which is part of the Tax Administration 3.0 vision. Tax administrations (together with social security agencies) have a special place within government in this respect since they will often hold up-to-date verified information on identity, will be involved in both receiving and making payments and will receive and send information to third parties (such as financial institutions and employers). This adds a further dimension to the data management and governance given multiple agencies may be involved.

Figure 10.2. Data sharing with other parts of the government, 2022

Percent of administrations



Note: The figure is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table DM3 (accessed on 22 May 2023).

StatLink https://stat.link/nkcyli

Building block 4: Tax rule management and application

In the Tax Administration 3.0 vision, instead of rules being contained within the tax administration system, and instructions issued to taxpayers through guidance on how to comply through forms, the technical rules and information needed for elements of tax processing are provided so that they can take place within taxpayers' natural systems. This could be, for example automatic registration and deregistration of the taxpayer at specified points, the incorporation of tax law rules and computations into accounting software or the use of applications to withhold tax or to automatically send information to the administration.

To start on this process Tax administration 3.0 sets out how administrations may wish to consider:

- Implementing systems-independent tax rule specification for integration into taxpayers' own business management systems (for example, in regards to digital identification, e-invoicing and reporting or withholding by digital platforms).
- Piloting the development of tax rule specification, in co-operation with developers, alongside the development of new tax legislation.
- Piloting the implementation of artificial intelligence in tax administration advisory and assessment processes aimed at minimising tax uncertainty

This is a challenging undertaking. However, there are areas of progress, for example, the Netherlands Tax Administration has been working on a new method of software development, that makes certain elements of law machine readable, and this is also tracked so that when the law changes, the update can be made quickly and easily. These rules are opening up possibilities for automated decision making.

Table 10.6. Software packages: (Co-)creation, assurance frameworks, and approved products, 2022

Percent of administrations that have the respective process in place

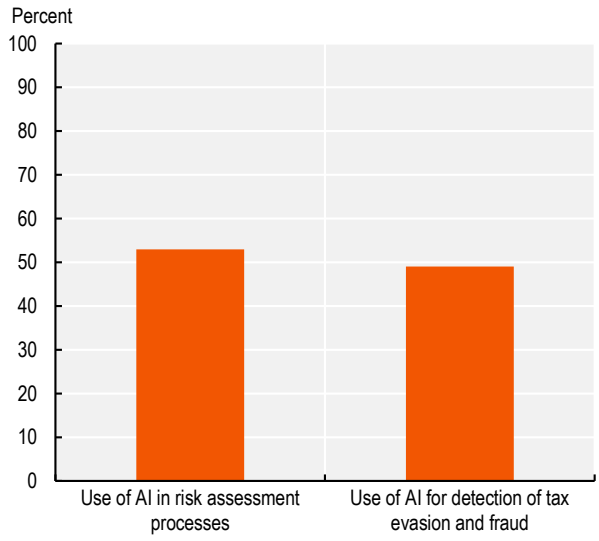
Administration creates software packages that assist taxpayers to fulfil their tax obligations	Administration engages in co-creation of software packages with third parties	Administration has developed an assurance framework that allows 3rd parties to incorporate tax rules in their software packages and deliver outputs based on those rules that are accepted by the tax administration	Administration publishes names of approved or recognised software products	Administration maintains a register of approved or recognised software products
58	48	31	26	32

Note: The table is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Tables TT7 and TRM2 (accessed on 22 May 2023).

Tax administrations have however been making significant progress on artificial intelligence. As Figure 10.3 highlights, around 50% of administrations are using it for risk assessment and also fraud detection. These services are opening up opportunities for innovative approaches, such as filing through completing a questionnaire or helping to automate taxpayer enquiries. This is making chatbots, which have been a feature of previous editions of this series 'smart'. See Chapter 5 of this report for more detail.

Figure 10.3. Use of artificial intelligence, 2022

Percent of administrations



Note: The figure is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table TRM3 (accessed on 22 May 2023).

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It is expected that the use of artificial intelligence will be a growing feature of this series. However, as the example in Box 10.6 highlights, the use of this technology also brings governance questions which need to be considered.

