COMPLIANCE RISK MANAGEMENT IN THE DIGITAL ERA

FPG083/FPG012 Update of the CRM Guide

October 2023

Preface

Since 2010, the environment in which tax administrations operate has changed dramatically. In the last decade tax administrations are confronted with growing complexity of tax systems, changing relationships between taxpayers and government, increasing impact of (social) media, emerging digitalisation, data and technology, since 2020, the COVID-19 pandemic and more recently economic uncertainty due to the impact of the war in Ukraine. The emergence of digitalisation and new technologies leads to disruption in economy and to creation of new business models which both lead to new opportunities (e.g. availability of data, more possibilities to handle data), but also to new compliance risks e.g. due to 'e-commerce'. The COVID-19 pandemic, its effects on the economic situation in countries and the relief measures of tax administrations have an impact on compliance risks and the ability of tax administrations to effectively manage them.

Tax administrations are adapting their way of working to be able to take advantage of opportunities and cope with numerous challenges that arise due to the changing environment and the growing amount of data that becomes available.[1] The amount of data that is available to tax administrations is increasing rapidly. To counter tax evasion and tax avoidance, tax administrations around the globe need to be transparent and collaborative, leading to a growing automatic exchange of information between tax administrations, but also between businesses and tax administrations.[2]

Examples of opportunities due to the changing environment in which tax administrations operate are e.g. more tailored taxpayer services, better use of (third party) information for reporting, better identification of (compliance) risks and establishing more proactive treatment forms.[3] Examples of the challenges are e.g. the growth of the gig and sharing economy, the use of crypto currencies and the role of data and user participation including network effects.[4] Also, the COVID-19 crisis has given rise to opportunities, like better use of digitalisation and technology, and challenges like managing the compliance risks that arise due to the crisis without compromising on the relief measures supporting taxpayers in the crisis. The crisis however also had impact on the internal processes of tax administration like e.g. the availability of necessary data and steering information, the development of risk models and risk pictures, the impact of social distance in applying activities.

Recast of Compliance Risk Management Guide

In 2010 the Fiscalis Risk Management Platform issued the Compliance Risk Management Guide for Tax Administrations.[5] The Guide provided a comprehensive and unified view on the theoretical and practical framework of Compliance Risk Management (CRM), as well as the steps that need to be taken to implement the process. The Fiscalis Risk Management Platform decided to recast[6] the current Compliance Risk Management Guide for tax administrations with the goal to better position CRM in the digital era by means of FPG083 and FPG012.[7] The emphasis on digitalisation, data and technology is reflected in the new title of the Guide: *Compliance Risk Management Guide for Tax Administrations in the Digital Era* and in the change of content. The Guide gives background information on compliance (risk) management strategies in general. It also discusses the pillars of such strategies (including influencing taxpayer behaviour), making optimum use of digitalisation, data and technology.

[1] Thomson Reuters (2019). European Tax Technology Survey (p. 14).

[2] European Commission (2020). Administrative cooperation in (direct) taxation in the EU

[3] OECD (2020). Tax Administration 3.0: The Digital Transformation of Tax Administration, FORUM ON TAX ADMINISTRATION

[4] OECD (2018). Brief on the tax challenges arising from digitalisation: interim report 2018, (nr. 11 and 23).

[5] Compliance tax management guide for tax administrations, Fiscalis Risk Management Platform Group, European Commission (2010).

[6] The Project group did a recast of the old Guide meaning that the text of the old Guide that is applicable to the new situation is kept. No specific references to the old Guide are made in the current text.

[7] The Project group is chaired by Greece and The Netherlands and comprises delegates of Croatia, Cyprus, Ireland, Italy, Malta, the Netherlands and Spain. See Annex 5.

Executive Summary

The primary goal of tax administrations is to collect the taxes payable in accordance with the law, in such a manner that it will sustain confidence in the tax system. Tax administrations are adapting their way of working to be able to take advantage of opportunities and cope with numerous challenges that arise due to the changing environment that exists. Both digitalisation and technology in taxation and the COVID-19 crisis impact the work of tax administrations. '*Evidence based' Compliance Risk Management Strategies* support tax administrations to carry out its tasks and to enable them to deal with the changing environment in which they operate. The COVID-19 crisis - because of which tax administrations had to change the accentuation of their strategies - has clearly shown this; implementation of relief measures, more focus on supportive measures and enforcement aimed at abuse of (new) regulations. Compliance Risk Management (CRM) could be described as a systematic process in which a tax administration makes deliberate choices on which *measures* could be used to effectively stimulate compliance and prevent non-compliance, based on the knowledge of all taxpayers (behaviour) and related to the available capacity.

The update of the CRM Guide is an identified need of moving the EU tax administrations compliance (risk) management practices forward towards the challenges of globalisation and digitalisation. Although all tax administrations understand the high added value of the digitalised era, they all have a different approach, depending on their technological infrastructure and culture, and therefore a different pace in development. In this updated version of the CRM Guide, the innovative path of tax administrations regarding the administration of taxes due to digitalisation and technology is described on three horizons. The Guide describes the CRM strategy and the steps of the CRM cycle focusing on digital era, giving emphasis on the globalised legislative framework, the digitalisation of the economies, the behavioural aspects of taxpayers, and the impact of COVID-19, while thinking of the future developments. The Guide also updated country examples focusing on the latest best practices.

Chapter 1 contains a general *introduction of Compliance Risk Management* in the digital era. This chapter discusses what Compliance Risk Management (CRM) is and how it could evolve due to digitalisation and technology. The chapter also explains how changes in the environment of tax administrations (as COVID-19) impact the administration of taxes and how CRM could support the challenges arises from these circumstances.

Chapter 2, Influencing Taxpayer Behaviour, discusses how tax administration could influence taxpayer behaviour to voluntary compliance with tax rules. A general rule shows that behaviour is not only influenced by motivation of taxpayers but also by capability and opportunity, and these are the aspects that tax administrations need to capture in their CRM strategy.

Chapter 3 describes the *process of Compliance Risk Management*, which is the core of CRM, with reference to short, mid-term and long-term development of the phases of the CRM cycle, within the context of digitalisation and technology.

Chapter 4, *Digitalisation, Data and Technology*, examines different approaches to deal with the changes due to digitalisation and technology. The chapter describes the role and the importance of data within an evidence-based CRM strategy. It includes opportunities for tax administrations to handle large volumes of data to make their internal processes more efficient, to make their risk analyses and fraud detection more accurate and to manage compliance (risks) in a better way. The chapter contains numerous practical examples to demonstrate the value and practical application of digitalisation, data and technology for CRM.

Chapter 5, *Internal Risks*, discusses Compliance Risk Management on the level of the tax administration as an organisation that must manage internal risks adequately and be in control on these risks to be able to implement and execute a Compliance Risk Management strategy successfully.

Reading guidance

The CRM Guide aims to be useful and accessible to anyone working in the tax administration, from senior management to caseworkers, working in the area of CRM. The focus is on providing material of direct application and use to tax administration staff responsible for CRM: background information, theoretical concept, practical implementation and practical example.

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1. Introduction to Compliance Risk Management

1.1. Introduction

This chapter contains a general introduction on the topic of Compliance Risk Management in the Digital Era.[8] In the last decade tax administrations have developed more '*evidence based' Compliance Risk Management Strategies* to be able to deal with the changing environment in which they operate. Such strategies encompass:

- A shift from a reactive towards a more proactive approach, aiming to create an environment in which taxpayers are prevented from making mistakes or committing evasion. In the digital era, this means more and more building in taxation in the daily lives or systems of private individuals and businesses ("seamless" taxation).
- Seeking collaboration with and retrieving data from taxpayers and third parties to manage compliance (risks). "Seamless" taxation only can be realised by cooperation between tax authorities and other parts of government, private sector parties and taxpayers. Besides, the quality of data will become more and more important.
- Timely identification where citizens and businesses get stuck in (mass) processes due to advanced automation and appropriate response if this happens to individual citizens and businesses.
- Influencing taxpayer behaviour by basing the tax administrations servicing and enforcement activities on the root causes of taxpayer behaviour, applying an appropriate mixture of preventive and repressive compliance measures and measuring the results (i.e. evidence) of the chosen approach to be able to adjust the strategy accordingly.

Regarding the administration of taxes, the 'why' question is fundamental and effectively provides the basis for tax administrations to collect the taxes payable in accordance with the law, aiming to sustain confidence in the tax system. When we talk about digitalisation and technologies, these do not really affect the 'why' question.

To achieve their strategic goals, Tax Administrations require a robust information foundation to make informed decisions on how to allocate their capacity effectively. Data fulfil a crucial role in the development of compliance (risk) management. Digitalisation and technology give tax administrations possibilities to handle large volumes of data, enhancing internal processes' efficiency, improving risk analyses and fraud detection accuracy, and overall enabling better management of compliance (risks). As such digitalisation and new and emerging technologies typically impact the 'what', 'who' and 'how' question and as such the different phases of the Compliance Risk Management Process (chapter 3).

As tax administrations diverge in the pace of development,[9] the Three Horizons of Growth model is used to describe the innovative path of tax administrations due to digitalisation and technology regarding the administration of taxes (**figure 1**).[10]

[8] Readers may be familiar with the concepts and some of this text from the previous guides.

[9] OECD (2019). Advanced Analytics for Better Tax Administration (page 13).

[10] Based on McKinsey: The three horizons of growth

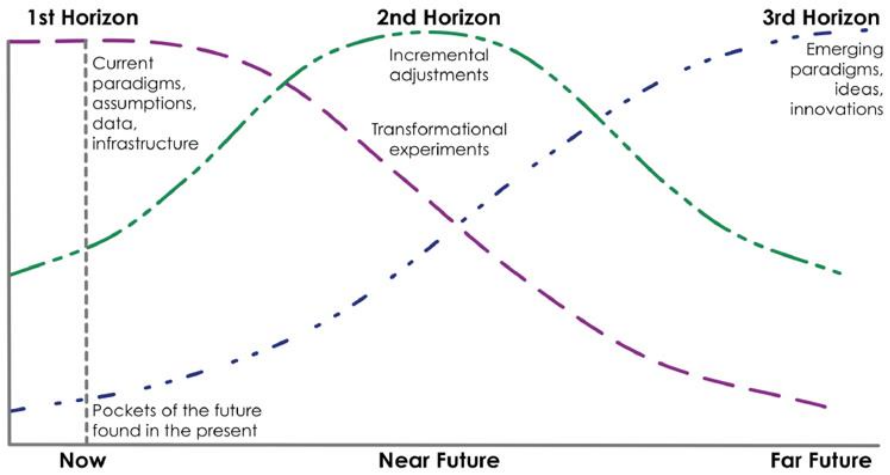

Figure 1: Three Horizons model

Explanation:

The Three Horizons model connects the present with the near and far future when it comes to developments regarding digitalisation and technology in the field of administration of taxes.[11]

- Horizon one identifies current paradigms, assumptions, data and infrastructure (current state of play). Here the focus is on improving the current situation and make it more efficient and effective.
- Horizon two encompasses emerging short-term opportunities and applying new projects, activities and technologies. Here the focus is on doing 'things' differently within the current context.
- Horizon three contains ideas for transformation towards 'digital tax authorities'. Here the focus is on a fundamental change in the way of working.

The model shows the three cycles by which tax administrations move over time regarding the various stages of CRM (chapter 3). Tax administrations are supposed to manage their organisation according to these three horizons concurrently.

Paragraph 1.2 explains what is meant by CRM, its basic principles and its benefits, including how CRM can assist a tax administration in this current crisis. Paragraph 1.3 introduces the CRM Model and the CRM Process. Paragraph 1.4 outlines the current challenges and future questions for tax administrations.

1.2. What is Compliance Risk Management?

The primary goal of tax administrations is to collect the taxes payable in accordance with the law, in such a manner that it will sustain confidence in the tax system. Some taxpayers, however, fail to meet their obligations for various reason. Non-compliance may stem from factors related to the taxpayers themselves, such as ignorance, carelessness, and fraud. Non-compliance can also result from complex legislation, the design of tax administration processes, or the enforcement methods employed by administrations. Following a strategic compliance risk management process as outlined in this guide enables decision making based on a root cause analysis of taxpayer behaviour. This approach enables tax administrations to systematically strengthen compliance and effectively counter or prevent non-compliance. Therefore, tax administrations should adopt strategies that place a greater emphasis on proactive activities to increase voluntary compliance, along with enforcement activities that specifically target high-risk behaviours. CRM allows tax administrations to focus on the underlying drivers of taxpayer behaviour and tailor their approach accordingly. This continuous development is crucial in the current fast-paced and ever-changing environment.[12] Understanding the underlying drivers will also assist tax administrations to deal with the impacts of COVID-19.

[11] McKinsey (2018). Four Innovations reshaping tax administration

[12] Tax administration goes digital (report)

Compliance Risk Management (CRM) can be described as follows:

> *A systematic process in which a tax administration makes deliberate choices on which measures to use, based on the knowledge of all taxpayers (behaviour) and related to the available capacity, to effectively stimulate compliance and prevent non-compliance.*

We would like to emphasise that CRM is not merely a tool for selecting taxpayers for auditing; rather, it is a way to organise and direct *all* activities of a tax administration. For tax administrations to achieve their strategic goals, it is essential to establish processes that facilitate taxpayers in fulfilling their tax obligations, while also ensuring effective supervision and, if necessary, taking appropriate actions. Therefore, CRM should be considered as an overarching strategy of a tax administration that influences all levels, staff, processes and activities of a tax administration.

CRM sets out a key process that focusses on the broader compliance environment. Given the limited resources of tax administrations, it is imperative to implement the most effective and efficient strategies. These strategies guide tax administrations as they consider how a changed mix of treatments can produce better compliance outcomes. There is a growing emphasis on proactive approaches, including cooperative compliance, upstreaming, compliance by design, such as pre-filling of tax returns and trust-enhanced technologies.[13]

The main goal of CRM is to enable tax administrations to accomplish their mission by facilitating management to make better decisions. It is a technique to improve the effectiveness of tax administrations in managing compliance risks. The term 'compliance risk management' can apply to many different areas and measures aimed at improving compliance and avoiding non-compliance. However, they all have one thing in common: they help treat risks that pose a threat to our objectives. The CRM process achieves this by identifying the different steps in the decision-making cycle, making it applicable for decisions at all management levels within a tax administration. **Figure 2** gives an overview of CRM.

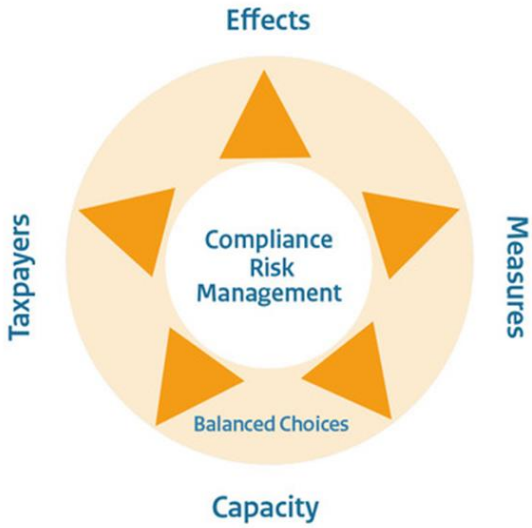

Figure 2: Overview of Compliance Risk Management

1.2.1. The benefits of Compliance Risk Management

The benefits of CRM are widely known and well documented. Since the introduction of CRM tax administrations have mentioned the following benefits of implementing CRM:

- a focus on the underlying drivers (not symptoms) of non-compliance and promotion of diversity in the treatment of major tax compliance risks, rather than the adoption of a 'one size fits all' approach
- an increase in the level of voluntary compliance of taxpayers

[13] OECD (2017). The Changing Tax Compliance Environment and the Role of Audit

- weighing the possibilities that a compliant taxpayer could become non-compliant
- achieving equal treatment of taxpayers
- focusing the burden of audit to non-compliant taxpayers
- making best use of the available human, financial and technical resources
- adjusting available resources to the levels of risks
- a defensible approach that can withstand external scrutiny (e.g. by external audit officials or parliament)
- a structured basis for strategic planning
- a stronger foundation for evidence-based evaluation

1.2.2. Defining Risk in Compliance Risk Management

No administration operates in a risk-free environment and 'risk management' does not create such an environment. CRM, however, enables management to operate more effectively in environments filled with risks.

From the perspective of CRM, risk is defined as follows:

> *The threat or probability that an action or event will adversely affect an organisation's ability to achieve its objectives.*

To have risk, one must have both uncertainty and exposure to loss. Risk consists of the following characteristics: vulnerability, severity or significance, and relative occurrence or frequency. Risks are events or circumstances that could or will result in problems for the organisation. Risk covers all the following:

Hazard	– bad things are happening
Uncertainty	– things are not occurring as expected
Opportunity	– good things are not happening

In simple terms, risk can be defined as the '*uncertainty of outcome*'. This concept encompasses both the pursuit of future positive opportunities and the mitigation of existing negative threats while striving to achieve a current objective. If the desired outcome is a higher level of compliance, risk could also be understood as the chance of non-compliance.

Understanding the concept of risk is imperative for CRM. Defining the objectives of the organization is a crucial step as it serves as the starting point for identifying risks. Without a clear understanding of these objectives, it is not possible to identify risks. Risks should be defined to a level where both the risk and its underlying causes are understandable and can be accurately assessed. In particular, risk identification initiates with high-level objectives and extends to objectives at different levels. A risk refers to events or circumstances that could lead to an unfavorable outcome, specifically, not achieving the set objectives. Identifying these events or circumstances is crucial. It is the objectives themselves that determine what the risks are. The nature of identified risks is heavily influenced by the specific objectives of the tax administration. Traditionally, tax administrations focused on risks related to the objects of tax legislation, such as individual tax returns or individual payments (*object risks*). CRM, instead, adopts a broader perspective by examining risks in the context of subjects—the taxpayer or groups of taxpayers and their behaviour (*compliance or subject risks*). Although both subject and object risks should be identified, risk treatment should focus on those risks that tax administrations can actively influence (for instance, if legislative changes are required to influence taxpayer behaviour, the tax administration can address the issue but may not be able to directly change it).

1.3. Compliance Risk Management Model

The Compliance Risk Management Model is a general framework that helps tax administration to implement Compliance Risk Management. The model describes the different elements that influence decision making and identifies the steps in the decision-making cycle. It provides guidance for making more explicit and more educated decisions in each stage of the decision-making process. As a result, Compliance Risk Management enables a more precise measurement of the quality of each decision-making stage, facilitating the detection of mistakes, identification of process changes, development of new capabilities, and the ability

to make evidence-based decisions. Moreover, it enables the tax administration to better allocate scarce resources to achieve the best overall compliance. **Figure 3** is a schematic representation of the CRM model.

Figure 3: The Compliance Risk Management Model

The CRM Process can be illustrated as a continuous loop of decision making. The process consists of the following steps: **Identification, Analysis, Prioritisation, Treatment and Evaluation**. The CRM Process takes place in a context, with objectives and a strategy and these links have been integrated into the model.

- **Context**
  The context is the environment in which the tax administration operates. Developments in society impact the context in which we operate and it includes both the external and internal factors.
- **Objectives**
  The objectives of the organisation are the specifically measurable results and outcomes that, when achieved, contribute to attaining the stated goal. These goals can be defined at the central, regional or operational level. Usually, the central objective for a tax administration is to collect the correct amount of taxes at the right time.
- **Strategy**
  The strategy is the link between the activities and the objectives.

In short: context can be viewed as the playing field together with the rules of the game (par. 1.3.1), forming the framework within which CRM is applied. Objectives outline the purpose of the game, specifying what needs to be achieved (par. 1.3.2). The strategy, on the other hand, describes how to play the game to reach those objectives (par. 1.3.3). Within this established framework, the CRM process comes into play, guiding decisions on what actions to take in order to attain the specified objectives

1.3.1. Context: Compliance Risk Management environment

Central to the CRM process is the ***operational context***. This can be defined as the 'environments' in which tax administrations operate. There is a wide range of internal and external environmental factors that must be considered and these factors are constantly changing as society changes.

The CRM Process was first introduced in 2004 and, although the principles have stayed the same, the environment has changed dramatically since. In recent years, in the light of globalisation, taxes have become a contemporary topic in the mass media. With the growing attention, taxpayers and stakeholders are seeking increased accountability from tax administrations. For several years, political leaders, the media, and civil society around the world have expressed growing

concern about tax planning by multinational enterprises. These concerns have again been highlighted during to the COVID-19 crisis.[14]

There are several *external factors* upcoming from the changing context, which are recognised as increasing the risks faced by tax administrations. These include factors such as the complexity and innovations in business structures, new financial products, e-commerce, development of large numbers of taxable persons and services, as well as economic uncertainty stemming from events such as the war in Ukraine. COVID-19 has created various risks for the tax administration. For example, tax officers could not carry out audits due to the various lockdowns, potentially influencing taxpayer behaviour. Other relevant developments include the rise of business models facilitating the growth of the gig and sharing economies as well as an increase in other peer-to-peer (P2P) transactions, the development of technologies such as block chain, growing data collection and matching capacities.

There are also several key *internal factors* that impact upon risks associated with the administration of a taxation system. These include organisational culture and structure, human resources and new-era positioning status. Due to COVID-19 tax administrations, like most businesses, had to quickly adjust the way in which they work. This creates new risks. The governance of these internal factors is elaborated on in chapter 5.

This all dictates new and flexible actions and approaches for tax administrations within CRM.

Examples of *external factors* that influence the CRM process are:

- the legislative framework (national and international), for example changes in national, European and global legislation concerning the exchange of information between countries
- public opinion: for example, the call for transparency and accountability due to the increased attention in social media and information leaks like the Panama papers
- economic conditions and business developments, for example the rapid increase of the gig economy and e-commerce and the rise of new business models
- technological advances, for example the opportunities that arise from the development of advanced artificial intelligence or the availability of enormous amounts of data
- pandemics, for example the widespread societal and economic consequences of the COVID-19 pandemic

The impact of COVID-19

The environment in which tax administrations and taxpayers operate changed completely and abruptly in the early months of 2020, where the COVID-19 pandemic caused governments to take drastic actions such as closing airports, hotels, restaurants, and employers to close their offices and sending their employees to work from home. Businesses which were skyrocketing with new ideas and plans for further profitability, without warning, fell fast into a situation of idle capacity, deteriorating or zero income, and a serious struggle for survival. The crisis impacted sectors differently, with those that require physical proximity

[14] CEPII (2020). International Corporate Taxation after COVID-19: Minimum Taxation as the New Normal

hardest hit. Some have experienced a quicker recovery from the initial shock, such as the digital industry, healthcare and pharmaceutical sectors.[15]

In this COVID-19 situation and as the recovery phase is entered, the CRM process of identifying, analysing, prioritising, treating and evaluating tax risks faces multiple dilemmas. The behaviour of taxpayers in a crisis is rather unpredictable. In general, less taxes will be collected due to economic hardship. Some taxpayers that face difficulties in surviving could act less voluntary compliant, others that assume that the chance of being audited will be lower, could try to take advantage of the situation. However, in a context where governments are creating financial packages to safeguard businesses from bankruptcy, and employees from unemployment, taxation remains an important source for governments to finance these cash outflows. The actual impact of the COVID-19 situation on the economy, and the effect on taxes, could only be determined after the crisis. Nevertheless, a solid CRM strategy will help tax administrations to find a new balance during the COVID-19 crisis between assisting taxpayers to fulfil their tax obligations and managing compliance risks including tackling abuse of relief measures and deliberate non-compliance in an adequate way. The main question is how the COVID-19 crisis is affecting the compliance behaviour of taxpayers and what it means for shifting priorities and deploying human resources. A study in Shri Lanka has shown that taxpayer's positive compliance attitude during COVID-19 was caused due to easy loan systems, tariff adjustments, tax concessions, re-scheduling default tax payment plans, extensions granted for tax return submissions and the new business opportunities. On the other hand, the sudden decline in the service sector due to lockdown, curfew, and the social distance practices implemented in the country adversely impacted on the compliance attitude. Thus, policymakers should make appropriate choices within a coherent CRM strategy to motivate taxpayers' compliance attitude considering the levels of adverse effects on different business, e.g. more reliefs on service-related sectors.[16] As countries enter the recovery phase of the pandemic there will be an opportunity to implement tax policies to support growth after the COVID19 crisis.[17]

Examples of *internal* factors are:

- organisation (culture and structure), for example changes in values, perspectives and strategies and approaches to achieve compliance
- internal processes, being the way that tax administrations have implemented tax legislation and designed their processes (for example registration of taxpayers, filing of tax returns, processing of tax returns, tax assessment process, service provision to taxpayers, tax auditing process, payment process, tax collection process etc.
- resources, for example changes in the skills needed and in the scarcity of skilled staff
- tooling and data, for example the utilisation of emerging technologies like artificial intelligence, advanced analytics, block chain and distributed ledger technology.

The impact of internal processes

The Compliance Risk Management strategy can only be effective if the 'business' processes of the organisation (i.e. registration process, process for processing tax returns, objection and appeal process et cetera) run smoothly and efficiently and by doing so, also contribute to the strategic goal (compliance) of the tax

[15] European Parliament's committee on Industry, Research and Energy (ITRE) (2021). Impacts of the COVID-19 pandemic on EU industries

[16] Dissanayake, N. & Premaratna, S. (2020). The Impact of COVID-19 on Tax Compliance Attitude of SME Taxpayers in Sri Lanka

[17] OECD (2021). Tax and fiscal policies after the COVID-19 crisis

administration. Therefore, the implementation of tax legislation into smooth and efficient business processes is also considered part of CRM.

In Chapter 5 relevant internal factors are further elaborated upon.

1.3.2. Objectives

Every tax administration within the EU is a law enforcement organisation with the statutory duty of levying and collecting taxes. By which methods a tax administration intends to implement its statutory remit, and which values and standards it adheres to in doing so, depends on its mission and the strategic goals it pursues. With respect to these missions, research shows that within the EU roughly four categories of objectives can be distinguished: some Member States strive for a higher level of 'compliance', others want to 'levy tax efficiently and accurately', others strive for a 'modern customer-oriented tax organisation' and the rest have the 'payment of taxes' as the central objective. With the current climate, some tax administrations objectives may also include 'to support the economy to recover' after the COVID-19 crisis.

Objectives describe the desired outcome and state what must be achieved at any administrative level within an organisation. There is a direct relationship between objectives, which are what an organisation strives to achieve, and the CRM process, which represents what is needed to achieve them.

The objectives determine which risks are to be identified and significantly influence the risk assessment and how risks are addressed. Every decision in the CRM process must consider the organisation's objectives. Risks are derived from the objectives. Once risks have been identified based on the objectives, it becomes possible to formulate new objectives from the risks. To address a risk, a specific objective can be established. This lower-level objective targets a higher-level objective. For instance, if tax fraud is perceived as a risk, an objective could be that a good mutual administrative assistance process should be developed. This new objective (better administrative assistance) can then be used for identifying new (lower level) objectives (for example, lower levels of irrecoverable losses for foreign taxpayers). For a tax administration, this process may unfold as follows:

High-level objective	– Increase voluntary compliance
Identified risk 1	– Lack of confidence in the tax administration
New objective 1	– Increase confidence in the tax administration
New risk 2	– Tax officers treating taxpayers badly
New objective 2	– Change attitude amongst tax officers etc.

This shows that an objective must exist to start working with CRM. The objective is the starting point, but, once the process is in place, it can also impact new (lower level) objectives.

1.3.3. Strategy

Strategy is an approach that is used to achieve an objective. The objective describes *what* to achieve, the strategy *how* to do it. Strategy bridges the gap between objectives and activities. Strategy, which by itself depends on the context, has no existence apart from the objectives sought. It is a general framework for actions to be taken and, at the same time, is shaped by the actions taken. The strategic planning of an organisation is strongly linked to its mission, vision and values, which are used as a base to set strategic goals, activities and actions in order to achieve the best possible result and reach its objectives. CRM is a process that supports the development and review of (operational) strategies.

A strategy could be a set of methods or principles describing how to act. However, strategy also incorporates principles for ways of thinking. It is also necessary that a strategy is based on knowledge. Knowledge is an absolute necessary part of CRM, regardless of risk model, structure and definitions. Without knowledge, e.g. about the tax gap, taxpayer behaviour and the effectiveness of different treatment options, CRM is of no use. Based on methods, principles, a way of thinking, and knowledge, it is possible to decide how the objectives are going to be reached.

The CRM strategy should also evolve to keep pace with the changes in the external environment, and a modern approach should include a mixture of proactive, preventive and repressive treatments. The CRM strategy should include the following:

- influencing compliance behaviour
- shifting from reactive to proactive approaches
- collaborative and user-oriented approaches

Examples of a CRM strategy are the Irish *Customer Engagement Strategy*, the Netherlands *Compliance Risk Management* strategy and the Latvian Compliance Risk Management Strategy.
Example 1: Customer Engagement Strategy (Ireland)
Example 2: Compliance Risk Management Strategy (The Netherlands)
Example 3: Compliance Risk Management Strategy (Latvia)

1.3.4. The Compliance Risk Management Process

The CRM Process is based on five consecutive steps. These steps form the CRM cycle. The first two steps relate to risk identification, analysis of risks and the behaviour of taxpayers that cause the risks. The next two relate to treatment planning i.e. making choices – about (groups of) taxpayers, risks and options for treatment – and the implementation of the treatment (**figure 4**). The final step relates to measurement, evaluation and learning. All steps revolve around the objectives implied by the strategy of the tax administration: e.g. higher compliance (leading to a lower tax gap) and higher taxpayer satisfaction. The five steps are still relevant in a modern tax administration but the way they are conducted has evolved radically since CRM was first introduced. Due to the ongoing digitalisation and technological advances, the steps are more interlinked and can take place in real time. This is assisted by the availability of new tools such as robotics and automation. Each step of the CRM process will be explained in more detail in paragraphs 3.2 to 3.6.

Figure 4: Compliance Risk Management Process

1.4. Challenges and future perspectives

Challenges and future perspectives are difficult to predict. One of the ways to do so is to carry out regularly a strategic re-orientation, which provides for future scenarios for the societal context as well as organisational perspectives. Strategic reorientation addresses challenges and future perspectives that could impact the (execution of the) CRM strategy.
Example 4: Strategic Reorientation (The Netherlands)

At the start of the review of this guide nobody could foresee the greatest challenge that was about to occur, COVID-19. However, due to the pandemic, tax administrations have been forced to incorporate changes. The pandemic has forced them to find new ways of interacting by maximising electronic means. Electronic services have had to be improved overnight, payments facilitated, digital and virtual tax offices, tax assistants and widespread teleworking measures adopted in tax administrations.

The real challenge for the future is tax administrations capable of adapting to new situations and realities, and in a very fast way.

During the COVID-19 pandemic, all the tax administrations have done it. The pandemic was a shock and tax administrations had to react quickly. We have learned but we must be prepared to adapt quicker and better to new challenges that the future may give us. A future perspective for the administration of taxes could encompass:

- using digitalisation and technology to build a taxation system that is based on tax compliance (e.g. simple, public-friendly, secure, citizen-centric)[18]
- enabling a trustworthy and secure development of AI within the EU[19]
- ensuring adjustments or new taxation framework for new business models, including new methodology and new technology tools to monitor tax compliance. Namely, connectivity is the new geopolitics: if, in 2005, there were around one billion Internet users worldwide, today that number stands at almost four billion and rising. At the same time, the number of connected devices is increasing exponentially, powered by the fast-growing Internet of Things and the Fourth Industrial Revolution[20]
- changing the tax mix due to the expected climate change and its negative impact on the environment and society, as well as demographic developments, aging population, increased use of robotics etc.
- using new tax instruments, like more wealth taxation, changes in inheritance taxes and increase capital gains, and better evaluation procedures based on advanced technology to stop the increase in wealth inequality
- changing the role of tax administration, so that is no longer verifier of the outcome, but rather a certifier of the system
- ensuring a secure and soundproof information system since modern technology also makes us more vulnerable in the cyber domain regarding both crime and cyberattacks
- increasing tax incentives for investments in R&D, education, and skill development if Europe wants to be part of leadership in technological innovation, which is now, even more than in the past, a key ingredient in global power projection[20]
- setting up a clear digital roadmap for tax administration to achieve the highest level of digitalisation – e-government.

[18] European Union (2019). The Future of Government 2030+

[19] European Union (2020). Whitepaper on Artificial Intelligence

[20] ESPAS (2019). Challenges and Choices for Europe

2. Influencing Taxpayer Behaviour[21]

2.1. Compliance Risk Management Model

This chapter discusses the role of influencing taxpayer behaviour by tax administrations. In general, tax administrations that apply a Compliance Risk Management (CRM) strategy, have the strategic goal to stimulate compliance and to prevent non-compliance. Compliance is about the willingness and ability of taxpayers to fulfil their tax obligations. Therefore, it refers to the *behaviour of the taxpayer.* To effectively influence taxpayer behaviour, a tax authority needs to understand more about what drives behaviour. Understanding behaviour is the first step towards influencing behaviour. Within this context *trust* plays an important role. A tax authority that applies a comprehensive CRM strategy, trusts that (most) taxpayers are willing to fulfil their tax obligations (compliance). To achieve the desired compliance, it is also important that taxpayers have trust in the tax authority.

The unprecedented disruption created by the COVID-19 pandemic, changed behaviour in a lot of aspects of our lives, and therefore, in taxpayer´s behaviour. Tax administrations will have to learn and to understand these changes in taxpayer´s behaviour to manage compliance risks adequately during and after the COVID-19 pandemic. The outcome of e.g., the relief measures undertaken by governments due to COVID -19 and the impact of COVID-19 on compliance behaviour of taxpayers' need to be evaluated. To influence's taxpayer behaviour or maintain existing levels of compliance in crises, tax administrations need to reconsider and decide upon the right mix of treatment measures, considering the changing circumstances taxpayers and tax administrations operate in.

Paragraph 2.2 briefly describes the general principles of understanding taxpayers' behaviour. Paragraph 2.3 gives an overview of the main drivers that influence taxpayer behaviour. Paragraph 2.4 discusses the way taxpayers can be placed on a compliance spectrum according to the drivers that influence taxpayer behaviour. The trust that taxpayers have in the tax authority is important, but it is not only the trust of the taxpayer that influences compliance. The trust (or distrust) tax administrations have in their taxpayers also plays an important role. Paragraph. 2.5 examines both sides of trust. Paragraph 2.6 discusses the way the insights on taxpayer behaviour can be incorporated in the CRM strategy of the tax administration. Paragraph 2.7 discusses the opportunities and challenges that a shift to a more digital interaction with taxpayers brings.

2.2. Understanding taxpayer behaviour

To choose the most efficient (low costs) and effective (best outcome) way to achieve the optimal level of tax compliance, it is necessary to consider the taxpayer behaviour, the causes of that behaviour and the methods of influencing that behaviour. To effectively influence taxpayer behaviour, we must understand more about what drives behaviour.

Research into tax compliance and taxpayers' behaviour started to attract attention in 1972 because of the research conducted by Allingham and Sandmo.[22]

[21] Disclaimer: Applying behavioural insights successfully depends on the context of the behaviour you want to influence. What works in one situation or member state might not work in another, for example due to differences in tax morale. Cultural or group characteristics must be considered. Some research into context and behaviour will always be necessary, as well as testing of the assumptions on causes of behaviour and the right treatment options.

[22] Allingham, M. G., Sandmo, A. (1972). Income Tax Evasion: A Theoretical Analysis. University of Pennsylvania, Philadelphia, USA and The Norwegian School of Economics and Business Administration, Bergen, Norway.

The hypothesis of their model was that taxpayers make rational and economical decisions to pay or evade tax, based on a calculation of the risk of detection and the punishment on tax evasion. Consequently, the researchers concluded that a higher risk of detection and/or higher sanctions leads to less tax evasion. Based on this, tax administrations started to use so-called *deterrence strategies* (in which the traditional enforcement instruments, i.e. audits and sanctions, played an important role) to address compliance risks.

Research in later years showed that taxpayers' behaviour did not seem to be as economical and rational as presumed. Deterrence strategies alone appeared to be unable to efficiently achieve the desired levels of compliance for all taxpayers. Therefore, tax administrations also started to use so-called *advice and persuade strategies to stimulate compliance*. These strategies seek to prevent mistakes from happening rather than punishing mistakes made. They focus on cooperation between tax authority and taxpayers.[23] Research also shows taxpayers are not as rational as previously assumed. A significant aspect of behaviour is not the result of rational or logical thought processes, but the result of unconscious decision-making processes. These processes are driven by subconscious routines (heuristics) and biases. These are shortcuts the brain develops to facilitate decision making that saves the brain energy for processes where conscious and rational thought is needed. Research has uncovered scores of these subconscious routines and biases. In **Annex 2** the heuristics and biases that are most relevant for taxpayer behaviour are described. These heuristics and biases could in fact even result in decisions that are not optimal or even positive for the taxpayer. When tax administrations want to influence taxpayer behaviour, they have to take into account that a lot of the decisions taxpayers take are influenced by these subconscious routines and biases.

Most of the research on (taxpayer) behaviour concerns individuals. More recently general research on behaviour of enterprises has been done[24], but there isn't much literature and no empirical research specific for tax behaviour of enterprises yet. In research a distinction between small (or medium) entrepreneurs and large enterprises is made. The former group is assumed to behave similarly to normal (self-declaring) taxpayers, because the company or entrepreneur is mainly composed of individuals.[25] For large enterprises, it is assumed that non-economical motives for behaviour are not relevant. For example, it is assumed that firms are not influenced by social effects like guilt or shame.[26] More research is needed to prove or disprove these and other assumptions about the behaviour of large enterprises.

Over the time, the focus of the tax administrations shifted towards comprehensive CRM strategies in which the above-mentioned views are applied.

2.3. Main drivers of taxpayer behaviour

Research on behavioural sciences led to the development of many behavioural frameworks. One of them is the general behavioural framework of Michie (that can also be applied to taxpayer behaviour).[27] This so-called COM-B model states that *Capability*, *Opportunity* and Motivation (COM) influence Behaviour. Capability is an individual's psychological and physical ability to engage in an activity. It includes having the necessary knowledge and skills. Motivation is

[23] Gunningham, N. (2010). 'Enforcement and compliance strategies' in Baldwin, R, Cave, M & Lodge, M (eds.), The Oxford Handbook of Regulation, Oxford University Press, Oxford, chapter 7, 120-145.