Box 10.6. Canada: Embedding artificial intelligence into a tax projects

To support its experimentation with and responsible deployment of artificial intelligence (AI) solutions, the Canada Revenue Agency (CRA) continues to strengthen AI governance and oversight. As part of the governance suite, the CRA put in place the Directive on Artificial Intelligence in January 2021.

This Directive sets out the roles and responsibilities within the CRA and is supported by the mandatory use of the Algorithmic Impact and Alignment Assessment (AIAA) Tool. The AIAA has a three-fold purpose. The AIAA is open by design, it serves as a central repository of AI projects at the CRA that all users can view to enhance horizontality. To assess alignment and to potentially focus our resources, the AIAA categorises AI projects based on CRA's core business priorities.

Finally, the AIAA tool evaluates and calculates an associated risk score to AI projects in the development and production phases, including mitigations and ethical considerations. Through the metric collected, the AIAA allows for the CRA to report on what is happening where. As AI governance continues to mature and respond to the rapidly evolving AI context, so will the AIAA tool evolve to support informed oversight and promote transparency.

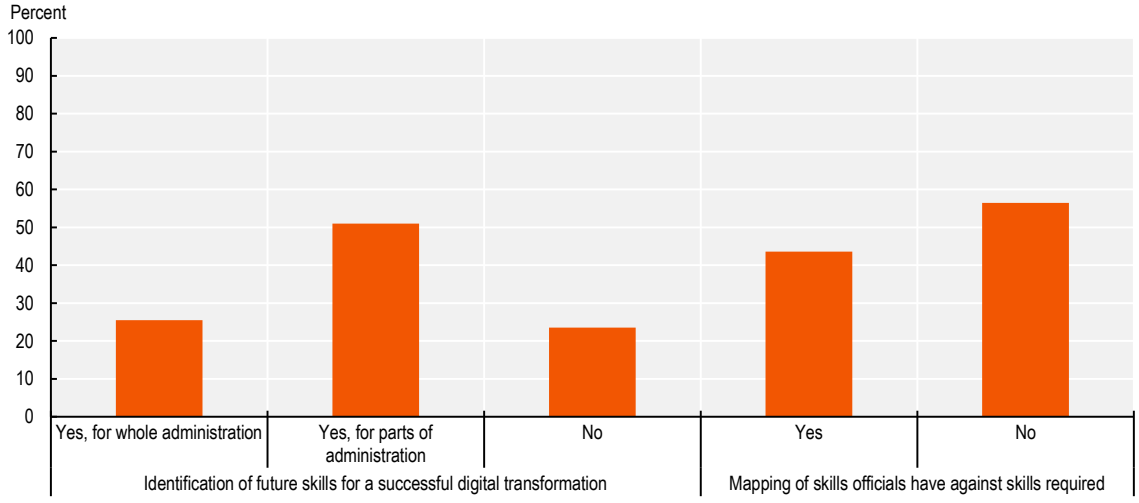
Source: OECD (2021), *Tax Administration 2021: Comparative Information on OECD and other Advanced and Emerging Economies*, https://doi.org/10.1787/cef472b9-en.

Building block 5: New skill sets

Digital transformation brings a fundamental shift to the operating models of tax administration, which means that not only will new staff need to be hired, but the skills of existing staff may need to be developed. HR management, and change processes are a core building block of Tax Administration 3.0. Figures 10.4. and 10.5. highlight how tax administrations are preparing the ground for digital transformation by mapping the skills needed for digital transformation, and investing in staff training to build capability.

Figure 10.4. Skills for digital transformation: Identification and mapping, 2022

Percent of administrations



Note: The figure is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table SG3 (accessed on 22 May 2023).