[24] Van Der Hel-Van Dijk L., & Sigle, M. (2015). Managing compliance risk of large taxpayer. eJournal of Tax Research, Vol.13.

[25] Weber, T.O., Fooken, J., & Herrmann, B. (2014). Taxation paper No 41: Behavioural Economics and Taxation, European Commission.

[26] Hibbs, D.A., & Piculescu, V. (2010). Tax Toleration and Tax Compliance: How Government Affects the Propensity of Firms to Enter the Unofficial Economy. American Journal of Political Science, Vol. 54, 18-33.

[27] Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. Implementation Science, 6, [42].

defined as all those brain processes that energise and direct behaviour, not just goals and conscious decision making. This includes habitual processes, emotional responding as well as analytical decision making. Opportunity is defined as all the factors that lie outside of the individual that make the behaviour possible or prompt it. Many tax administrations, for example in the UK and in the Netherlands, use models that have an overlap with the elements of this general behavioural model.

The text below discusses in more detail the most important aspects of these drivers of behaviour that are particularly relevant for taxpayers' behaviour.

- *Capability: are taxpayers able to fulfil their tax obligations?*

This driver of behaviour contains all the aspects that relate to the individual capability of taxpayers to register as a taxpayer, to file their returns, to pay their taxes and fulfil other obligations that they might have to a tax administration. The most important aspects of this driver of behaviour are *the degree of knowledge of the taxpayers, skills of the taxpayers and self-efficacy* (taxpayers' feelings about their ability to comply). In **Table 1** the aspects are translated into questions that can be helpful when ascertaining the capability of taxpayers to fulfil their obligations.

Table 1: Aspects of capability

ASPECTS OF CAPABILITY	RELATED QUESTIONS
Knowledge of taxpayers[28,29]	• What do taxpayers know about their tax obligations? • Do they know where to find the relevant information? • Do they understand what they must do?
Skills of taxpayers	• What skills do taxpayers need to be able to comply? • Do the taxpayers have the necessary skills to comply?
Self-efficacy of the taxpayer	• Do taxpayers feel able to comply to with the obligations of the tax administration? • Do taxpayers perceive barriers that prevent them from complying?

- *Motivation: are taxpayers willing to comply?*

This driver is about the varying motives taxpayers must be willing or unwilling to comply. These motivations can be *intrinsic* or *extrinsic*. *Intrinsic motivation* involves engaging in a behaviour because it is personally rewarding; performing an activity for its own sake rather than the desire for some external reward. Essentially, the behaviour itself is its own reward.[30] Important intrinsic motivations that can influence taxpayers' behaviour are for example: the personal norms and values that shape how taxpayers view themselves and the way they want to act, the trust they have in tax administrations and the perceived fairness of the tax administration. The resistance they feel if they are obligated to do things or to change things is also important. *Extrinsic motivation* means that people are motivated to perform a behaviour or engage in an activity to earn a reward or avoid punishment.[31] In this case, you engage in behaviour not because

[28] Loo, E. C., McKerchar, M., & Hansford, A. (2009). Understanding the compliance behavior of Malaysian individual taxpayers using a mixed method approach. Journal of the Australasian Tax Teachers Association, 4(1).

[29] Saad, N. (2014). Tax knowledge, tax complexity and tax compliance: Taxpayers' view. Procedia-Social and Behavioral Sciences, 109, 1069-1075.

[30] Ryan, Richard M., Deci, Edward L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. Contemporary Educational Psychology. 25 (1), 54-67.

[31] Ryan, Richard M.; Deci, Edward L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. Contemporary Educational Psychology. 25 (1), 54-67.

you enjoy it or because you find it satisfying, but to get something in return or avoid something unpleasant. Extrinsic motivations that are important for taxpayer behaviour are for example the expectations of their social peers (social norms) and the perceived chance of detection and sanctions (deterrence). A more in-depth explanation on intrinsic and extrinsic motivations can be found in **Annex 3**. In paragraph 2.6 the interaction between the trust that taxpayers have in tax administration and the trust that the tax administration has in the taxpayers and the importance of this interaction for compliance is explained.

Table 2 lists some of the questions that are helpful in identifying which intrinsic and extrinsic motivations are influencing taxpayers.

Table 2: Aspects of motivation

MOTIVATION	RELATED QUESTIONS
Intrinsic motivation	• Which norms and values do taxpayers have regarding tax and paying tax? • How important is adhering to rules and laws for the taxpayers? • Do taxpayers 'believe' in paying taxes? • Do taxpayers feel that paying taxes is something you should do or not do? • Do taxpayers feel morally obligated to pay taxes? • Do people feel guilty if they make a mistake or fail to fulfil their tax obligations? • How important do taxpayers find it to pay their fair share of taxes? • Do taxpayers have trust in the tax administration? • Do taxpayers perceive the tax administration as just and fair? • Do taxpayers feel resistant to proposed changes? • Do people feel that the tax administration affects their freedom or autonomy?
Extrinsic motivation	• Which norms and values about tax are important in the social peer groups of the taxpayers? • How should people act and behave according to the social peer groups of taxpayers? • Do taxpayers perceive that (intentional) mistakes will be easily discovered by the tax administration? • Do taxpayers perceive that the chance to be audited by the tax administration is high? • Do taxpayers perceive that the change for sanctions is high? • Which negative (punishment) or positive (rewards) consequences does the taxpayer estimate for not following the rules? • Do taxpayers fear loss of status or social stigmatisation if they don't follow rules and get sanctioned?

- *Opportunity: are the taxpayers given the opportunity to comply (or not to comply)?*

This driver pertains to the opportunities (or the environment) that exist for taxpayers to (not) comply with tax obligations. These opportunities are present in the way the *tax legislation, the systems and procedures of the tax administrations* are designed and implemented. These designs can result in unintentional or in intentional errors (evasion of tax). Helpful questions related to the aspects of opportunity for compliance and non-compliance are described in **table 3**. The most important aspects of this driver are the complexity of the legislation and the complexity of the tax system and procedures taxpayers must use to fulfil their obligations. It is about how difficult (or easy) it is to understand and comply with legislation, the ways taxpayers have access to information on their obligations, and how to fulfil them, the way they can file their returns and pay their taxes, and the assistance that is made available.

Table 3: Aspects of opportunity

ASPECTS OF OPPORTUNITY	RELATED QUESTIONS
Complexity of legislation[32,33]	• Can most people understand the tax legislation, or are the rules complex and not easy to comprehend? • How much knowledge and skills are needed to be able to comply with legislation? • What is done to help taxpayers comply with legislation?
Systems and procedures of the tax administration	• Are the systems (forms, IT-systems, payment systems, etc.) easy to understand? • Are there any barriers that might prevent people from being able to use the systems? • Are the tax rules, systems and processes designed to guide and assist the taxpayer to comply (compliance by design solutions like paying taxes at the source)? • Are the systems designed in such a way that people are automatically directed towards the right behaviour (compliance by design solutions like online prefilled tax returns)? • Do tax administrations make it easy to comply or do they require a lot of activities or actions from taxpayers to be able to comply? • Do tax systems leave opportunity for unintentional or intentional errors?[34] • Is assistance available to help taxpayers to prevent making errors? • Do the tax systems incorporate barriers to prevent tax evasion?

Often it is not one single driver, but the interaction between drivers that results in the compliant or non-compliant behaviour. And this behaviour and the results of this behaviour for the taxpayer can also influence the drivers that determine future behaviour of the taxpayer. The way the drivers and behaviour interact is illustrated in **figure 5**.

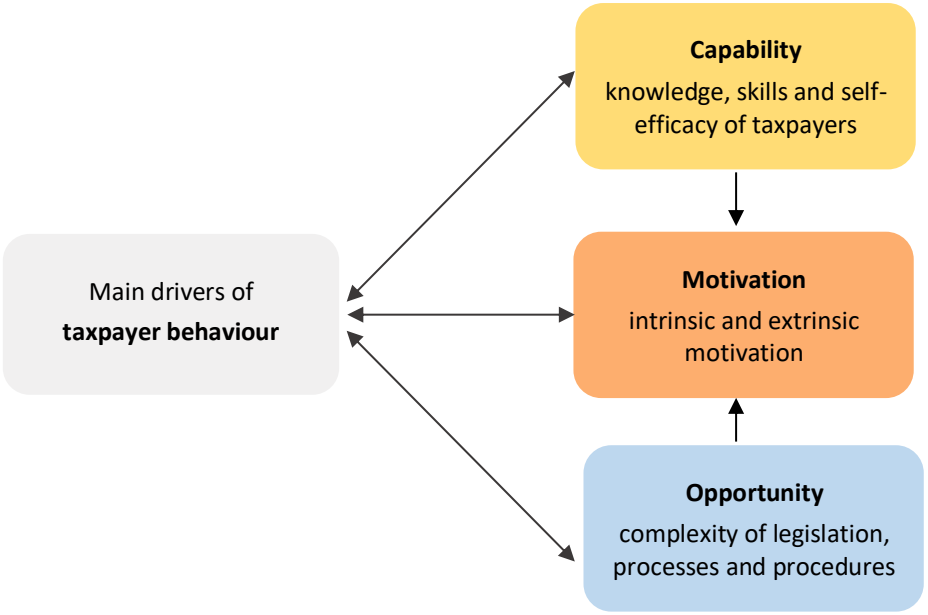

Figure 5: COM-B model for understanding behaviour: interaction between drivers of behaviour and behaviour

[33] Cox, S. P. & Eger, R. J. I. (2006). Procedural complexity of tax administration: The road fund case. Journal of Public Budgeting, Accounting and Financial Management, 18(3).

[33] Richardson, G. (2006). Determinants of tax evasion: A cross-country investigation. Journal of International Accounting, Auditing and Taxation, 15(2).

[34] Team, B. I. (2012). Applying behavioural insights to reduce fraud, error and debt. Cabinet Office, London, 185.

2.4. Taxpayer behaviour on a compliance spectrum

The perspectives on the causes of behaviour have shifted from the belief that taxpayer behaviour is economically calculated and entirely rational to the recognition that behaviour is influenced by a broad range of drivers and can be irrational. The views on compliance have shifted as well from a simple dualistic black and white range of compliance and non-compliance to a continuum of compliance, based on taxpayers who behave 'voluntarily' compliant to taxpayers who behave deliberately non-compliant (**figure 6**).[35]

A merge of the compliance continuum with the drivers that influence behaviour results in a compliance spectrum which can be used to categorise *taxpayer behaviour*. This way of viewing taxpayers' behaviour can be helpful in deciding which treatment they should receive. The spectrum ranges from voluntary compliance to intentional non-compliance depending on the willingness of taxpayers to comply (their motivation) and the abilities of taxpayers (i.e. do they have the capability to comply/does the tax administration or the tax system give enough opportunity to comply). As an example, the administrative burden that taxpayers experience in fulfilling their obligations can also play a role in the level of tax compliance.

Example 52: Reducing the administrative burden and increasing tax compliance (Croatia)

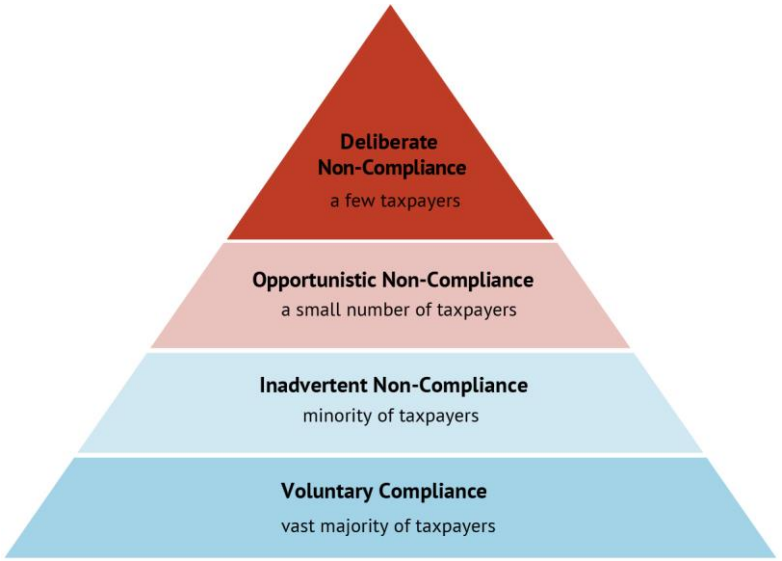

Figure 6: Compliance Continuum[36]

The different degrees of compliances that result from these combinations are shown in **figure 7**.[37]

[35] Hamilton, S. (2012). New dimensions in regulatory compliance – building the bridge to better compliance. Assistant Deputy Commissioner of Risk Strategy, Australian Taxation Office, 10th International Tax Administration Conference.

[36] Adapted from Ayres and Braithwaite (1992). Responsive Regulation: Transcending the deregulation debate. New York: Oxford University Press.

[37] The size of the quadrants is a rough estimate and may vary country by country and/or taxpayer segment by taxpayer segment.

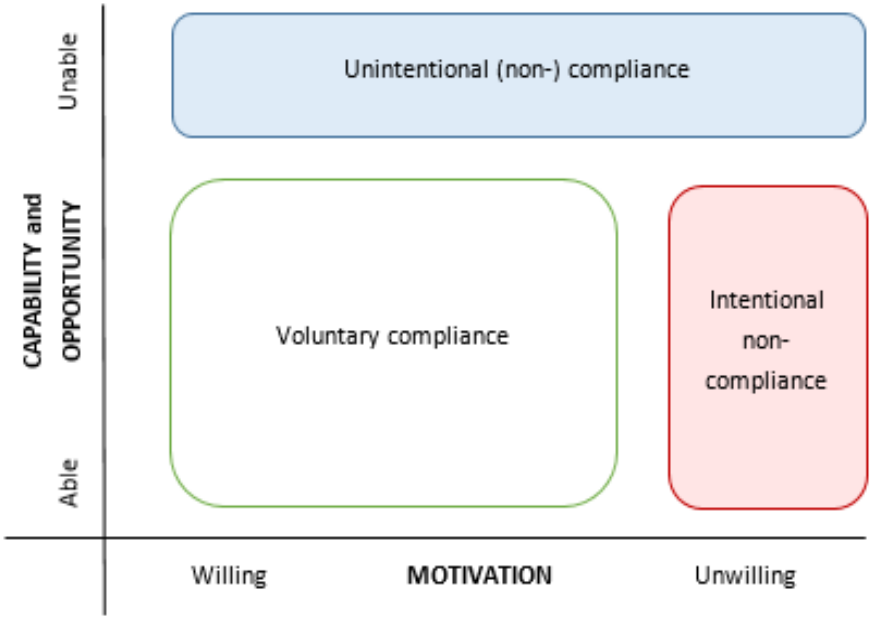

Figure 7: Compliance matrix

Explanation of figure 7:

The quadrants 'able and willing' and 'able but unwilling' are rather straightforward and lead to the extreme positive and negative on the compliance spectrum: voluntary compliance and intentional non-compliance. These taxpayers are capable and use the opportunities presented to them. In case of willingness to comply, this leads to voluntary compliance and in case of unwillingness this leads to intentional noncompliance. A special group of taxpayers within this quadrant are the fraudsters, who are very unwilling to comply, able to (not) comply and always on the lookout for new opportunities to evade taxes.

The quadrants 'willing but unable' and 'unwilling and unable' are more ambiguous because while the taxpayers are not capable and do not make use of opportunities or are not aware of opportunities, they still unintentionally get it right sometimes. However, it also leads to unintentional non-compliance when taxpayers want to comply but are not able to. Moreover, it can lead to unintentional compliance if taxpayers are unwilling to comply, but not able to find ways not to comply. Here comes the earlier mentioned factor 'opportunity' into play: a properly designed tax system automatically facilitates good tax behaviour and makes it impossible for mistakes and errors to happen. By designing systems in such a way that the desired behaviour follows automatically, the (un)willingness of taxpayers becomes less relevant and there will be less (deliberate) non-compliance. An example is the pre-filled tax return as it is used e.g. in Greece and Portugal.

Example 5: Pre-filed income tax and VAT return (Greece)
Example 6: SAF-T - A Tool for e-Audit and Compliance (Portugal)

2.5. Trust

Trust is an important element in achieving compliance. This trust means the trust that taxpayers have in the tax administration, the trust that tax administrations have in taxpayers and the interaction between these two kinds of trust.

2.5.1. Taxpayers trust in the tax administration

Trust in (tax) authority plays an important role in compliance behaviour of taxpayers.[38, 39, 40] This trust is a prerequisite for the willingness to accept decisions made by the tax administration. This acceptance leads to a higher level of compliance.[41] An important factor that influences trust in the tax administration is the way taxpayers perceive fairness of the enforcement of rules (or perceived justice).

Different areas of justice influence the perceived justice:

1. *procedural justice* refers to fairness of the process that leads to the decisions a tax administration makes.[42] This fairness depends on a mix of different elements like accuracy, consistency, impartiality, verifiability, and the possibility to correct decisions.[43, 44] Another important element is the possibility to be involved in the process of decision making.[45]
2. *interactional justice* refers to the degree to which people affected by decisions are treated with dignity and respect.[46] Sometimes this is regarded as an aspect of procedural justice.[47]
3. *distributive justice* refers to the fairness of the distribution (of taxes in this case) between groups in society. Research has shown that if taxpayers perceive the distribution of taxes as fair, they are more willing to comply.[48,49]

Justice must be perceived to exist in all these areas for taxpayers to perceive the tax system as fair. This perception will increase the willingness to comply. All areas are therefore important, but tax research shows that *perceived procedural justice* is of particular importance.[50] If the procedures are perceived as just, fair and legitimate, the authority will be perceived as just and fair. The decisions of the authority, that is to say the outcome of the procedures, will therefore also be perceived as more just and fairer. An individual may thus perceive an authority as just and fair even if it has made a decision that goes

[38] Murphy, K. (2004). The role of trust in nurturing compliance: A study of accused tax avoiders. Law and human behavior, 28(2).

[39] Scholz, J. T., & Lubell, M. (1998). Trust and taxpaying: testing the heuristic approach to collective action. American Journal of Political Science, p.42.

[40] Goslinga, S., van der Hel-van Dijk, L., Mascini, P., & van Steenbergen, A. (Eds.) (2019). Tax and Trust - Institutions, Interactions and Instruments, Eleven International Publishing gives an in-depth overview of complexities of the relation between tax, trust and compliance.

[41] Tyler, T. R. (2001). Trust and law-abidingness: A proactive model of social regulation. Boston University Law Review, 81(2).

[42] Lind, E. A., & Tyler, T. R. (1988). The social psychology of procedural justice. New York: Plenum Press. In Y. Cohen-Charash, Y. & P. E. Spector (2001). The Role of Justice in Organizations: A Meta-Analysis. Organizational Behavior and Human Decision Processes, p. 86.

[43] Makkai, T., & Braithwaite, J. (1996). Procedural Justice and Regulatory Compliance. Law and Human Behavior, 20.

[44] Leventhal, G. S. (1980). What should be done with equity theory? In K. J. Gergen, M. S. Greenberg, & R. H. Willis (Eds.), Social exchange: Advances in theory and research, New York: Plenum.

[45] Van Dijke, M., & Verboon, P. (2010). Trust in authorities as a boundary condition to procedural fairness effects on tax compliance. Journal of Economic Psychology, p. 31.

[46] Schermerhorn, J. R., Hunt, J. G., & Osborn, R. N. (2005). Organizational Behaviour. John Willey & Sons. Inc.: Hoboken, NJ, USA.

[47] Greenberg, J., & Cropanzano, R. (1993). The social side of fairness: Interpersonal and informational classes of organizational justice. Justice in the workplace: Approaching fairness in human resource management. Hillsdale, NJ: Lawrence Erlbaum Associates.

[48] Kirchler, E., & Berger, M. M. (1998). Macht die Gelegenheit den Dieb? Einstellungen zu Steuern und Tendenzen zur Steuerhinterziehung. Jahrbuch der Absatz-und Verbrauchsforschung, p. 44.

[49] Kirchler, E. (1999). Reactance to taxation: Employers' attitudes towards taxes. The Journal of Socio-Economics, 28(2).

[50] Kirchler, E., Hoelzl, E. (2006). Modelling Taxpayers Behaviour as a Function of Interaction Between Tax Authorities and Taxpayers. Managing and Maintaining Compliance edited by H. Elffers, P. Verboon and W. Huisman. Legal Publisher, The Hague.

against the individual if the authority acts fairly when dealing with the case. This leads in turn to fewer complaints about the authority's decisions.[51]

A specific aspect of justice is *retributive justice*. This justice refers to the justice that is meted out after an individual has committed a crime. Retributive justice entails that it would be bad to punish more than the crime deserves, the punishment must be in some way proportional to the gravity of the crime.[52]

Since 2018, TADEUS – the Tax Administration EU Summit – addressed as one of the main challenges faced by EU countries in today's era of globalisation and digitalisation the line of action: Trust and Compliance. This line of action is related to fostering trust and enhancing tax compliance levels by providing legal certainty and employing compliance risk management. The project "Enabling building trust and ensuring compliance" is led by the Swedish Tax Administration.[53]

2.5.2. Tax administrations trust in the taxpayer

The trust (or distrust) tax administrations have in their taxpayers also plays an important role in compliance. This is illustrated by the 'cops and robbers' orientation versus the 'service and client' orientation. The first orientation describes the way tax administrations traditionally viewed taxpayers: as 'robbers' that try to evade tax in a setting of 'distrust'. To enforce compliance, audits, fines and 'control' are needed. This orientation leads to taxpayers that feel they are persecuted by the government and that 'flight' is justified. The second orientation describes the view that tax administrations operate in a setting of 'trust' in which they provide a service for society and form that society together with taxpayers. In this orientation administrations focus on services and clients by transparent procedures and a respectful, helpful treatment of taxpayers.[54]

If tax administrations distrust taxpayers, even those willing to comply, and rely on audits and fines to regulate taxpayer behaviour (i.e. applying a deterrence strategy), this will likely result in a non-cooperative climate. Moreover, given the complexity of tax laws and regulations, unintentional errors can occur. In those cases, a harsh response from the tax authority will not motivate taxpayers to put in more effort.[55] In a system primarily based on self-assessment, where taxpayers have to provide information about their income and costs to tax administrations, the motivation and cooperation of the taxpayer are crucial. In such a 'normative' strategy, internal or personal norms and social norms play an important role. Providing information, services and assistance by tax administrations helps taxpayers fulfil their obligations and signals trust from the side of the tax authority.[56]

At the same time, tax administrations and the socio-political environment that holds authorities accountable understand that citizens and corporations may abuse the trust they are given. In this sense, trust is conditional rather than absolute. This means that tax authorities must continuously manage the balance between control and trust.[57] They need to translate this balance into a treatment mix that enables and stimulates taxpayers willing to comply, while also enforcing compliance when taxpayers are not willing to do so.

[51] Murphy, M. (2002). "Trust me, I'm the taxman": The role of trust in nurturing compliance. Centre for Tax System Integrity. The Australian National University.

[52] Walen, A., "Retributive Justice". The Stanford Encyclopedia of Philosophy (Winter 2016 Edition), Edward N. Zalta (ed.).

[53] Trust and compliance

[54] Kirchler, E., Hoelzl, E., & Wahl, I. (2008). Enforced versus voluntary tax compliance: The "slippery slope" framework. Journal of Economic Psychology, 29(2).

[55] Mendoza, J.P., Wielhouwer, J., & Kirchler, E. (2017). The backfiring effect of auditing on tax compliance. Journal of Economic Psychology, 62, 284-294.

[56] Gangl et al. (2013). How can I help you? Perceived service orientation of tax authorities and tax compliance. Finanz-Archiv Public Finance Analysis.

[57] Goslinga, S., van der Hel-van Dijk, L., Mascini, P., & van Steenbergen, A. (Eds.) (2019). Tax and Trust - Institutions, Interactions and Instruments, Eleven International Publishing.

2.6. Strategies to influence taxpayer behaviour

The previous paragraphs show that taxpayer compliance is the result of the capability, opportunity and motivation of the taxpayer to fulfil their tax obligations. It is also the result of the way the tax administration views the taxpayers and the way the tax authority (inter)acts with the taxpayer.

If a tax administration applies a CRM strategy, the way the administration – as an *organisation* – behaves and interacts with taxpayers is crucial. In CRM the challenge is to logically blend normative and deterrence strategies to a comprehensive CRM strategy. One of the models to support such a 'blended strategy' is the so-called Slippery Slope Framework (SSF).[58] The SSF views power and trust as two interrelated factors that jointly determine the degree and nature of tax compliance. The underlying assumption is that a relatively high level of power (exerted by the tax administration) leads to (feelings of) *enforced* compliance, while a relatively high level of trust results in *voluntary* compliance. However, an imbalance with either too little power or too little trust can lead to a deterioration in compliance (slippery slope). Trust in a tax administration is determined by factors such as experience, transparency, integrity, benevolence, and procedural justice, while power manifest itself through actions like performing (aggressive) audits, imposing sanctions, and implementing penalties. The SSF recognizes that people are motivated in different ways to comply with rules and suggests that the (interaction with the) tax administration can shape taxpayers' motivation to comply with fiscal rules.

Because the actors (taxpayers and tax administration) and their interactions in the SSF model are key, this framework could also be supportive in determining the way tax administrations have to act in a changing context such as the challenges posed by events like COVID-19, which may require a different balance between power and trust.[59]

In their efforts to promote compliance and reduce non-compliance, tax administrations are guided by perceptions of what drives taxpayers' behaviour and consequently which means and measures are most appropriate to influence behaviour in the desired direction. This implies that tax administrations are increasingly integrating approaches designed to automatically encourage taxpayer compliance into their strategies. This complements or replaces the more traditional aspects of auditing, which were historically considered the primary strategy for deterring noncompliance.

The scarcity of available personnel and the developments in the environment of tax administrations make this shift towards strategies that incorporate insights into what drives taxpayers' behaviour even more urgent today. In concurrence with the drivers of behaviour, a strategy should contain (a combination of) the following elements:

- Facilitate taxpayers: make it easier to comply by offering or organising assistance (compliance support) and reducing the effort it takes to fulfil tax obligations.
- Compliance by design: design tax systems and third-party software to prevent errors and mistakes, and include barriers to prevent tax evasion.
- Increase willingness to comply; create positive client interactions, employ principles of trust and fairness in communication, reduce uncertainties, and make use of positive social norms on tax morale.
- Make use of the taxpayer's environment: deploy tax advisors, software developers, and other parties that can assist the taxpayer in fulfilling their tax obligations.

[58] Kirchler, E., Hoelzl, E., & Wahl, I. (2008). Enforced versus voluntary tax compliance: The "slippery slope" framework. Journal of Economic Psychology, 29(2).

[59] Goslinga, S., & van der Hel-van Dijk, L. (2021). Fiscaal Toezicht in tijden van crisis, Tijdschrift voor Toezicht (Boom).

- Use traditional enforcement selectively: in high-risk cases or sectors where compliance is low and auditing can have a positive effect on perceived justice and willingness to comply.

2.7. Interaction with taxpayers in the digital era

The digital era brings new opportunities and new challenges for the interaction with taxpayers. There is a shift towards more digital and less actual face to face or direct contact with taxpayers. The use of new technology in interaction can have both positive and negative influences on behaviour. This area is still relatively new in behavioural science research. Principles relevant to deciding when and how to use new technologies are the distance people feel towards the government and the trust established through interaction. New technologies can either reduce or increase the perceived distance and trust. Offering direct, easily accessible, and efficient digital means of contact that are tailored and offering a greater transparency can decrease the perceived distance and increase trust. Examples of interaction with taxpayers in the digital era are observed in countries such as Portugal, Spain, Italy, Greece and Netherlands.

Example 7: Tool 'Alerts and Mismatches' (Portugal)
Example 8: File a tax return or pay your taxes in one click (A.E.A.T.Spain)
Example 53bis: E-receipts (Italy)
Example 9: myAADE: Direct online payments (Greece)
Example 55: Online direct payment of VAT (The Netherlands)

Technological solutions that are too complex or not accessible for (groups) of taxpayers and decisions based on algorithms that lack transparency can have the opposite effect. These are important considerations when transitioning to more digital ways of interacting with taxpayers. An important issue requiring further research is the strengthening of independent and public institutions in the digital era by enhancing transparency, accountability, and responsibility.[60]

The global COVID-19 crisis has shown the significance of digitalisation in tax administration. Digitalisation e.g. ensures communication with taxpayers and the continuous work of tax administrations during times when physical work in offices is disrupted to protect health. Building on insights in taxpayer behaviour, considerations to improve tax compliance and to generate the necessary tax revenues to deal with the after-effects of the COVID-19 pandemic when it is under control, are: "communication, transparency and justification of measures, access to support, service provision, audits and penalties in case of free-riding, targeted audits, building social norms of cooperation, consideration of framing effects, development of plans and strategies for the future, and anticipation of hindsight biases".[61]

2.8. Influence of COVID-19 on taxpayer behaviour

Covid-19 pandemic crisis has serious impact on the economic environment affecting taxpayers, individuals, self-employed, SMEs and large businesses. Lockdown and social distancing measures undertaken by the governments disrupted production, services and commercial activities in the economies and life of individual of each country and cross border. Tax administrations in EU and globally responding to Covid-19 crisis[62] have undertaken measures to support taxpayers and businesses as a whole or segments affected by pandemic crisis. A number of measures are related to providing additional time for dealing with tax affairs, such as extending filing and tax payment deadlines, remitting penalties and interest, deferring of tax payments, facilitating easier access to debt plans and extending the duration of existing plan, and suspending the debt recovery. Other actions include quicker refunds to taxpayers e.g. by relaxing risk checks

[60] Governing the digital society

[61] Kirchler, E., & Olson, N. Covid-19 outbreak, Governmental measures and psychological impact on tax compliance. June 3, 2020.

[62] CIAT/IOTA/OECD (2020). Tax Administration Responses to COVID-19: Measures Taken to Support Taxpayers. OECD, Paris.

done before making refunds, temporary changes in audit policy and ways to provide quicker tax certainty, enhanced taxpayers services and communication initiatives.

The above short-term measures and actions are expected to influence taxpayer to comply with their tax obligations; e.g. extension of deadline measures give the chance to the taxpayers to file in time their tax returns despite the crisis outbreak or to pay their taxes in more instalments than before crisis. In that way tax administrations are managing the compliance risks of no filing or overdue tax payments.

The questions that arise is how taxpayers' willingness to comply or not to comply is affected by the crises.

Within the 'slippery slope' framework, an attempt to simultaneously study different motives for tax compliance and their relations, voluntary compliance is motivated by trustworthy governments, while enforced compliance is imposed by fear of powerful tax authorities. Evidence from empirical research on SMEs taxpayer behaviour in crisis supports this theory, indicating that trust increases voluntary compliance, while the power of tax authorities increases enforced compliance[63]. According to Kirchler 2020[64], society's behaviour during crises evolves through phases, beginning with "ignorance" of the events, moving to "shock," followed by phases of "rebellion," "depression," and finally "adjustment" to the new situation post-crisis. Throughout these phases, taxpayers' trust in the government and authorities varies, subsequently impacting their willingness to comply. In the initial phases of a crisis, trust in government and tax administration tends to increase, and willingness to comply increases as well, while in the later phases of a crisis, trust in government and tax administrations, as well as willingness to comply, tends to decrease.

The outcome of the measures undertaken by governments due to COVID-19 and their impact in compliance taxpayer behaviour will be evaluated in due course. What is important to have in mind is that tax administrations, to influence compliance taxpayers' behaviour or maintain existing levels of compliance in crises, need to consider and decide upon the right mix of treatment measures; that involves on the one hand trust-building measures that encourage voluntary compliance, and on the other hand tax administration power-building measures that achieve enforced compliance.

[63] Kaplanoglou, G. et al. (2016). Tax compliance behaviour during crisis: the case of Greek SMEs, European Journal of Law and Economics 42, 405-444.

[64] Kirchler, E. (2020). Covid-19 outbreak, governmental measures and psychological impact on tax compliance. Centre for Taxpayer Rights, Washington DC, USA.

3. The Compliance Risk Management Process

3.1. Introduction

When a tax administration establishes its objectives, it encounters (compliance) risks that act as obstacles to achieving those goals. The structured CRM process enables a tax administration to systematically identify, analyse, prioritize, and address compliance risks associated with specific objectives. Subsequently, actions and measures are evaluated to build a learning cycle for efficient and effective CRM.

The stages of the CRM Process, starting with the stage of identification, are illustrated in **figure 8**:

Figure 8: Compliance Risk Management Process

Due to the ongoing digitalisation and technological advances, the stages of the CRM process are likely to become more *interlinked* and take place in *real time*. Digitalisation and technology give tax administrations possibilities to manage compliance (risks) in a better way. As an example, the Portuguese Risk Management Unit (DSGR) has developed a web application to run the CRM cycle in a more effective way.

The CRM Process (**figure 8**) is based on five consecutive stages:

- Stage 1 - **Identification:** compliance risks that potentially act as a barrier to achieving objectives, e.g. compliance, are **identified**
- Stage 2 - **Analysis:** compliance risks identified in the previous stage are **analysed** to assess their riskiness
- Stage 3 - **Prioritisation:** compliance risks analysed in the previous stage are **prioritised**, usually by being systematically weighted and ranked by reasonable criteria
- Stage 4 - **Treatment:** compliance risks prioritised in the previous stage are **treated**, typically by risk transfer, risk reduction or risk covering
- Stage 5 - **Evaluation**: the entire CRM Process is **evaluated**.

While the above stages of the CRM Process have conceptually remained the same since the previous guide, several new developments that have been taking place in the digital era need to be taken into consideration by tax administrations in all stages of the CRM Process. Examples of these developments are the enormous data availability, new technologies, and advanced analytics.
Example 10: Web application for CRM (Portugal)

Tax administrations, however, diverge in the pace of development. Despite the changing environment, CRM is still acknowledged as a solution in simultaneously providing the maximum facilities to those taxpayers who want to comply while

resolutely and rigorously fighting against deliberate non-compliance and tax fraud.[65]

The five stages of CRM process are elaborated in the following sections of this chapter. Par. 3.2 describes the identification stage of the CRM process. Par. 3.3 gives a description of the analysis stage. Par. 3.4 discusses how tax administrations prioritise and make choices based on the available capacity. Par. 3.5 examines various treatment options. Par. 3.6 discusses how tax administrations should evaluate their activities. To be able to describe the innovative path of tax authorities due to digitalisation and technology regarding the administration of taxes and plot their innovative activities, we use the *Three Horizons of Growth model* in each of the stages of the CRM Process (par. 3.2 to 3.6). Several country examples from EU MSs are referred to in each of the stages for practical considerations (see **Annex 1** for an overview).

3.2. Identification of compliance risks

3.2.1. Introduction

The first stage in the CRM Process is *identifying* the risks that potentially act as a barrier to achieving the objective of tax administrations, ensuring tax compliance (**figure 9**).

Tax administrations are operating in a continuously changing environment. Hence, they need to be alert and responsive to compliance risks that impact the tax administration's strategic goals and that, if left unchecked, may impact on its future viability. Risk identification therefore starts with strategic risk identification, e.g. by means of environmental scanning. Ultimately, however, compliance risks must be identified at a level of granularity that allows them to be treated.

Tax administrations may therefore optimise risk identification by focussing on different segments of taxpayers, different types of data, and the use of different technology. *Segmentation* is necessary because the population of taxpayers is generally heterogeneous, consisting of various types such as large businesses, small and medium-sized businesses (SMEs), micro-businesses, and private individuals, each with their own needs and compliance risks. *Data integration*, that is bringing in structured third-party information and blending it with existing data sources, helps tax administrations to create an overview of potential compliance risks in various segments. Cutting-edge CRM systems, built through data integration, can enhance risk identification both "upstream" (i.e. before the tax return is filed) and "downstream" (i.e. after the tax return is filed) and provide tax administrations with powerful modelling capabilities. Various types of *technology* assist tax administrations in structuring the risk identification process to ensure that, in a complex and changing environment, they can timely identify risks at strategic, tactical and operational levels (see par. 3.2.4).

Figure 9: The identification stage

[65] Compliance Risk Management (CRM) Passing Trend or Necessity for the Tax Administrations?

Risk identification is a crucial stage, because if compliance risks are not identified in time, they are unlikely to be identified, and therefore may not be covered by appropriate action. Also, *when* a risk is identified is crucial. In fact, the earlier the risk is identified, the earlier it can get appropriate action. Therefore, a shorter time between detection of a risk and its remedy reduces the risk of non-compliance and non-payment, and, therefore, increases the preventive effect. The importance of identifying a risk in time is highlighted below:

IMPORTANCE OF RISK IDENTIFICATION

Identifying a risk helps in better planning as to how to address this risk

Not identifying a risk means that the opportunity to address this risk is lost

Early identification of risk probably leads to earlier attention and prevention to this risk

The output from the risk identification stage is the 'overview of potential compliance risks' that shows e.g. segments of taxpayers, economic sectors and focus areas (that cross segments) where risks are expected. In the past, the overview of potential risks was held as a document or a database on a computer. However, with the advent of new technologies and process automation (as discussed in paragraph 4.3), organisations now have access to tools, such as software solutions, that enable a comprehensive, dynamic, and operational overview of risks. This overview is ready to be analysed in the next step of the CRM process. For example, the Spanish tax administration developed a software tool based on big data technology, HERMES, that allows to identify and analyse taxpayers' risks.

Example 11: Risk Identification and Risk Analysis with use of "Hermes" (Spain)

In the following sections, risk identification is described in more detail, providing an insight into the impact of digitalisation on risk identification (par. 3.2.2), describing basic genres of compliance risks (par. 3.2.3), and the way these risks could be identified (par.3.2.4), including different levels of identification (par. 3.2.4.1), the different techniques of identification (par. 3.2.4.2), and the sources for risk identification (par. 3.2.4.3).

3.2.2. Risk identification and digitalisation

As stated, the world has become more digitalised. Digitalisation of information, new business models, technology using data analytics, data processing, and process automation affect the way the risk *identification* stage is now performed.

Using the *Three Horizons model*, we observe three phases of innovation that tax administrations have adopted in their organisations for risk identification (**table 4**). In the last decade, tax administrations have had access to an abundance of data ready to be used for the identification of compliance risks. Simultaneously, the adoption of new technologies and algorithms has the potential to make the identification stage more efficient and effective.

The three stages of development of the Three Horizons model, including (part of) the examples are elaborated in paragraphs 3.2.3 and 3.2.4.