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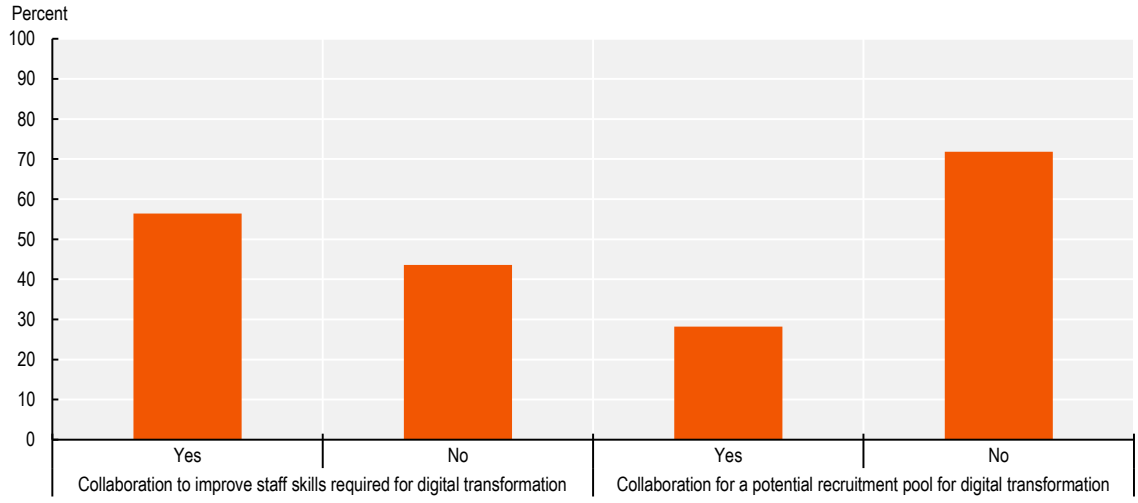
As highlighted earlier in this chapter, the digital transformation of tax administrations has wider impacts across the ecosystem. It is for this reason that many tax administrations have invested in the collaborative development of skills as shown in Figure 10.5., reflective of the wide impacts that digital transformation brings, and the need for shared approaches.

Figure 10.5. Skills for digital transformation: Collaboration with government organisations or external partners, 2022

Percent of administrations



Note: The figure shows information for those administrations that have identified the future skills needed for a successful digital transformation either for the whole administrations or for parts of it (see Figure 10.4.). It is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al. (2022), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table SG3 (accessed on 22 May 2023).

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Digital culture

In addition to the skills required to deliver digital transformation, tax administrations are also having to consider the mindset shifts that it requires. This ensures 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. As Table 10.7. highlights, this is an area of work becoming common in tax administrations.

Table 10.7. Digital culture, communication and engagement, 2022

Percent of administrations that have the respective process in place

Strategy to build a digital culture within the administration has been developed	Administration communicates the digital transformation strategy or changes to all officials so that they understand their individual roles and responsibilities	Administration regularly engages with staff and other stakeholders on the digital transformation strategy, its implementation and progress
59	69	67

Note: The table is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Tables SG4 (accessed on 22 May 2023).

Delivering this mindset shift is no small undertaking, and in parallel, one of the challenges of remote or hybrid working arrangements is maintaining staff training and organisational culture. As a result of all these factors, tax administrations have been reconsidering their approaches to delivering general training. Tax administrations report moving their training programmes into a virtual environment, using live online training sessions or pre-recorded videos/webinars.

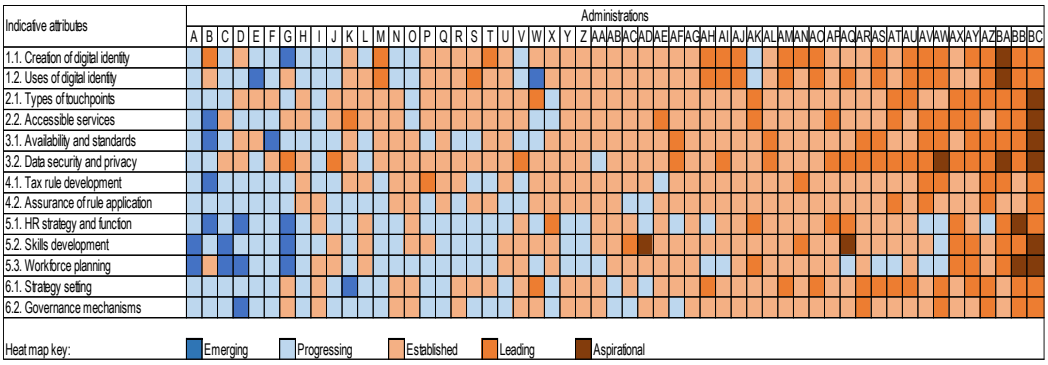
While moving to a virtual training environment may have some up-front costs, it may save costs in the longer term as once produced, pre-recorded training material can be viewed at any time, from anywhere. Remote training can reduce travel expenses and can allow staff to learn at their own pace and convenience as well as increasing the number of staff members that can follow a course. New technologies are also helping facilitate the collaborative learning aspects, increasing the quality of the training experience.