Table 4: Three Horizons Model of risk identification

HORIZON	EXAMPLES
FIRST HORIZON • Integration of data from e.g. web-platforms, open sources, or other tax administrations • Making use of social media to identify risky taxpayers • Making use of AI (algorithms) to develop risk models	**Examples first horizon** • Example 11: Risk Identification and Risk Analysis with use of "Hermes" (Spain) • Example 13: Use of algorithms: APPLE – learning scheme (Italy) • Example 14: Obtain data from digital platforms (Denmark) • Example 15: Obtain data from rental housing platforms (Spain) • Example 16: Prefilled returns with data obtained from digital platforms (Estonia).

	• Example 17: Obtain data from Sharing economy platforms (Finland) • Example 18: WEB scraping application (Lithuania) • Example 19: Use of Third-party Data (Denmark) • Example 20: Renta Web software (Spain) • Example 21: Payment Risks (Spain) • Example 22: Compliance map (The Netherlands) • Example 29: Tax Gap Example (Italy)
SECOND HORIZON • Making use of AI to get real-time signals • Horizon scanning • Making use of predictive modelling	**Examples second horizon** • Example 51: Uplift Model for campaigns to move taxpayers online (Ireland) • Example 23: Use of new technology to predict taxpayer compliance (Spain) • Example 24: Real time identification risks Virtual Cash Register (Slovakia) • Example 25: Macro-environmental analysis (The Netherlands) • Example 26: Real-time insight for debt collection (The Netherlands) • Example 27: "Comparison with Sector" (Spain) • Example 28: Risk Ratios – Ranking (Malta) • Example 49: Project Analysis, Modelling and Risk Management System (iMAMC) (Lithuania) • Example 30: Virtual assistant tools for VAT and Censuses (Spain) • Example 31: Chatbox TAXANA (Slovak Republic)
	• Example 59: YouTube Channel (North Macedonia) • DLT technology (no practical example)[66]
THIRD HORIZON • Real time identification of risks with focus on transactions rather than on the tax return	**Examples third horizon** • In-memory data base technology • Machine learning 2.0 • Advanced analytics focused on prescriptive analytics

3.2.3. Different types of risks

Compliance risks can be categorised under the following four main categories:

- *Register Risk*: risk that tax yield is reduced by non-registration or incorrect registration
- *Filing Risk*: risk that tax yield is reduced by taxpayers not filing their returns by the due date
- *Declaration Risk*: risk that tax yield is affected because of incorrect amounts shown on the tax return by error or deliberate act
- *Payment Risk*: risk that tax yield is reduced by non-payment of tax assessments.

These main categories are explained below:

Register risk

The register risk comprises the following risks:

- *Taxpayers that are required to register but do not register*
  This category consists of those taxpayers who fulfil the requirements to register but fail to do so. Third-party data can be useful to identify such

[66] Blockchain for tax compliance

taxpayers. For example, the Italian Revenue Agency designed a tool – APPLE – to cross-check all internal and external data available in the Tax Register (e.g. data on ownership of commercial vehicles) in order to detect undeclared businesses.

Example 13: Use of algorithms: APPLE – learning scheme (Italy)

Furthermore, the so-called 'sharing economy' has resulted in private persons engaging in business activities, such as renting out accommodations (wholly or partly, through short-let or long-let), using their personal cars as taxis, or acting as property agents through specifically created online platforms. Individuals involved in these types of businesses often do not register because they are unaware that they are acting as entrepreneurs or believe that their business activities will go undetected. Identification of non-registration (and/or non-reported income) can be handled, for example, by obtaining data from platforms like Airbnb, Revolut and taxpayers' websites (e.g. via social media) etc. Indeed, several Member States, such as Denmark, Spain and Estonia, entered agreements with Airbnb to obtain information regarding income from rentals.

Example 14: Obtain data from digital platforms, (Denmark)
Example 15: Obtain data from rental housing platforms (Spain)
Example 16: Prefilled returns with data obtained data from digital platforms (Estonian)

Moreover, the Finnish and the Lithuanian Tax Administrations use web scraping techniques to get information from digital economy platforms.

Example 17: Obtain data from Sharing economy platforms (Finland)
Example 18: WEB scraping application (Lithuania)

- *Taxpayers who are not entitled to register but who are registered*
  Within this category, the full range of taxpayers can be found, ranging from 'carousel' fraudsters and classic repayment frauds to potentially compliant taxpayers who, by an act of error or omission, have remained registered when entitlement ceases.

- *Taxpayers who are registered incorrectly by the tax administration*
  Errors in the quality of data held by the tax administration can lead to incorrect registration of taxpayers. For example, various MSs adopt different thresholds for VAT registration.[67] Consequently, taxpayers who incorrectly register with a low sales threshold can be subject to lower requirements for VAT purposes, potentially resulting in a loss of VAT.

Table 5 contains some examples related to the register risk.[68]

Table 5: Examples of Register Risk

REGISTER RISK	DESCRIPTION
Non-registered businesses	Businesses or private persons that act as a business that intentionally or unintentionally do not register with the tax administration for either income tax or VAT (although they may still register with other agencies or service providers).
Identity Fraud	Persons who make use of fake identities to avoid tax liabilities or to claim refunds due to others. Also commonly used to continue to claim benefits while working.
Phoenix Companies	Companies that are created with the intention of becoming insolvent before paying tax and other bills (with the business being transferred but not the debts). Similarly, companies may strip assets and disappear prior to paying tax due.

[67] VAT Thresholds as at 1st January 2021

[68] Adapted from OECD report (2017). Shining Light on the Shadow Economy: Opportunities and Threats, page 10, Table 1.1.

Ghosts **(Non-registered persons)**	Those unknown to the tax administration, never having registered for tax. Examples may be some informal market traders, day or seasonal labourers, those providing domestic services and those carrying out serious crimes.
Employment fraud	Businesses who do not register workers with the tax administration or requiring such registration as a condition of employment; not complying with requirements to withhold tax or social security liabilities; employing illegal workers – for example those without a permit or underage; not carrying out identity checks; paying less than required minimum wages etc.

Filing risk

Taxpayers are required to file their tax returns by a due date. This applies to both the annual (corporate) income tax declaration (whether pre-filled or otherwise) and the VAT returns. Some taxpayers may file these declarations after the specified due date, or, in some instances, never file them at all. The reasons for such late submission or non-submission may vary from business and other pressures, and in some instances, a deliberate decision not to file the due declarations. Therefore, this creates what is called the filing risk, i.e. the risk that tax will be lost because of:

- *late filing:* taxpayers not filing their return by the due date
- *non-filing:* taxpayers not filing their returns at all

Declaration risk

The declaration risk relates to the risk that tax revenue will be lost due to taxpayers submitting incomplete or incorrect declarations (either intentionally or by error) in their tax returns. As discussed in Chapter 2, there are many factors affecting the behaviour of taxpayers leading to (not) correctly declaring their tax due. In the last decade, tax administrations have available an extensive amount of information ready to be used for the identification of risks of non-compliant behaviour of taxpayers. A large number of tax administrations, for example the Spanish Tax Agency and the Danish Tax and Customs Administration, make use of information from digital web platforms, and employ algorithms to identify hidden income and tax it in time via e.g. pre-filled tax returns.

Example 19: Use of third Party Data (Denmark)
Example 20: Renta Web software (Spain)

In **table 6** some examples related to the declaration risk are mentioned.[69]

Table 6: Examples of Declaration Risk

DECLARATION RISK	DESCRIPTION
Undeclared (business) income	Undeclared (business) income may arise from businesses or sole traders who undeclared e.g. cash sales or income generated via the sharing economy to those which engage in large scale fraud.
Under-reported sources of income	Under-reported sources of income from businesses or sole traders which skim off some cash sales or income generated via the sharing economy to those which engage in large scale fraud. Also hiding income and assets abroad is another way of under-or non-reporting of sources of income.
Inflated costs	Businesses who inflate tax deductible expenses, for example using false receipts or invoices or collusion with others.

[69] Adapted from OECD report (2017), Shining Light on the Shadow Economy: Opportunities and Threats, page 10, Table 1.1.

Payment risk

Payment risk relates to the risk that tax will be lost because of:

- *Late payment:* taxpayers who do not pay the amounts due on their tax returns or tax assessments within the specified period
- *Non-payment:* taxpayers who do not pay the amounts due on their tax returns or tax assessments

Payment risk and filing risk could be closely related but it is important to analyse them separately since the treatments of these risks may vary. In times of economic recession, it is especially important to manage taxpayers' debts and to avoid accumulation of debts. A model of risk payment based on the payment behaviour of taxpayers has been developed by the Spanish Tax Administration to identify tax debtors' behaviour patterns.

Example 21: Payment Risks (Spain)

3.2.4. The risk identification diagnostic model

Risks can be identified and described at different levels, using either *top-down techniques*, such as macro-economic analysis, or by *bottom-up techniques*, such as case-based risk assessment systems.

The risk identification diagnostic model[70], as illustrated in **figure 10**, is a basic model for tax administrations to perform risk identification, and give insight in the various levels of identification. The model illustrates how *different levels* (e.g. the whole population of taxpayers, various segments, different types of industry or risk area), *sources of identification*, and *technology* come together in a structured identification process.

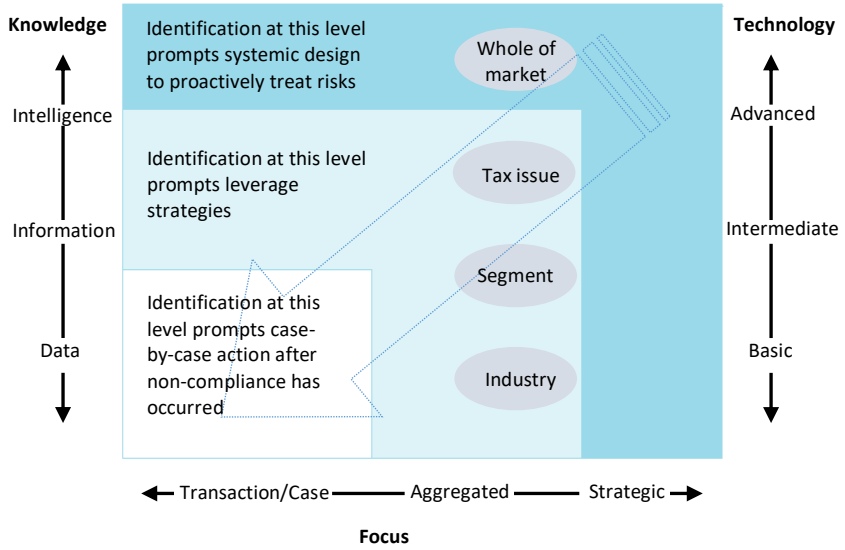

Figure 10: Risk Identification Diagnostic

3.2.4.1. Different levels of identification

One way of identifying compliance risks and keeping an overview of the whole population of taxpayers is to combine different levels of identification of compliance risks, starting at a 'whole population' (high) level and drill down to a detailed, taxpayer level.

[70] This figure is a copy of figure 2.1 from page 21 of OECD Compliance Risk Management Guidance Note (Oct 2004) Risk Identification Diagnostic.

High level identification can start with a *horizon or environmental scan* (see par. 3.2.4.3). Such a scan is a framework used to understand the external environmental factors and the issues that may impact a tax administration. A *general overview of groups/segments of taxpayers with different characteristics* e.g. large businesses, SME's, microbusinesses and private individuals, involved in *different types of taxes* and *different types of (compliance) risks* at a macro level in the various segments can be helpful at an early stage because it provides insight without too many details (par. 3.2.4.3). Other macro levels of identification are possible, such as regional differences. The macro identification provides the direction for more detailed identification of compliance risks. The Netherlands uses a so-called *Compliance Map* which categorises the total amount of tax revenue received, based upon the 'level of assurance'. This insight is important to know the overall risk that a tax authority will not receive the tax revenues if it does not make service, supervision or enforcement efforts. Dashboards with available data and expert estimations are the basis for this type of categorisation.
Example 22: Compliance map (The Netherlands)

Medium level identification is based upon a further analysis of the high-level identification, as (compliance) *risks related to a segment of taxpayers or* a *risk area*. Something to keep in mind is the difference between taxpayer behaviour and risky activities. Taxpayers can exhibit different levels of compliance, and certain activities may carry a higher level of risk than others. Therefore, risk identification will always refer to both elements.

- *Risk area*: A risk area is a collection of connected risks, e.g. risks referring to turnover or to a specific part of tax legislation. Different risk areas can be identified and summarized in a digital (compliance) risk register or a national (compliance) risk database. Risk areas can e.g. focus on hidden economy, unregistered enterprises, illegal imports, economic crimes et cetera.[71]
- *Taxpayer segmentation*: Taxpayers with similar characteristics and behaviour can be grouped together for identification and categorisation of compliance risks related to this group (see par. 3.2.4.3).

The detailed level of identification leads to identifying individual taxpayers, e.g. a list of taxpayers with an expected compliance level and an overview of the related risks. Tax administrations make use of advanced predictive modelling and algorithms to identify risks or mistakes in income tax returns of taxpayers, citizens or businesses.
Example 51: Uplift Model for campaigns to move taxpayers online (Ireland)

Artificial intelligence, machine learning, and algorithms are increasingly being employed by several tax administrations to predict taxpayer behaviour and identify potential compliance risks for a proactive treatment. Spain, for example, is using such technology with the aim to detect taxpayers that are likely to fail with their payment obligations.
Example 23: Use of new technology to predict taxpayer compliance (Spain)

3.2.4.2. Techniques of risk identification

Risks can be identified and described at different levels, as mentioned in the previous paragraph, using different techniques, including *top-down* approaches such as macro-economic analysis, and *bottom-up approaches* such as case-based risk assessment systems.

Top-Down approach (or macro-economic analysis)

Top-down or macro approaches are estimation methods that allow deducing compliance risk estimates mainly from the use of aggregate indicators. Aggregated data come, for example, from National Accounts or databases containing aggregated intra-community transactions, or from internal administrative sources such as data from tax declarations. Since these approaches apply macro data, an exact and accurate estimate is hard to derive. Nevertheless,

[71] The Risk Management Platform (2016). "Segmentation and Behavioural Profiling".

these methods signal possible anomalies in the economic flows that could cause various forms of non-compliance or fraud, e.g. the EU VAT gap estimates.[72] The estimation strategy mainly relies on measuring variances of the selected economic variables or on analysing the links between such variables and warning indicators relevant for compliance risks behaviour. Hence, the resulting estimates are indicative.[73] In a top-down approach, risks can be identified at high level, and then drilled down via medium level to detailed taxpayer level.

Bottom-Up Approach (or Case based System)

The identification diagnostic model, as illustrated in **figure 10,** suggests a top-down approach for risk identification that commences at the strategic level and leads down, through the medium, to the case level (see direction of the arrow). However, it is also possible to use a bottom-up approach, involving staff at all levels of the organisation, related to the risk sources used for identification, e.g. random audit, test audits and insights of revenue officials on the shop floor. Bottom-up approaches provide compliance risk estimates derived from the examination of individual data from various sources, such as tax returns, risk registers or third-party information or audit data. The result of risks at the detailed level can then be extrapolated to the whole population for the strategic level overview of compliance behaviour.

Using a combination of the above approaches may lead to a more comprehensive list of compliance risks for tax administrations. For example, a top-down approach could start at a strategic level with a horizon or environmental scan (see par. 3.2.4.3) to discover early signs of potential change in the external and internal environment of a tax administration. Subsequently, on a tactical level, a top-down approach could indicate risks of hidden/unreported income for a specific segment of the economy. These risks could be confirmed and verified by internal data analysis and test audits of a sample of taxpayers (see par. 3.2.4.3). Recent literature suggests that bottom-up approaches, such as random audits (see par. 3.2.4.3), can be used at an operational level to test and interpret top-down estimates, providing valuable insights into (individual) taxpayer behaviour and risks.[74]

Advances in technology and data science techniques (see par. 4.2) can make the identification stage more effective and efficient compared to the previous decades. This is due to the capability of identifying compliance risks at a very early stage[75], even real time, enabling in that way tax administrations systematically design their proactive treatment of the identified compliance risks. For example, the Tax Administration of Slovak Republic launched a project called Virtual Cash Register to identify risks in real time.

Example 24: Real time identification risks Virtual Cash Register (Slovak Republic)

Advanced analytics with focus on prescriptive modelling will be adopted gradually by tax administrations and the identification stage of risks will be performed more accurately and in real time to all types of taxes. Research shows e.g. that a tax risk prediction model based on Convolutional Neural Network (CNN) has higher accuracy in tax risk identification and has a stronger ability to process tax data. The model therefore has a certain reference value for tax authorities to reduce tax risk and tax loss.[76]

[72] European Commission, Directorate-General for Taxation and Customs Union, Poniatowski, G., Bonch-Osmolovskiy, M., Śmietanka, A., VAT gap in the EU: report 2021, Publications Office, 2021.

[73] European Commission, Directorate-General for Taxation and Customs Union, Poniatowski, G., Bonch-Osmolovskiy, M., Śmietanka, A., VAT gap in the EU: report 2021, Publications Office, 2021, chapter 5.

[74] Estimating the Corporate Income Tax Gap: The RA-GAP Methodology. IMF Technical notes and manuals 18/02/2018.

[75] For example, based on Social Network Analysis the EC tool Transaction Network Analysis (TNA) as analysed in Chapter 4 (par.4.2.3), can identify VAT fraud transactions and risky groups as early as possible.

[76] Meilin Yin, Ning Luo (2021). Tax Risk Prediction of Real Estate Based on Convolutional Neural Network, IOS press E-books.

"Convolutional Neural Network (CNN): is a feed-forward neural network. It is a hierarchical model imitating human neural network and includes convolution calculation and deep structure. It has good performance in image recognition, classification and positioning. In recent years, it has also

3.2.4.3. Sources of risk identification

Several sources are available to assist with risk identification. None of them can give a perfect result. An optimum risk identification can only be established by a balanced and combined use of the relevant sources. A non-exhaustive overview of sources for risk identification is discussed in this paragraph. Part of the risk identification activities are supported by analytics and part not. Analytics can play a role e.g. by horizon scans, tax gap analysis and random audits, segmentation of taxpayers, risk identification from large volumes of data and fraud detection.

Horizon or environmental scan

Monitoring external and internal developments related to taxation assists in the identification of new risks or the mutation of existing ones. The technique that can be used for this purpose is *horizon or environmental scanning*, which is a foresight method used to discover early signs of potential change in a continuous process.

Example 25: Macro-environmental analysis (The Netherlands)

It is a systematic process that enables organisations to spot trends before they emerge into the mainstream and identify key action points to proactively shape desirable futures. The challenge is to get insight about the present to have foresight about the future. The external environmental scan identifies opportunities and threats in the environment. The internal environmental scan identifies strengths and weaknesses of the organisation.[77] Information from media and research may result in an exchange of developments and the awareness of new risks. For example, research on the development of new traders not only gives information about the expected number of start-up businesses but also the sectors that are booming.[78] Knowing the environment and the direction of current and future shifts will assist the identification and understanding of possible drivers and sources of risk that could affect the achievement of organisation's objectives.[79] The steps that need to be taken are:

- define a research question (e.g. what are the taxpayer trends in 2030?)
- use a PESTEL of PESTE framework to scan for the key strategical issues relevant to paying taxes from multiple angles[80]
- scan the horizon (i.e. search for phenomena related to each of the sectors identified in the previous phase)
- assess and prioritise phenomena
- answer the research question and formulate action steps.