Building block 6: Governance frameworks

Digital transformation has seen tax administrations throughout the world adopt new digital transformation strategies that address the fundamental shifts in operating models that it requires. There is no one size fits all approach to this work, and to support it the Forum on Tax Administration has created a *Digital Transformation Maturity Model*, which allows self-assessment by tax administrations of the current level of maturity and to facilitate consideration of future strategy, depending on a tax administration's unique circumstances and priorities. (OECD, 2022[3])

As Figure 10.6. shows, the model has been completed by over 50 tax administrations, and the results of this are guiding and supporting those jurisdiction strategies.

Figure 10.6. Digital Transformation Maturity Model self-assessment results

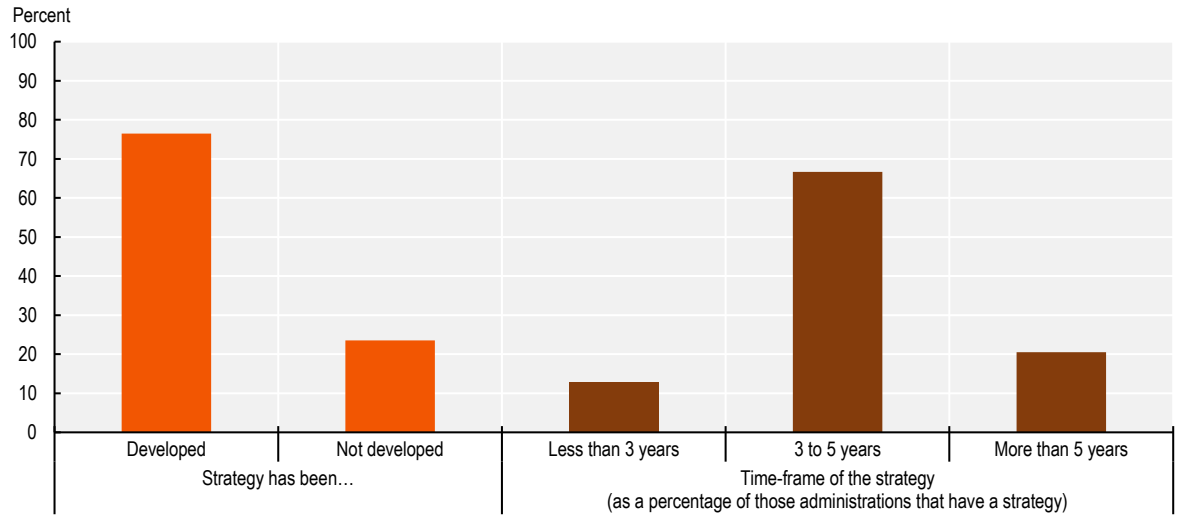


Source: OECD (2022), Digital Transformation Maturity Model, www.oecd.org/tax/forum-on-tax-administration/publications-and-products/digital-transformation-maturity-model.htm (accessed on 22 May 2023).

As highlighted earlier, the strategy that guides digital transformation is a key building block and Figure 10.7. highlights that already around 75% of administrations have a digital transformation strategy in place. Tax administrations report that these strategies are driving their services to become 'smarter', allowing taxpayers to complete increasingly complex tasks digitally, more efficiently and 24/7. This is also helping to bring important improvements in taxpayer compliance.

Figure 10.7. Existence of a strategy for digital transformation in tax administrations, 2022

Percent of administrations



Note: The figure is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: (OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table SG1 (accessed on 22 May 2023).

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Central to the Tax Administration 3.0 vision is collaboration and co-creation. This is because as tax systems and processes become embedded in the wider ecosystems of taxpayers, it is therefore essential for an effective strategy that stakeholders have a role in the development of any digital transformation strategy. As a result, and as Figure 10.8. and the example in Box 10.7. highlight, this collaboration is becoming a common feature of strategies.

Box 10.7. Finland: Citizen involvement in digital strategies

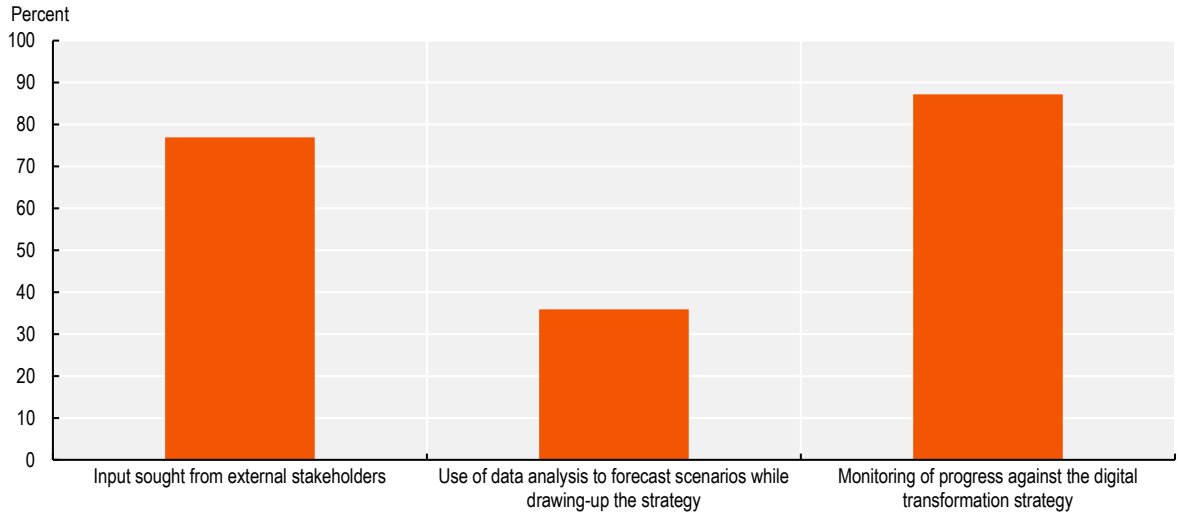
The Finnish Tax Administration has included citizen feedback as part of the process of digitising its internal processes and pursuing data-driven management. Non-technical officials have used a no code / low code platform to create a fully-fledged app for processing stakeholders' formal complaints that may arise in case of alleged inadequate or unlawful procedures or misconduct/negligence of duty by the tax officials. The app takes each complaint through all the steps along the case workflow across all parties concerned.

The app is connected to the Tax Administration's comprehensive digital data room which gathers a wide array of information and indicators on the organisational performance. The data room reporting shows the statuses, subject areas, evaluations and other attributes of the complaints in real-time, thus feeding evidence-based continuous improvement. The creation of the app showcases the potential of internal crowdsourcing within the Tax Administration to speed up digitalisation in a flexible and agile way.

Source: Finland (2023).

Figure 10.8. Digital transformation strategy: Stakeholder involvement, use of data analysis and monitoring, 2022

Percent of administrations that have developed a strategy



Note: The figure is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al. (2023), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table SG1 (accessed on 22 May 2023).

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These stakeholder insights can help provide the qualitative feedback that can complement the data analytics that some tax administrations are using to support their strategy development (see Figure 10.8.) Box 10.8. illustrates how this is done in practice.

Box 10.8. Digital transformation strategies

Australia

In August 2022 the Australian Taxation Office (ATO) delivered its refreshed Digital Strategy (2023-2025) which outlines critical next steps in the digital transformation journey of the ATO. The ATO vision is to become a leading digital business shaping trusted and effective digital services and ecosystems. The strategy is based on the concept of 'digitalisation rather than digitisation' and provides the opportunity to reflect on ATO's progress, seek ways to maximise the investment in existing technologies and identifies critical priorities over the next three years.

Framed by four pillars and underpinned by five principles, the strategy aims to continue the digitalisation of processes and services to improve the client and staff experience, drive improved tax performance and reduce administration costs. The refresh was initiated in response to the rapidly evolving digital landscape, increased demand for quality digital experiences and services from government, and the need to adapt quickly and effectively to changing environments.

While the ATO is considered globally as a digitally mature organisation, it recognised the need to develop a consistent approach across the organisation to build on the existing robust foundations and prioritise the right initiatives towards Tax Administration 3.0.