Tax administrations make use of horizon scanning and perform macro environmental analysis to identify possible opportunities and threats appearing in the future which are out of their control. An organisation such as the World Customs Organisation (WCO) regularly updates the environmental scan to inform WCO members and stakeholders of relevant issues and to support the development of the WCO Strategic Plan. The WCO Customs Environmental Scan includes economic, political, social, environmental, and administrative subjects that directly or indirectly relate to Customs.[81] For example, tax administrations might use a horizon scan to identify trends in undeclared work.[82]

been used in many fields such as financial currency and disease recognition. CNN is one of the representative algorithms of deep learning. It can be applied to diversified scenarios, and has good computational results in risk identification and target detection".

[77] Eileen Abels, (2005). Hot topics – Environmental scanning. Bulletin of the American Society for Information Science and Technology.

[78] Horizon Scanning and Vigilance

[79] Canada School of Public Service, Risk Management Essentials: how to conduct a horizon scan for risk management

[80] Scanning the Environment

[81] WCO Customs Environment Scan

[82] EU Platform, Tackling undeclared work (2021). Horizon scanning

Taxpayer segmentation

Because taxpayer populations are not homogeneous, many tax administrations turn to segmenting the taxpayer population into groups with similar characteristics and identify compliance risks at these segment levels. Taxpayers can be grouped in different ways, e.g.:

- by business size (e.g. large, medium and small)
- by economic activity sector (e.g. construction, wholesale, professional)
- by tax type (e.g. direct, indirect).

Criteria for segmentation are, for example, the level of economic importance, the legal form (e.g. business versus private individual), the compliance level, or a combination of these.

- There are several options for getting a measure of the level of *economic importance*. For example, turnover, total net assets, or the number of employees could serve as indicators. Specifically, for fiscal purposes, the annual tax paid (only VAT or VAT plus direct taxes) can be used as an indicator.
  - The *compliance level* can be established at the segment level, e.g. by carrying out random checks of the tax return or random audits, providing an indication of the level of (non) compliance within the entire population and the underlying causes of non-compliance. The compliance level can also be roughly calculated based on several criteria that say something about the degree of the known (tax) behaviour by a taxpayer, for example:
    - the regularity of tax returns
    - the occurrence of any supplementary payments
    - the quality of the administration (bookkeeping)
    - the occurrence of corrections on the tax return in the past
    - the regularity of payment

Taxpayer segmentation can be supported by advanced analytics. Descriptive statistics, predictive modelling and cluster analysis are technics available to assist in the identification of risks[83] (see par. 4.2.1). As stated by the OECD (2016)[84], several tax administrations (including Ireland and the Netherlands) have experimented with unsupervised segmentation techniques falling under the broad heading of “cluster analysis”. These techniques aim to identify groups of taxpayers who are similar to each other in some significant respects, and dissimilar to the other identified groups. For example, in the Netherlands, debtors are profiled according to personal characteristics and past (payment) behaviour, so that tailored approaches based on behavioural insights can be developed for each profile.

Example 26: ‘Real time’ insight for debt collection (The Netherlands)

In Spain, a tool called "Comparison with Sector" has been developed to compare similar entities.

Example 27: "Comparison with Sector" (Spain)

These projects have often provided interesting general insights into the taxpayer population but have typically not shown a strong practical impact, as the identified segments have not had obvious business applications. An alternative approach to segmentation, currently being pursued in Ireland, aims to group taxpayers primarily based on their predicted response to intervention. If all taxpayers respond in the same way to a given intervention, there is little practical value in segmentation; where there are large and consistent differences in response-to-intervention, then segmentation is worthwhile, and should follow the observed differences in response. This approach, which uses the uplift modelling techniques described above, is likely to create multiple segmentations.

[83] Pijnenburg, M., Kowalczyk, W., & van der Hel-van Dijk, L. (2017). A roadmap for Analytics in Taxpayer Supervision. The Electronic Journal of e-Government, Volume 15, Issue 1, 19-32. Available online at www.ejeg.com

[84] OECD (2016). Advanced Analytics for Better Tax Administration: Putting Data to Work. OECD Publishing, Paris. (p.30).

Ultimately, each type of intervention may require a different segmentation of the taxpayer base.

Pioneer Investigations

In segmenting taxpayers, it may become evident that some taxpayer categories are at a higher risk. The Maltese Tax administration developed a multi-level risk analysis system to identify more risky taxpayers within a particular business sector.

Example 28: Risk Ratios – Ranking (Malta)

Test drilling or piloting (pioneer investigations) can help identify the real risks and offer insights into how these risks can be treated in the most efficient and effective way. Moreover, this may also help to identify emerging risks associated with a group of taxpayers.

Tax Gap Analysis

As one of the main objectives of the tax administration is to ensure that the right amount of tax is paid in time, one starting point for the identification of compliance risks is the tax gap analysis. A tax gap analysis helps to find an answer to the question 'what is missing', the tax gap being *the potential tax yield minus the actual tax revenues*. The tax gap reflects the estimated financial extents of the total volume of compliance risks. The determination of the tax gap is, however, not perfect science. Sometimes statistical support is possible, based on research, data, and analysis. However, often the only calculations that can be done are a rough estimation. Ideally, the estimated tax gap should be further broken down into areas such as *types of non-compliance,* like aggressive tax avoidance, fraud, serious non-compliance, error, and non-payment. Lithuania, for examples, developed a system to tackle the shadow economy.

Example 49: Project Analysis, modelling and risk management system (i.MAMC) (Lithuania)

This would provide additional information on areas that should be addressed by the tax administration.[85] The tax gap can also be broken down into *economic sectors*. In some instances, the major problem may be that many potential taxpayers are simply not known to the tax administration. In others, it may be that many taxpayers who are in the system are substantially underdeclaring their tax liability. There may also be instances where both problems may be important. The final focus for the tax gap is the contribution by the *different categories of taxpayers.* For example, what is the extent of the tax gap accounted for by large businesses, by medium businesses and by small businesses? Insight into this can support the direction of risk identification. Theoretically, the monetary value of the individual risks identified must be equal to the entire tax gap. Examples of tax administrations that provide tax gap calculations are the UK and the US.[86]

In other words: tax gap analysis can be used to identify risk areas by taxpayer size (e.g. large, medium, small business), economic sector (e.g. construction, catering, hotel), business type (e.g. internet business, brick and mortar business) as well as areas of non-compliance (e.g. aggressive tax avoidance, fraud, serious non-compliance and non-payment). The tax gap not only supports risk identification, but may also play an important role in other stages of CRM, such as analysis and evaluation.

Methodological approaches

There are several methodological approaches developed to measure tax gaps. According to the literature[87], estimation methodologies are grouped into two general approaches:

[85] European Commission, Directorate-General for Taxation and Customs Union, Poniatowski, G., Bonch-Osmolovskiy, M., Śmietanka, A., VAT gap in the EU: report 2021, Publications Office, 2021, p.10.

[86] Tax gap estimates (US)

Tax gap estimates (UK)

[87] THE CONCEPT OF TAX GAPS Report II: Corporate Income Tax Gap Estimation Methodologies by FISCALIS Tax Gap Project Group (FPG/041) Brussels, July 2018.

(i) the Top-down methods, also referred to as the macro or indirect methods (ii) the Bottom-up methods, also known as the micro or direct methods.

The *top-down method* estimates the size of lost tax revenues (for a given activity or area) at an aggregated level. It seldom gives an answer to the question of what creates the tax gap in the first place and what the reasons are that a specific area or activity is not taxed. In Italy, for example, tax gap is measured through a top-down approach using Tax data and National Accounts.
Example 29: Tax Gap Example (Italy)

Bottom-up methods are characterized by determining the magnitude of non-compliance from data obtained directly from the observation of specific components of the tax, either taxpayer groups or non-compliance forms. The results and conclusions reached this way are then grossed-up to the whole population by applying several methods and statistical and econometric techniques. This is an important feature of these approaches: they cover only components of the population subject to that particular tax, whereupon the estimation of total tax gap has to be done by aggregating the several components that form that tax. Therefore, it is necessary to make several estimates for each specific tax gap, possibly using different data sources and methodologies.

Each method has its advantages, but also its limitations and shortcomings. When selecting a method or when evaluating the results of the actual estimation, it is important that the main features of the methodology, and its limitations and shortcomings are considered. The report on VAT tax gap estimation[88] states that "*it is paramount to stress the 'uncertainty' in any tax gap estimations in terms of sampling errors or confidence intervals. This uncertainty affects the reliability of the estimated results and should always be considered in a conscious interpretation of the results*."[89] A recent report[90] on tax gap estimations of Personal Income Taxation (PIT) suggests among the various approaches to the PIT gap estimation a bottom-up approach with random sampling of taxpayers for audits. This method is considered as the most robust tax gap estimation method compared to a top-down approach for the specific tax gap estimation. Approaches such as random audits can be used to test and interpret top-down estimates and provide valuable insights into taxpayer's behaviour and risks.[91]

Tools for reporting, business intelligence and dashboards as well as basic analytics for descriptive or diagnostic purposes help answer queries such as "Why did this tax gap happen?" (see par. 3.3).[92]

Random Audits

The use of audits on randomly chosen taxpayers has more than one aim. As well as being used to gain knowledge on the general level of compliance of taxpayers, it can also be used for the identification of new risks. A side effect of random audits is that it leads to unpredictability in the supervision process of a tax administration. The best result from random audits will be when they are undertaken by experienced and skilled staff.

Random audits can provide valuable insights into taxpayer behaviour. However, the result of random audits needs to be interpreted with possible non detection biases due to differences in capacity of auditors and/or the scope of audit in mind.[93]

[88] THE CONCEPT OF TAX GAPS Report on VAT Gap Estimations, FISCALIS Tax Gap Project Group (FPG/041) Brussels, March 2016.

[89] THE CONCEPT OF TAX GAPS Report on VAT Gap Estimations, FISCALIS Tax Gap Project Group (FPG/041) Brussels, March 2016.

[90] IMF (2021). The Revenue Administration Gap Analysis Program. An Analytical Framework for Personal Income Tax Gap Estimation. TNM/2021/009.

[91] IMF (2018). Estimating the Corporate Income Tax Gap: The RA-GAP Methodology. IMF Technical notes and manuals 18/02/2018.

[92] PWC (2021). The Data Intelligent Tax Administration

[93] IMF (2018). Estimating the Corporate Income Tax Gap: The RA-GAP Methodology. IMF Technical notes and manuals 18/02/2018.

Risk models/use of selection rules

Tax administrations use different type of risk models to identify (and analyse) compliance risks. In an automated area, a risk indicator can have the shape of a *selection rule* which, in combination with certain parameters, 'throws out' tax returns when the figures in the returns exceeded the parameters. These returns can then be considered for appropriate treatment. In the last decade, new technologies and advanced analytics available to tax administrations have introduced new techniques of data mining, data scraping, predictive models and new techniques for real-time analysis that need to be taken into consideration by tax authorities in risk identification (and analysis). In addition, more complex *risk models* can be built, applying statistical and machine-learning techniques to uncover insight from data (i.e. *advanced analytics*), and ultimately to make better decisions about how to deploy resources to the best possible effect. Especially the use of statistical techniques to make inferences about cause and effect (*root-cause analysis*) is interesting when applying a coherent CRM strategy in which tax administration try to influence taxpayer behaviour to comply with fiscal rules. The continuing developments of digitalisation and technology ensure that the possibilities in this area are constantly evolving and continue to grow and that the stages of risk identification and risk analysis are more and more merged.

Cooperation with stakeholders

Cooperation with trade sector organisations, consumer organisations, tax consultancy organisations, large businesses, and support from individual citizens, can contribute to better tax compliance, especially in situations where the interests of organisations align with those of the tax administration, thereby resulting in a 'win-win' situation. One specific form of cooperation is *'cooperative compliance'* (also called *'horizontal monitoring'*) which can be defined as the establishment of a trust-based cooperative relationship between large business taxpayers and tax authorities based on the willingness to comply with tax legislation, leading to the payment of the right amount of tax at the right time. The basis for cooperative compliance is building a sound professional working relationship between the tax administration and a large business taxpayer. This bilateral relationship is based on trust, mutual understanding and co-operation and ensures voluntary tax compliance by the taxpayers and tax certainty for the taxpayer. In general, taxpayers must be transparent on their tax issues and disclose relevant information about tax risks to the tax administration, which adjust its audit efforts based on the level of control the large business has over its fiscal risks. To be able to be transparent and disclose the relevant risks, a large business must have a sound risk management system in place and must monitor its workings. The results of the risk management and monitoring process are the basis for the tax administration to decide on the level of interventions that is necessary to assess the tax return (see par. 3.5.3.2).[94]

New Legislation

New tax legislation may result in new risks and the disappearance of existing ones. By stepping into the shoes of the taxpayer, tax administrations can identify which elements of new legislation will offer new opportunities to be non-compliant or avoid taxes.

Digital transformation tools, such as *predictive analytics,* can provide information on likely future outcomes, and *prescriptive analytics* can calculate expected outcomes and help recommend the best course of action for decisions, such as changing a tax regulation. This form of insight often includes the use of artificial intelligence (e.g. cognitive, context aware) and augmented analytics and optimisation (e.g. pervasive, automation). Data science can also help to prevent tax gaps from happening, e.g. ex-ante prediction of policy change output as well as a proactive anticipation of societal or economic issues or opportunities.[95]

[94] Example Ireland

Example Netherlands

[95] PWC (2021). The Data Intelligent Tax Administration

Customer Care

Tax officials who are in daily contact with taxpayers can sometimes identify new risks and/or new trends. Input from virtual assistants employed for customer care can provide structured data and information for tax administrations that can be considered for risk identification.

Example 30: Virtual assistant tools for VAT and Censuses (Spain)
Example 31: Chatbot TAXANA (Slovak Republic)
Example 49: Project Analysis, modelling and risk management system (i.MAMC) (Lithuania)

Knowledge and information from external sources

In the last decade, tax administrations have extensively utilized external sources to identify risks, specifically information from a) other tax administrations made available within the context of automatic exchange of information, and b) from other third parties, i.e. different institutions, private or public.

a. Information from other tax administrations

Tax administrations collect different sources of data, including e.g. internal data, third party data, taxpayer-reported data, data from local institutions, data from other MSs and economic growth ratios. A single MS cannot manage its internal taxation system without receiving information from other MS. In a world where economic activities have a more global dimension, information from other tax administrations provides a very valuable insight into the emerging risks in the local tax administration. Active cooperation between MSs improves this source of risk identification. For example, risk identification in relation to Automatic Exchange of Information (AEOI) relates to the identification of risks that, based on the AEOI received, could appear to represent a compliance risk.

By means of Council Directive 2011/16/EU of 15 February 2011 on Administrative Cooperation (DAC) in the field of taxation, MS should exchange information on request, spontaneously and automatically with other MS. It is recognised that the mandatory AEOI is the most effective means of enhancing the correct assessment of taxes in cross-border situations and of fighting fraud. By means of AEOI, tax administrations within the EU obtain various types of information regarding economic activities of their taxpayers, individuals or companies (see **table 7**). These types of information include overseas income (overseas employment income, directors' fees, pensions, income and ownership of immovable property, life insurance products, not being declared in their country of residence), financial account information (e.g. interests, dividends), information regarding companies that is based on country by country reports, access to beneficial ownership information, and also include access to information regarding mandatory disclosure rules for intermediaries and AEOI on tax planning cross boarder arrangements. Additionally, the recent amendment of the Directive for the Administrative Cooperation between member states (Directive 2011/EU), namely DAC 7, incorporates rules on reporting by digital platform operators regarding sales of certain types of goods and services e.g. Airbnb, Uber etc. **Table 7** below summarises the evolution of the exchange of information as per requirements of DAC1 to DAC7.

On the other hand, the rapid development and use of alternative means of investment and payments, such as crypto-assets and e-money, that may undermine the progress made on tax transparency in recent years and pose substantial risks for tax evasion, opens the new dialog for a possible further adjustment of this directive to include reporting on such information, DAC 8.

b. Information from other third parties

This is a valuable source for independent verification of the presence or absence of risks. Information from other government departments and other external sources, such as gathering data regarding immovable properties, vessels, vehicles, shareholdings, and other assets owned by a taxpayer, can assist in building a more comprehensive picture about a taxpayer in the risk identification process.

Table 7: Exchange of Information between EU member states based on the Directive of Administrative Cooperation in direct taxation, DAC 1-7 the evolution[96]

DAC 7, 2021/514/EU	• AEOI ITEMS: • mandatory exchange of information reported by digital Platform operators on sales of certaing types of goods and services on their plantforms • Applies 1/2023
DAC 6, 218/822/EU	• AEOI ITEMS: • madatory disclosure rules for intermediaries and automatic exchange of information on tax planning cross boarder arrangements • Applies 7/2020
DAC 5 2016/2258/EU	• NON AEOI • access by tax authorities to beneficial ownership information as collected under AML rules • Applies 1/2018
DAC 4, 2016/881/EU	• AEOI ITEMS: • information on country by country reports on :revenues, profits, taxes paid and accrued, accumulated earnings, number of employees, certain assets • Applies 6/2017
DAC 3, 215/2376/EU	• AEOI ITEMS: • using a central directory as from 1-2018 information regarding advanced cross boarder rulings and advanced pricing arangements • Applies 1/2017
DAC 2, 2014/107/EU	• AEOI ITEMS: • financial account information ie interests, dividends or other income generated by financial account, gross proceeds from sale or redemption, account balances • Applies 1/2016
DAC 1, 2011/16/EU	• AEOI ITEMS: • income from employment, director's fees, pensions, life insurance products, immovable property (income and ownership) • Applies 1/2015
DAC 1, 2011/16/EU	• NON AEOI ITEMS: • exchanges on request, Spontaneous controls, request for notification,sharing best practices, use of standard forms • Applies:1/2013

[96] Based on EU Table

The evolution of new business models allows for immediate information to tax administration. Information from the digital platforms of sharing economy enable tax administrations to identify e.g. hidden income from renting accommodation, or of services such as food delivery. Digital platforms are an efficient source of information for tax administrations to identify hidden business activities. Information on the users of the online platforms and/or their digital transactions facilitates the identification stage of the CRM Process of tax administrations (e.g. The role of digital platforms in the collection of VAT/GST on online sales).[97] Identification ends up with the list of potential risks or the picture of risks that the tax administration is faced with and that is required to be analysed at the next stage of CRM process, the Analysis stage.

3.3. Analysis of compliance risks

3.3.1. Introduction

The output of the *risk identification* stage (par. 3.2) is an overview of potential risks that shows areas, groups of taxpayers or sectors where (compliance) risks are expected. This overview facilitates the next stage of compliance risk management, *risk analysis*, in which the likely impact of the identified risks of the previous stage is estimated (**figure 11)**.

Risk analysis is the process of assessing the frequency, likelihood, and the consequences of the compliance risks identified in the previous stage. It typically involves *weighing* and *classification* of taxpayers in relative order, e.g. classifying taxpayers by amount of potential tax loss in descending order. However, finding out what is occurring and who is doing it, is not enough. Risk analysis must also address the *why* questions, investigating the reasons for non-compliant behaviour in specific areas.