To achieve this, extensive stakeholder consultation was undertaken (internally and externally) throughout the development of the strategy. This included:

- Establishing a reference group made up of key senior executives in the ATO to shape the strategy;
- Holding focus groups with technical experts, project officers and other staff to gather insights and feedback;
- Engaging key ATO business areas, technical teams and segment owners to ensure alignment and inclusion of respective priorities and aspirations; and
- Engaging external forums (for example, Digital Software Providers working group) to test the ATO approach and direction.

Proactively engaging and involving stakeholders early in the development process allowed the ATO to strike a balance between setting shorter term, practical targets and building up the foundations required to achieve ATO's future aspirations.

Canada

The Strategic Planning Framework (Framework) was developed to guide decision-making and investments as the CRA pursues its vision of being a world-class tax and benefits administration that is trusted, fair and helpful by putting people first.

The Framework links the strategic priorities and guiding principles to the CRA's mission, vision, values, and ultimate outcomes. The strategic priorities state what the CRA will do over the near, medium and longer-term planning horizons to better realize its ultimate outcomes, and the guiding principles articulate how it will do it.

Over the planning horizons, the CRA will prioritize delivering a seamless client experience that is digital first; combatting aggressive tax planning and evasion; strengthening security and privacy; and nurturing a high performing diverse workforce. In delivering these priorities, the CRA is committed to applying a user-centric lens to its programs and services; leveraging an enterprise and data-driven approach and promoting effective collaboration with existing and new partners.

Annually, the CRA deliberately takes stock of drivers of change in its external environment, Government of Canada priorities, and in its performance, including in the comparative context of the International Survey on Revenue Administration (ISORA) data, to determine its planning objectives according to this framework over multiple planning horizons.

Leveraging the stock take to inform how the CRA advances both the priorities and applies the guiding principles ensures synergies in what it is doing today and what it needs to do tomorrow to achieve its vision.

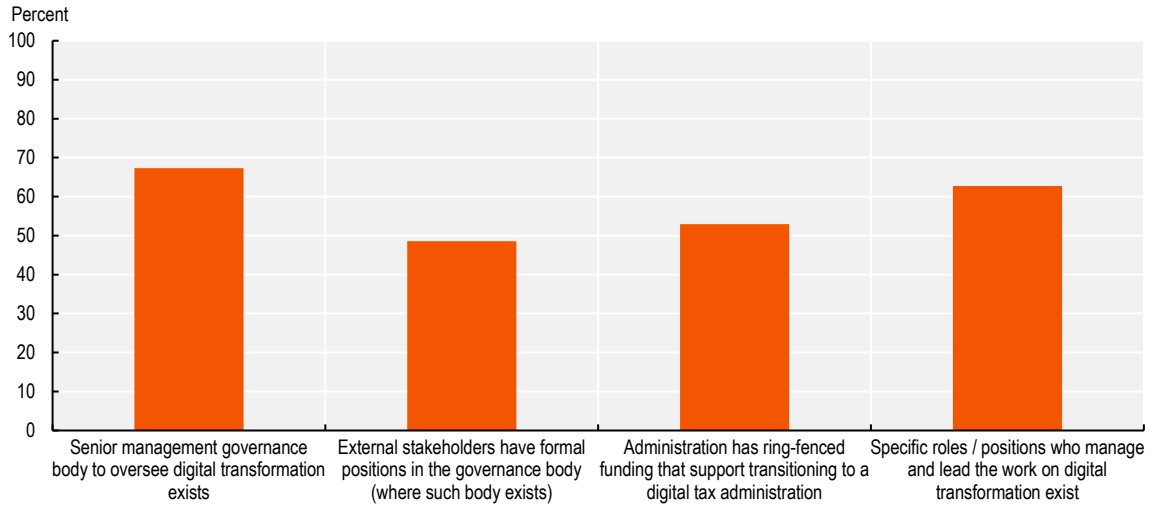
See Annex 10.A. for supporting material.

Sources: Australia (2023) and Canada (2023).