[97] OECD (2019). The role of digital platforms in the collection of VAT/GST on online sales. OECD, Paris

Figure 11: The analysis stage

Risk analysis can be done centrally or locally within the administration, or in combination of both. The *output* of the risk analysis stage is knowledge about the potential risks and related taxpayers (behaviour) such as:

- characteristics of the taxpayers involved (e.g. number of taxpayers)
- type of risk
- reasons for taxpayer behaviour
- likelihood and frequency of the risk
- indicators/selection rules and parameters
- consequences (e.g. amount of tax involved)
- trend, i.e. whether the risk is becoming more or less severe
- possible treatment options
- cost of treatment
- impact on the tax administration's objectives: low, medium, high

[98] Pijnenburg, M., Kowalczyk W., & van der Hel-van Dijk, L. (2017). A roadmap for Analytics in Taxpayer Supervision. The Electronic Journal of e-Government. Volume 15 Issue 1, 19-32, available online at www.ejeg.com

In the following sections, risk analysis is described more into detail, starting with describing the impact of digitalisation on risk analysis (par. 3.3.2), then providing a more in-depth analysis of compliance risks (par. 3.3.3.) and an overview of the most relevant factors. Paragraph 3.3.4 presents the timing for risk analysis.

3.3.2. The impact of digitalisation and technology on risk analysis

Risk analysis normally requires the use of computer systems because of the sheer volume of data that are available. Data are a key-input for effective and efficient risk analysis (as well as for other CRM stages), which requires both valid and relevant data, and tools and skills to handle them.

Analytical techniques, descriptive statistics, experimental design, hypothesis testing, predictive models, cluster analysis, time series analysis, anomaly detection, recommendation systems, social network analysis, mining new data sources are techniques available to tax administrations that can support especially risk identification and risk analysis.[98] At the same time, these new technologies might lead to a merge of the stages of identification, risk analysis, and prioritisation into one dynamic stage iterating for real time or near real time results.

Example 28: Risk Ratios – Ranking (Malta)

Example 49: Project Analysis, modelling and risk management system (i.MAMC) (Lithuania)

Advanced Analytics is the term used to identify the methods used for massive exploitation of large dataset, including Big Data processing, machine learning algorithms and predictive modelling. This approach extracts new patterns and insights from data that would not be possible to obtain through traditional techniques. It can be particularly effective in the fiscal domain in applications such

as audit case selection, fiscal risk scoring and fraud detection, also providing a new basis for quantitative decision making at a strategic level. For these purpose, tax administrations often build data warehouses which collect data obtained from different sources (see, e.g., Example 11: Risk Identification and Risk Analysis with use of "Hermes" (Spain), Example 33: Availability of risks within tax administration (Malta), Example 56: Croatian Tax Administration's Data warehouse (Croatia)). Italy, for instance, developed a risk analysis tool, which collects different third parties' data, to detect individuals who have strong connections with the Italian territory but declare offshore residence.

Example 34: "So.no.re" Making better use of available data (Italy)

Malta is developing a statistical analysis tool that uses artificial intelligence to draw data from different registries to assess a taxpayer's assets (e.g. properties, high value vehicles) and compare them to their declared income in order to help in identifying taxpayers whose declared income is not proportional to the assets owned.

Example 64: Statistical Analysis System (Malta)

Table 8 provides an overview of the three horizons of development in the analysis stage.

Table 8: Three Horizons Model of risk analysis

HORIZON	EXAMPLES
FIRST HORIZON • Make better use of available (international) data • Use data to move from repressive activities to preventive activities • Apply root cause analysis (behaviour of taxpayer) • Map level of compliance of all taxpayers (compliance map)	**Examples first horizon** • Example 22: Compliance Map (The Netherlands) • Example 33: Availability of risks within tax administration (Malta) • Example 35: Root cause analysis (behaviour of taxpayer) Individual Compliance Prediction (Ireland) • Example 36: Making better use of available data (Belgium) • Example 37: Making better use of available data (Denmark) • Example 39: CRM based on (sub)segmentation (The Netherlands)
SECOND HORIZON • Make use of more behavioural data ('profiling' and predictive analysis) • Better segmentation of taxpayers (for differentiation in treatment) • Near - real time analysis • Collaborative analysis of international data	**Examples second horizon** • Example 11: Risk Identification and Risk Analysis with use of "Hermes" (Spain) • Example 20: Renta Web software (Spain) • Example 26: 'Real time' insight for debt collection (The Netherlands) • Example 27: "Comparison with sector" (Spain) • Example 32: Transactional Network Analysis (European Commission) • Example 34: "So.no.re" Making better use of available data (Italy) • Example 38: TaxNetVA (Italy) • Example 43: Strategic Picture of Risks (SPR) (United Kingdom). • Example 49: Project Analysis, Modelling and Risk Management System (iMAMC) (Lithuania) • Example 56: Croatian Tax Administration's Data warehouse (Croatia)

THIRD HORIZON	Examples third horizon
• Identification and analysis merge due to real time analysis • Analysis of needs of taxpayers (to move to more pro-active forms of treatment) • Prescriptive analytics • Use of cognitive systems (artificial intelligence, robotics)	• Example 64: Statistical Analysis System (Malta)

3.3.3. In depth analysis of compliance risks

The *analysis phase* is a process performed by gathering and understanding computer held data and harnessing human knowledge and intelligence. By adding data and information, *knowledge* (intelligence) about the risks and the behaviour of taxpayers related to the risks can be attained. It is this knowledge that gives a deeper understanding of the information. In general, data on its own has no 'value'. It gains value by being compared or related with other data.

In today's digital era, tax administrations need to devise strategies to handle the growing volumes of data obtained from various sources. "Big data" processing systems, data analytics programmes and machine learning techniques will help tax authorities at this *risk analysis stage*. In the *risk identification stage* tax returns can be selected based on *selection rules*, which in combination with certain parameters 'throws out' tax returns when the figures in the returns exceeded the parameters. In a coherent CRM strategy these selected returns need to be analysed more in depth to discuss appropriate treatment (instead of handling all selected tax returns in a traditional way, by means of desk checks or tax audits). In addition, more complex *risk models* can be built by applying statistical and machine-learning techniques to uncover insight from data (i.e. *advanced analytics*), and, ultimately, to make better decisions about how to deploy resources to the best possible effect. The use of statistical techniques to make inferences about cause and effect (*root-cause analysis*) are particularly interesting when applying a coherent CRM strategy in which tax administrations aim to influence taxpayer behaviour to comply with fiscal rules.

In depth analytical insights

A comprehensive risk analysis should rely on data from a variety of sources, both internal and external. The data used should be reliable, accurate and timely. Moving from *analysing* historic data to *monitoring* real time data enables tax administrations to move from a reactive approach – in which tax compliance is enforced – to a proactive approach – in which 'voluntary' compliance is stimulated. Regarding the methodology, *root cause analysis* might be carried out to detect the causes of non-compliance and, more generally, of taxpayers' behaviour. Indeed, a better understanding of taxpayers' behaviour can help tax administrations develop more specific interventions and, hence, generate positive shifts in compliance. In the Netherlands, for instance, a project combining data science with behavioural insights has been developed to profile debtors according to personal characteristics and past payment behaviour.

Example 26: 'Real time' insight for debt collection (The Netherlands)

In Ireland a project has been carried out to identify risks and predict compliance outcomes.

Example 35: Root cause analysis (behaviour of taxpayer Individual Compliance Prediction (Ireland)

The United Kingdom developed a 'Strategic Picture of Risk' (SPR) which draws on a mix of internal/external information and data to enhance HMRC's understanding of customer behaviour and tax risk.

Example 43: Strategic Picture of Risks (SPR) (United Kingdom)

Given the importance of data, Member States have been developing more and more systems to efficiently exploit available data. For instance, the Netherlands developed a so-called *compliance map* in which all tax revenue is classified to its level of 'assurance' related to the risk of not being collected. After classifying tax revenue on the compliance map, a more in-depth analysis is conducted by

analysing the numbers that form the basis of the compliance map, combined with expert opinions. Additionally, a comparison with previous years is made to identify trends and patterns.
Example 22: Compliance map (The Netherlands)

In Belgium, *segmentation analysis* is performed by continuously analysing and scaling tax, behavioural and sociodemographic data, based upon which qualitative tax audits are carried out.
Example 36: Making better use of available data (Belgium)

The Danish Customs and Tax Administration also implemented a CRM strategy based upon segmentation.
Example 37: Making better use of available data (Denmark)

Advanced analytical insights

Advanced algorithms could be used to perform near real-time risk analysis, enabling proactive interventions. Advanced analytics techniques, including machine learning, blockchain and distributed ledger (DLT), might be applied to better assess risks and predict likely behaviour patterns.[99] For instance, *pattern matching* might be useful to detect and analyse frauds, as well as to find outliers or anomalies. As an example, the Italian TaxNetVA system exploits graph pattern matching technologies to extract and analyse suspicious patterns and detect frauds.
Example 38: TaxNetVA (Italy)

The *quantitative network analysis*, based upon interactions and relationships among individuals and businesses, could represent an additional tool to estimate risk probability and determine risk scores. The European Commission, for instance, started using the tool Transaction Network Analysis (TNA) to detect and crack down VAT fraud on intra-Community transactions.
Example 32: Transaction Network Analysis (European Commission)

Furthermore, by using more behavioural data, tax administrations could better target taxpayers and, eventually, apply differentiated treatment strategies. Finally, a collaborative analysis of international data could make this CRM stage more efficient.

For example, *cognitive systems* could optimise massive data handling as well as process information more quickly. Applying cognitive computing might also be useful to detect and evaluate emerging risks. An efficient use of behavioural data could enhance the understanding and analysis of taxpayers' needs, facilitating a shift toward a more proactive approach. In the future, if data will be available real time, the CRM process could be carried out on a continuous basis, and identification and analysis of risk could merge.

As tax audits are one of the most used instruments by tax administrations, future developments also could make the (analytical) work of the tax auditor more effective and efficient. An example is the use of *In-memory database technology*, which introduces the ability to integrate audit analytics much deeper into the audit. This allows the external auditor (and in the future also perhaps the tax authority) to perform audit procedures more efficiently, effectively, and accurately. When all ERP transactional data of a business can be accessed, processed, and analysed in real time in one system, it will have a great impact on audit procedures of the external accountant. Streamlining this process allows for data procedures to be performed shortly after financial periods close. Furthermore, when the approach is centralized and harmonized, internal control and audit functions will be able to rely on the results to exercise control and perform audit procedures.[100]

[99] The most common and advanced analytics techniques adopted in the CRM process are presented in Chapter 4.2.

[100] Wiel, van der D., Emens, R., & Lamers, T. (2019). How audits can be transformed when access to data is no longer the bottleneck

3.3.4. The risk analysis process

3.3.4.1. What/who, why, and when question

Risk analysis is the process of assessing the frequency, likelihood, root-causes, and the consequences of the compliance risks identified in the previous stage (**figure 12**). It typically involves *weighing* and *classification* of taxpayers in relative order, e.g. classifying taxpayers by amount of potential tax loss in descending order. *Frequency* tells how often a risk will occur. The *likelihood* represents the probability that a risk will occur. Risk analysis must also involve what is the *root-cause* of non-compliant behaviour in specific areas. This is important because it contributes to the assessment and to the choice of the most efficient and effective treatments. If analysis shows different forms of taxpayer behaviour, it gives room for different types of treatment. For example, if the reason for non-compliance is the complexity of a specific part of the tax legislation, the possible treatment could be education or a change of the legislation to remove the complexity. The *consequences* incorporate a lot of different factors but must be based on the tax administrations objectives. A negative consequence is when the tax administration cannot reach its objectives.

It must be acknowledged that a 100% analysis is not feasible, e.g. due to missing or inadequate data or inadequate techniques.

3.3.4.2. Timing of the analysis

Timing is important in the phase of risk analysis. The earlier a compliance risk is (identified and) analysed, the earlier it can be treated, the lower the chance that tax revenue is lost, and the bigger the preventive effect for the future. In some cases, such as the detection of international VAT frauds, often characterized by the volatility of the parties involved, timeliness becomes even a more essential requirement, because the fraudsters will have disappeared by the time the tax administration takes in action. Moreover, the longer a taxpayer remains registered, the more data can be collected. Risk analysis requires accurate data to be effective. It follows that the more relevant data is available, the more likely any probability predictions will be accurate.

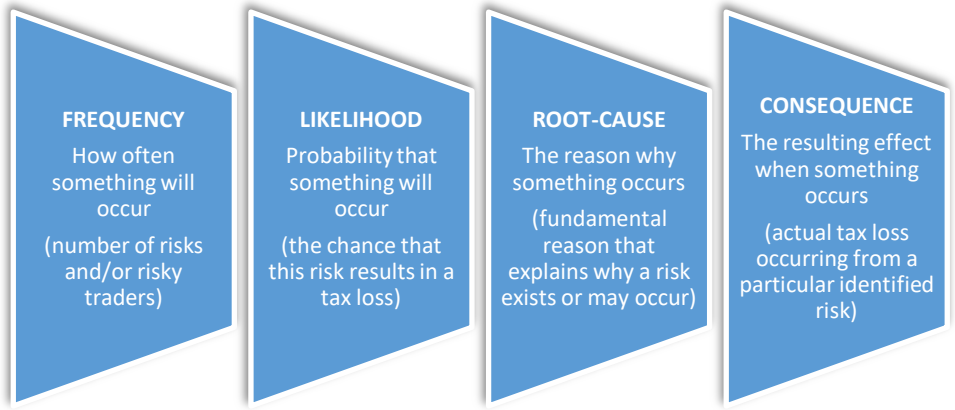

Figure 12: Aspects of compliance risk analysis

One of the aspects of timing is to conduct a risk analysis either *before or after registration.*

Pre-Registration

Traditionally, the aim of tax administrations has been to ensure that anyone obligated to register for tax purposes is identified and registered at the appropriate time or to ensure that the applicant has a lawful reason to become registered (e.g. in case of VAT carousel fraud). Risk analysis, when performed at the *pre-registration* stage, aims at either identifying taxpayers who are required to register but do not register or need assistance in the registering process, or at preventing fraudsters from registering.

As part of the registration process, tax administrations may wish to compare the taxpayer's application with:

- other registrations at the same postal code
- known accommodation addresses

- tax history
- bank accounts
- databases of suspects
- credit reference agencies
- other government department's data

Early contact with a taxpayer to establish that the taxpayer really exists can be considered as an attempt to thwart fraud. It must be recognised that the number of fraudsters trying to obtain tax registration, where no entitlement exists, is likely to be a very small percentage in relation to the total, and any treatment options must be proportionate to the risk.

Post-Registration

Except for activities such as advice and education regarding filing, payment, and declaration risks or other pre-filing activities, an intervention can take place after registration, when the possibility of a risk materializes. There are several opportunities for risk analysis after registration: upon receipt of the tax return, periodic or incidental.

(a) Risk analysis can be performed on tax returns received from a taxpayer in order to assess e.g. undeclared business incomes, inflated tax deductible expenses etc., using several (advanced) 'risk models', e.g.:

- the inter-relationship of different figures on the tax return can be checked to test both accuracy and the credibility of the tax declared
- the received return can be compared with previous returns submitted by that taxpayer to highlight apparent inconsistencies
- comparisons can be made with other taxpayers who have a similar profile (size, type of trade, markup etc.) and comparisons with norms and standards (e.g. comparison of taxpayer's declarations with sector ratios). For instance, the Spanish Tax Administration developed an IT tool, called "Comparison with Sector", which allows to compare an entity with similar ones, based on some pre-selected ratios. The final purpose is to be able to make an easy comparison of a taxpayer, which allows to check at a glance in which parameters the entity presents anomalous values in relation to other entities of similar conditions.

Example 27: "Comparison with Sector" (Spain)

(b) Either in addition to a more targeted risk analysis, or as an alternative, tax administrations could carry out analysis over a period of time to ensure that (unknown) risks are being adequately identified and/or treated.

Example 39: CRM based on (sub)segmentation (The Netherlands)

Tax administrations may also choose to spread their activity over several months or years. In this way, risks that were previously analysed can be re-analysed to assess whether the treatment has been effective, or the risk still remains.

Example 20: Renta Web software (Spain)
Example 26: 'Real time' insight for debt collection (The Netherlands)

(c) Sometimes ad hoc events will arise that require immediate attention. When these events occur, the analysis has to be carried out as soon as possible after receipt of the data. Risk analysis can also be triggered by a specific incident, e.g. the need to address tax evasion from a data leakage (e.g. Panama Papers).

3.4. Prioritisation of compliance risks

3.4.1. Introduction

The third step in the CRM process is the *prioritisation* of compliance risks (**figure 13**). The previous stage of CRM, *risk analysis*, results in knowledge about the compliance risks and taxpayers (behaviour) related to these risks, in terms of e.g. numbers, level, extent, options for treatment, and costs. The central goal of the risk prioritisation phase is the selection of taxpayers that are to be treated, including the appropriate treatment form, resulting in a yearly 'treatment plan' setting out e.g. groups of taxpayers to be treated as well as the reasons for treatment. The treatment plan could be further elaborated in a working plan for specific target groups or specific projects. It is very important to consider that prioritisation always happens within the context, the objectives, strategy, and available resources of a tax administration.

Risk prioritisation is the phase of a CRM process where all identified risks are *ranked* either quantitatively or qualitatively, in order to ascertain which ones have the highest likelihood of occurrence, and which ones have the greatest consequence if they occur. The goal is to *assess* the risks in overall order of importance or urgency.

- *Risk ranking* depends on the *likelihood of the risk* and the *consequence of the risk occurring*
- *Risk assessment* depends on various factors such as: the amount of tax, which is involved directly or indirectly, the available resources of treatment, the social effect and/or the political objectives

Figure 13: The prioritisation stage

The risks analysis stage and the risk prioritisation stage are closely related. Developments in digitalisation and technology can even merge these stages to one, as the basic information for the *prioritisation* stage is gathered in the *risk analysis* stage, in which the nature and the magnitude of the risks identified are assessed, and the *weighing* and *classification* of taxpayers in relative order takes place (e.g. classifying taxpayers by amount of potential tax loss) (see par 3.3).

In the prioritisation stage risks are further assessed taking into account e.g. the societal and political context in which taxpayers and tax administrations operate, the goals they want to achieve, the strategy they apply (including possible treatment forms), the available resources, and other relevant factors (e.g. sense of urgency, media attention, reputational damage).

Decisions about which (group of) taxpayers and related compliance risks to treat and which to monitor will potentially be impacted by many different issues, including:

- internal capability
- availability of effective treatment forms
- risk rating/level
- rate of risk infection or risk rating deterioration
- current return of treatment (only recover revenue this year)
- ongoing return of treatment (recover revenue in every year into the future)
- public perceptions of administration around the risk
- cost/benefits of the proposed treatments (this is a feedback loop from the next step)
- the wider context of the risks as a group

These issues form the basis on which the effectiveness of treatment strategies will ultimately be evaluated.[101]

[101] OECD (2004). Guidance Note, Compliance Risk Management: Managing and Improving Tax Compliance

In the following sections, prioritisation is described in more detail, starting with describing the impact of digitalisation on prioritisation in par. 3.4.2. Next, the methods to rank (par. 3.4.3) and assess (par. 3.4.4) the risks in more in detail are discussed.

3.4.2. The impact of digitalisation and technology on prioritisation

Advances in digitalisation and technology can merge the risk prioritisation stage and the risks analysis stage into one, as these stages are already closely related. Indeed, the basic information for the prioritisation stage is gathered in the risk analysis stage.