The implementation of digital transformation strategies is very resource intensive both from a personnel and financial perspective. Given that it is a multi-year process it requires a solid funding structure, which is ideally ring-fenced, so it is guaranteed that the tax administration can plan and support the transitioning from start to end. Without this certainty of funding, an already difficult process can be made even harder not only for the tax administration but also for taxpayers. As Figure 10.9. highlights, in this respect, only about half of the tax administration have ring-fenced funding to support the transitioning to a digital tax administration.

Figure 10.9. Digital transformation governance, 2022

Percent of administrations



Note: The figure is based on data from 52 jurisdictions that are covered in this report and that are included in the ITTI database.
Source: OECD et al. (2022), Inventory of Tax Technology Initiatives, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/, Table SG2 (accessed on 22 May 2023).

StatLink https://stat.link/54b2x6

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OECD (2022), *Digital Transformation Maturity Model*, OECD, Paris, https://www.oecd.org/tax/forum-on-tax-administration/publications-and-products/digital-transformation-maturity-model.htm (accessed on 22 May 2023). [3]

OECD (2021), *Tax Administration 2021: Comparative Information on OECD and other Advanced and Emerging Economies*, OECD Publishing, Paris, https://doi.org/10.1787/cef472b9-en. [4]

OECD (2020), *Tax Administration 3.0: The Digital Transformation of Tax Administration*, OECD, Paris, https://www.oecd.org/tax/forum-on-tax-administration/publications-and-products/tax-administration-3-0-the-digital-transformation-of-tax-administration.htm (accessed on 22 May 2023). [1]

OECD et al. (2023), *Inventory of Tax Technology Initiatives*, https://www.oecd.org/tax/forum-on-tax-administration/tax-technology-tools-and-digital-solutions/ (accessed on 22 May 2023). [2]

Annex 10.A. Links to supporting material (accessed on 26 May 2023)

- Box 10.5. – Hungary: Link to a video with more detail on the security operation centre of the NTCA: https://youtu.be/-qULPb7267U
- Box 10.8. – Canada: Link to an overview slide on the CRA's Strategic Planning Framework: https://www.oecd.org/tax/forum-on-tax-administration/database/b.10.8-canada-strategic-planning-framework.pdf

Annex A. Data tables

Annex A contains the set of tables which hold the data provided by tax administrations in response to the 2020, 2021 and 2022 International Survey on Revenue Administration (ISORA). It covers the 58 jurisdictions that participate in the 2023 edition of the OECD's Tax Administration Series.

It is available separately and can be found on the dedicated OECD iLibrary page at: https://doi.org/10.1787/900b6382-en, under the table of contents.

Annex B. Participating tax administrations

Table A B.1. Overview of tax administrations included in this report

Jurisdiction	Tax administration	Website address	Currency code
Argentina	Federal Administration of Public Revenues	www.afip.gob.ar	ARS
Australia	Australian Taxation Office	www.ato.gov.au	AUD
Austria	Federal Ministry of Finance	www.bmf.gv.at	EUR
Belgium	Federal Public Service Finance	https://finances.belgium.be	EUR
Brazil	Federal Revenue Service of Brazil	www.rfb.gov.br	BRL
Bulgaria	National Revenue Agency	https://nap.bg/	BGN
Canada	Canada Revenue Agency	www.cra-arc.gc.ca	CAD
Chile	Servicio de Impuestos Internos	www.sii.cl	CLP
China (People's Republic of)	State Taxation Administration	www.chinatax.gov.cn	CNY
Colombia	National Tax and Customs Administration	www.dian.gov.co	COP
Costa Rica	Directorate of Taxation, Ministry of Finance	www.hacienda.go.cr	CRC
Croatia	Tax Administration, Ministry of Finance	www.porezna-uprava.hr	HRK
Cyprus	Cyprus Tax Department	www.mof.gov.cy/tax	EUR
Czech Republic	Financial Administration of the Czech Republic	www.financnisprava.cz	CZK
Denmark	Danish Tax Administration	www.skatteforvaltningen.dk	DKK
Estonia	Estonian Tax and Customs Board	www.emta.ee	EUR
Finland	Finnish Tax Administration	www.vero.fi	EUR
France	Direction Générale des Finances Publiques (General Directorate of Public Finances)	www.economie.gouv.fr/dgfip	EUR
Georgia	Georgia Revenue Service	www.rs.ge	GEL
Germany	Federal Ministry of Finance, Federal Central Tax Office, and the State Tax Authorities	www.bundesfinanzministerium.de	EUR
Greece	Independent Authority for Public Revenue	www.aade.gr	EUR
Hong Kong (China)	Inland Revenue Department	www.ird.gov.hk	HKD
Hungary	National Tax and Customs Administration	https://nav.gov.hu	HUF
Iceland	Directorate of Internal Revenue	www.rsk.is	ISK
India	Income Tax Department Central Board of Indirect Taxes & Customs	www.incometaxindia.gov.in www.cbic.gov.in	INR
Indonesia	Directorate General of Taxes	www.pajak.go.id	IDR
Ireland	Office of the Revenue Commissioners	www.revenue.ie	EUR
Israel	Israel Tax Authority	www.taxes.gov.il	ILS
Italy	Revenue Agency	www.agenziaentrate.gov.it	EUR
Japan	National Tax Agency	www.nta.go.jp	JPY
Kenya	Kenya Revenue Authority	www.kra.go.ke/en/	KES
Korea	National Tax Service	www.nts.go.kr	KRW
Latvia	State Revenue Service	www.vid.gov.lv	EUR
Lithuania	State Tax Inspectorate under the Ministry of Finance	www.vmi.lt	EUR
Luxembourg	Administration des contributions directes (Direct Tax Administration) Administration de l'enregistrement et des domaines (Indirect Tax Administration)	www.impotsdirects.public.lu www.aed.public.lu	EUR
Malaysia	Inland Revenue Board of Malaysia	www.hasil.gov.my	MYR

Jurisdiction	Tax administration	Website address	Currency code
Malta	Office of the Commissioner for Revenue	https://cfr.gov.mt	EUR
Mexico	Tax Administration Service	www.sat.gob.mx	MXN
Morocco	General Administration of Taxes	www.tax.gov.ma	MAD
Netherlands	Netherlands Tax Administration	www.belastingdienst.nl	EUR
New Zealand	Inland Revenue Department – Te Tari Taake	www.ird.govt.nz	NZD
Norway	Norwegian Tax Administration	www.skatteetaten.no	NOK
Peru	Superintendencia Nacional de Administración Tributaria (SUNAT)	www.sunat.gob.pe	PEN
Poland	National Revenue Administration	www.finanse.mf.gov.pl	PLN
Portugal	Portuguese Tax and Customs Authority	www.portaldasfinancas.gov.pt	EUR
Romania	National Agency for Fiscal Administration	www.anaf.ro	RON
Saudi Arabia	Zakat, Tax and Customs Authority	https://zatca.gov.sa	SAR
Singapore	Inland Revenue Authority of Singapore	www.iras.gov.sg	SGD
Slovak Republic	Financial Administration of the Slovak Republic	www.financnasprava.sk	EUR
Slovenia	Financial Administration of the Republic of Slovenia	www.fu.gov.si	EUR
South Africa	South African Revenue Service	www.sars.gov.za	ZAR
Spain	Spanish Tax Agency (AEAT)	www.agenciatributaria.es	EUR
Sweden	Swedish Tax Agency	www.skatteverket.se	SEK
Switzerland	Federal Tax Administration	www.estv.admin.ch	CHF
Thailand	The Revenue Department	www.rd.go.th	THB
Türkiye	Turkish Revenue Administration	www.gib.gov.tr	TRY
United Kingdom	HM Revenue & Customs	www.hmrc.gov.uk	GBP
United States	Internal Revenue Service	www.irs.gov	USD

Tax Administration 2023

COMPARATIVE INFORMATION ON OECD AND OTHER ADVANCED AND EMERGING ECONOMIES

This report is the eleventh edition of the OECD's Tax Administration Series. It provides internationally comparative data on aspects of tax systems and their administration in 58 advanced and emerging economies. The report is intended to inform and inspire tax administrations as they consider their future operations, as well as to provide information on global tax administration trends and performance for stakeholders and policy makers. The report is structured around nine chapters that examine the performance of tax administration systems, using an extensive data set and a variety of examples to highlight recent innovations and successful practices. This edition also contains an additional chapter that explores progress on the digital transformation of tax administrations. The underlying data for this report comes from the International Survey on Revenue Administration and the Inventory of Tax Technology Initiatives.

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