Multiple qualitative and quantitative techniques have been developed for risk impact assessment and prioritisation. *Qualitative techniques* include analysis of probability and impact, developing a probability and impact matrix, risk categorisation, risk frequency ranking (risks with multiple impacts), and risk urgency assessment. *Quantitative techniques* include weighting of cardinal risk assessments of consequence, probability, and timeframe; probability distributions; sensitivity analysis; expected monetary value analysis; and modelling and simulation.[102]

This section describes how innovation occurring on three horizons can impact the prioritisation stage of CRM (**table 9**).

Table 9: Three Horizons model of risk prioritisation

HORIZON	EXAMPLES
FIRST HORIZON • Prioritisation stage merges with analysis stage • Algorithms to construct risk index	**Examples first horizon** • Example 28: Risk Ratios – Ranking (Malta) • Example 41: Debt management prioritisation (Greece) • Example 42: Making better use of available data (Portugal) • Example 43: Strategic Picture of Risks (SPR) (United Kingdom)
SECOND HORIZON • Predictive analytics • Composite models	**Examples second horizon** • Example 40: Composite Model for VAT refund (Croatia) • Example 51: Uplift Model for campaigns to move taxpayers online (Ireland)
THIRD HORIZON • Identification, analysis, and prioritisation are merged in one step and performed continuously • Real time exchange of data between tax authorities	

[102] Systems engineering innovation center

3.4.3. Risk Ranking

When assessing and ranking risks, it is necessary to consider both the likelihood and the consequence of the risk occurring. Since resources for treating risks are scarce, prioritisation is needed to plan an efficient allocation of them.[103] In the current scenario, algorithms could be developed to construct risk indexes and rank taxpayers' risks. The Maltese Tax Administration, for example, designed a system to analyse risk ratios at different levels. The objective of this multi-level system of reporting is to identify both riskier sectors and more risky taxpayers.
Example 28: Risk Ratios – Ranking (Malta)

The United Kingdom developed a strategic picture of risks, using driven by data, analytics and business insight.
Example 43: Strategic Picture of Risks (SPR) (United Kingdom)

Advanced analytics with predictive modelling techniques can be proved as an important tool to support risk ranking.
Example 51: Uplift Model for campaigns to move taxpayers online (Ireland)

Such modelling techniques are decision trees, logistic regression, discriminate analysis, k-nearest neighbours, neural networks, support vector machines, and random forests (see chapter 4). In fact, predictive models are highly effective at segmenting cases and prioritising them for treatment. Composite models within the entire CRM system give better prioritisation, because the risks are targeted depending on the type of tax and areas within the same tax (e.g. VAT refund, VAT liabilities, VAT Missing Trader).[104]
Example 40: Composite Model for VAT refund (Croatia)

Figure 14 shows an example of how a compliance risk-rating matrix can be used to rank risks. The model could be automatically generated by an algorithm based on a systematic examination of historical cases with a known target or a characteristic of a taxpayer or a tax return.[105]

The ranking gives an overview or list of compliance risks, which may be treated, depending on the further assessment of the risks considering the context, goals, strategy and available resources of the tax administration. For example, Greece developed an automated system, based on a risk analysis model that exploits a vast array of data, to detect new debt cases for allocation, to prioritise the debt cases in terms of collectability or for securing the debt, and to assign the most important cases.
Example 41: Debt management prioritization (Greece)

In the future, if data will be available real time, the identification, the analysis, and the prioritisation stages could merge into one, and the CRM process could be performed continuously. The real time exchange of data between tax administrations is one of the ways to make sure the prioritisation of the risk of taxpayers will also be of better quality, more accurate and timely. For example, real-time data exchange between Estonian Tax and Customs Board and the Finnish Tax Administration is the world's first automatic exchange of information between national tax administrations.[106]

[103] Pijnenburg, M., Kowalczyk W., & van der Hel-van Dijk, L.. (2017). A roadmap for Analytics in Taxpayer Supervision. The Electronic Journal of e-Government. Volume 15 Issue 1, 19-32, available online at www.ejeg.com.

[104] A composite model is a model that combines data from more than one DirectQuery source or that combines DirectQuery with import data is called a composite model. You can create relationships between tables as you always have, even when those tables come from different source (Use composite models in Power BI Desktop - Power BI).

[105] Pijnenburg, M., Kowalczyk W., & van der Hel-van Dijk, L.. (2017). A roadmap for Analytics in Taxpayer Supervision. The Electronic Journal of e-Government. Volume 15 Issue 1, 19-32, available online at www.ejeg.com.

[106] The Finnish and Estonian tax administrations started real-time information exchange

		Consequence				
		Negligible 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Likelihood	5 Almost certain	Moderate 5	High 10	Extreme 15	Extreme 20	Extreme 25
	4 Likely	Moderate 4	High 8	High 12	Extreme 16	Extreme 20
	3 Possible	Low 3	Moderate 6	High 9	High 12	Extreme 15
	2 Unlikely	Low 2	Moderate 4	Moderate 6	High 8	High 10
	1 Rare	Low 1	Low 2	Low 3	Moderate 4	Moderate 5

Figure 14: Compliance Risk Rating matrix

3.4.4. Strategic assessment of compliance risks

In the prioritisation stage risks are further assessed taking into account e.g. the societal and political context in which taxpayers and tax administrations operate, the strategic goals tax administrations want to achieve, the strategy they apply (including possible treatment forms), the available resources and other relevant factors (e.g. sense of urgency, media attention, reputational damage). As a first step, the tax administration should identify the capacity needed to carry out its statutory tasks (such as disposing of objections), as it is mandatory for the tax administration to carry out these tasks. The capacity needed for carrying out these tasks is not available for activities to handle compliance risks.

Strategic assessment of compliance risks can take place, considering the following elements:

- ***Amount of tax***: this amount, which is involved directly or indirectly, is more or less determined in the risk analysis phase
- ***Resources for treatment***: this can be expressed in staff days or hours or 'tax per hour' – the return on investment. It should be noted, however, that not all activities can be decided on the return on investment, as a tax administration should also carry out activities for keeping up the tax morale (which not necessarily lead to direct tax revenue)
- ***Social effect***: The effect of activities of the tax administration on society as a whole (in terms of trust and tax moral) play a role in prioritisation. The tackling of some compliance risks or treatment of taxpayer groups may create a greater *social acceptance* and have a more positive effect on general *compliance levels* of taxpayers than others. As the treatment of some compliance risks may have a deterrent effect on society and the taxpayer, covering others may have not
- ***Societal/political context***: Sometimes specific risks have to be covered because society/politics are demanding to do so (e.g. to diminish social upheaval)
- ***Media attention:*** Attention in the media for specific groups of taxpayers, specific types of tax fraud or loopholes in the law could influence the prioritisation of compliance risks
- ***Sense of urgency****:* The prioritisation of compliance risk may be dependent upon the urgency or immediate necessity of handling the risks at stake (e.g. in case of large-scale unique events)
- ***Reputational risk***: The image that the tax administration wants to portray can play a role in the prioritisation of which specific risks are to be covered (e.g. paying extra attention to a specific risk of new legislation and

educating the taxpayer in an effort to get it right from the start can positively affect the reputational risk)

- ***Random***: To ensure that every taxpayer has an equal chance of treatment, taxpayers must be randomly chosen (to enhance unpredictability of treatment).
    - In addition, the results of random activities can identify new risks, new detection methods or new coverage approaches (knowledge)
    - Importantly, these results can also be used as an indicator of the effectiveness of the applied risk management process.

Awareness of all of these factors is crucial, because it gives the tax administration the opportunity to take the correct approach, with the same resources, and have positive direct and indirect effects in the areas of compliance levels, social support and perception. Weighing (valuing) the factors mentioned above is an internal process within a tax administration. The Portuguese tax administration developed a web application that enables obtaining a list of analysed risks. Users can compare them, facilitating the prioritisation process and allowing the selection of risks whose treatment is deemed more crucial.

Example 42: Making better use of available data (Portugal)

The output of the *risk prioritisation* stage is an (annual) *treatment plan* setting out compliance risks to be treated as well as the treatment choices. The treatment plan could be further elaborated in a *working plan* for specific teams, units or projects.

3.5. Treatment of compliance risks

3.5.1. Introduction

Having established the relevant contexts and performed the required analysis and assessment of risks, the next stage in the CRM process is to apply the *right treatment*, at the *right time* and in the *right way*. In a sound CRM strategy, which is based on cooperation and trust, tax administrations focus on services and taxpayers by transparent procedures and a respectful, helpful treatment of taxpayers.[107]

Therefore, in this stage generally tax administrations try to stimulate compliant behaviour and prevent non-compliant behaviour from happening. Supporting taxpayers to be compliant results in influencing their behaviour in the area of their tax affairs. The tax administration can influence the compliance behaviour of all taxpayers by cultivating a public image where:

- the tax administration is perceived to be helpful and facilitating in assisting taxpayers to be compliant and preventing them from making mistakes or committing evasion
  Example 7: Tool 'Alerts and Mismatches' (Portugal)
- it is accepted that the vast majority of taxpayers are compliant
- the tax administration is perceived as being very good at identifying and dealing with non-compliance.

The treatment stage can therefore range from educating the taxpayers of the future, supporting all taxpayers to be compliant, and dealing with those that remain non-compliant. Partnerships and collaborations can help the service provided to taxpayers and ensure that compliance is embedded upstream. Tax authorities are therefore increasingly seeking options that enable them to promote so-called 'upstream compliance' ("right from the start"[108] or cooperative

[107] Kirchler, E., Hoelzl, E., & Wahl, I. (2008). Enforced versus voluntary tax compliance: The "slippery slope" framework. Journal of Economic Psychology, 29(2).

[108] OECD (2012). Right from the start: Influencing the Compliance Environment of Small and Medium Sized Enterprises

compliance[109]) as an alternative to solely conducting retrospective audits and making re-assessments, as they did in the past.

In a coherent CRM strategy, tax administrations seek the appropriate mix of preventive and repressive measures, based on taxpayers' behaviour. Besides being preventive (and try to avoid compliance risks) tax administrations currently strive to be proactive and focus more on taxpayers' needs (e.g. early warning, self-service options) to stimulate 'voluntary' compliance.[110] Data and technology could be helpful to achieve a proactive working modus, which leads to a lower error rate and higher compliance compared to a reactive way of working. A new Customer Engagement Strategy **(CES)** has been developed in Ireland since 2015 so that customers are able to interact with Revenue providing modern online services that are easy to use and that customers wanted.

Example 1: Customer Engagement Strategy (Ireland)

Treatment of (compliance) risk is the activity of selecting and applying appropriate measures to modify compliance risks, with the aim to avoid the damages inherent to the risk or making use of advantages it could provide. The compliance risk treatment stage (**figure 15**) can be describe as *'the process in which the negative impact of the risk on the administration's objectives is reduced or neutralised.'*

In the following sections, risk treatment is described in detail, starting with impact of digitalisation and technology for treatment in par. 3.5.2. Next, the various treatment options that can be classified in three general groups are described in par. 3.5.3. Paragraph 3.5.4 describes how an appropriate mix of treatment forms could be the way in CRM to get an optimal result. Paragraph 3.5.5. concludes with the timing and quality of treatment forms or interventions.

Figure 15: The treatment stage

3.5.2. The impact of digitalisation and technology on treatment

In the current era of digitalisation and technology new ways of working will probably be adapted and therefore impact the *treatment stage* of CRM. In general, digital techniques are also allowing tax administrations to take a more preventative approach to CRM. There is a tendency to move from a repressive and reactive approach (i.e. a downstream approach) to working real-time and a preventive and proactive approach (i.e. an upstream approach) which makes it easier for taxpayers to comply. By seeking to act at earlier stages in taxpayer processes, tax administrations can prevent non-compliance from happening rather than having to uncover it after tax returns have been filed. Using the Three Horizons model, we recognise the following new ways to deal with treatment of compliance risks (**table 10**).

[109] OECD (2013). Co-operative Compliance: A Framework: From Enhanced Relationship to Co-operative Compliance

[110] Mc Kinsey (2009). The road to improved compliance (p. 9)

Table 10: Three Horizons model of risk treatment

HORIZON	EXAMPLES
FIRST HORIZON • Taxpayer behaviour is taken under consideration to design the treatment • Treatment plan/measures tend to be proactive rather than reactive • Digitalisation and technology are applied to support proactive treatment plans/measures • Reactive measures assisted by digital information from third parties and/or administrative cooperation • Improving taxpayer e-services	**Examples first horizon** • Example 1: Customer Engagement Strategy (Ireland) • Example 5: Pre-filled income tax and VAT return (Greece). • Example 7: Tool 'Alerts and Mismatches (Portugal) • Example 50: The project of promotion of tax topics (Slovenia) • Example 59: YouTube Channel (North Macedonia) • Example 44: Cooperative Compliance for Large Business (The Netherlands) • Example 45: Cooperative Compliance with tax intermediaries for SME's (The Netherlands) • Example 46: Large business Forum (Spain) • Example 54: Rewarding taxpayers (Croatia) • Example 57: Sharing risks with taxpayers (Ireland)
SECOND HORIZON • Input through output analysis to improve treatment measures (performed ad hoc) considering taxpayer behaviour • Increased use of real time treatment measures based on digitalisation and technology tools • Digitalisation and technology support TA s customer/taxpayer services for a great number of tax areas • Proactive treatment measures based on information from administrative cooperation or other sources may efficiently and effectively apply to tax non declared incomes/transactions • Improving TA taxpayer e-services due to new technologies	**Examples second horizon** • Example 12: VIVI (VIrtual VIsit) E-audit (Spain) • Example 24: Real time identification risks Virtual Cash Register (Slovakia) • Example 30: Virtual Assistant tool for VAT and Censuses (Spain) • Example 31: Chatbox TAXANA (Slovak Republic) • Example 58: E-books, myDATA (Greece) • Example 61: E-invoice nudge letters (Italy) • Example 63: Enhance taxpayers' compliance through Nudge Letters (Cyprus)
THIRD HORIZON • Continuous input - through output analysis to improve current treatment plans /measures • Treatment plans based on the use of digitalised international cooperation information or other digitalised information (real time or near real time) • Customer/taxpayers e-services for all tax areas and types of income	**Examples third horizon** • Example 47: Integral Digital Administration ('ADI') (Spain)

The three stages of development of the Three Horizons model, including (part of) the examples are elaborated in par. 3.5.3, which focusses on more proactive and preventive measures, as well as real-time activities, and in par. 3.5.4, which discusses the 'digital tax authority', which deals with the administration of taxation 'real time' or near real time.

3.5.3. Classification of compliance risk treatment forms

There are various treatment options to encourage compliance and prevent non-compliance. Preference will be given to those forms of treatment which will reach the desired level of compliance with a minimal use of resources. Treatment always must be carried within the boundaries of the limited human and other resources.

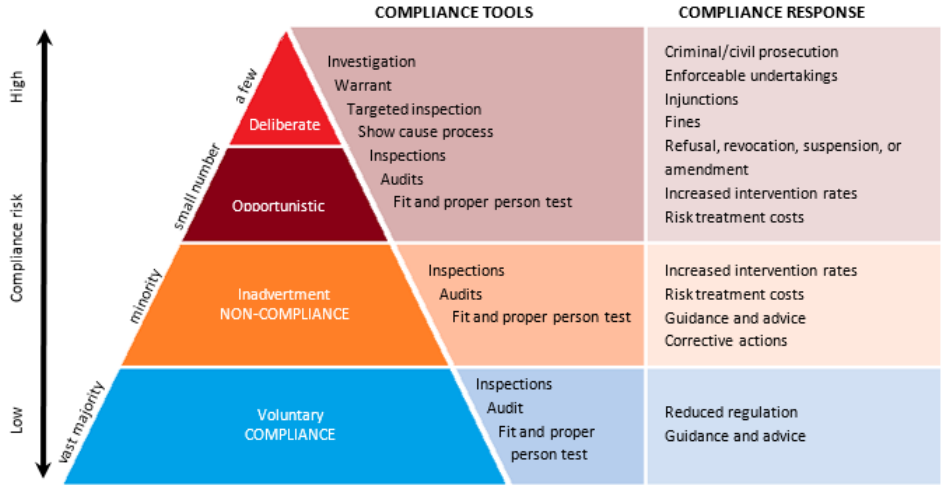

Figure 16: The compliance spectrum

The treatments available can be used on a specific (compliance) risk, at taxpayer level and also on a general level. The measures to be chosen are depending on the specifications of the risk and the behaviour of the taxpayer. They should ideally reflect the location occupied by the taxpayer on the compliance spectrum (or pyramid) (see **figure 16**). Clearly, the provision of 'help and advice' is not appropriate to a fraudster, nor is a full investigation to a compliant taxpayer. Where analysis is able to distinguish the relative compliance levels, this will support the decision of an appropriate treatment form. However, often, analysis will only point to particular risk areas and not to where on the scale of compliance a particular taxpayer belongs. If so, scientific research (see chapter 2) can be a useful aid for educated decision-making. The compliance spectrum visualises the connection between the assumed degree of compliance, as shown in the 'pyramid', and the expected effect of the various treatment forms.

The various treatment options can be classified in three general groups, within which *risk transfer* focusses on 'outsourcing' the risk, *risk reduction* focusses on upstream activities – activities that help to improve the quality of the tax return before it is filled – and *risk covering* focusses on downstream activities – activities that take place after the tax return has been filed. All groups will be discussed in the next paragraphs:

- **Risk Transfer:** transferring compliance risks to other entities (par. 3.5.3.1)
- **Risk Reduction:** reducing compliance risks in advance (par. 3.5.3.2)
- **Risk Covering:** covering compliance risks when they occur (par. 3.5.3.3)

3.5.3.1. Transfer of compliance risks

'Risk transfer' enables the tax administration to reduce or eliminate the potential impact of the compliance risks. Risk transfer involves *transferring* compliance risks to another organisation (outside the tax administration) which is better equipped of dealing with it. For example, a tax administration can transfer the *payment risk* to a bank by requiring from taxpayers to adduce a bank guarantee against future tax liabilities. The risk of not paying is therefore transferred from the tax administration to another organisation, in this case a bank. In this way, the passing of risks can be considered as the ultimate form of risk reduction. However, because the risk still exists, despite being on someone else's plate, it must be considered as a specific form of risk treatment.

Examples of risk transfer activities are presented in **table 11**.

3.5.3.2. Reduction of compliance risks

'Risk reduction' seeks to reduce the *likelihood* of occurrence of a risk or to reduce its *consequences*, or to achieve both objectives at the same time. Over recent years most tax administrations have adopted strategies that are addressing compliance risks up-front, that is before a tax return is filed, encouraging 'voluntary compliance'. What all initiatives taken by tax administrations have in common is that they aim to create an environment in which compliance is promoted and making errors is avoided, and 'compliance' will be 'the inevitable outcome' (or final result) of actions performed by taxpayers. The more risks that can be reduced in advance, the less effort is needed after the event. Reducing risks can be seen as a specific form of risk coverage. Risk *reduction* is possible in several ways:

a) A 'right from the start approach'

A 'right from the start' approach is an approach that "makes it impossible or difficult to make mistakes" by creating an environment which supports compliant behaviour, while, at the same time, opportunities for both unintentional and intentional non-compliant behaviour are significantly reduced.

A 'right from the start' approach will put the focus of a tax administration to:

- the external processes of taxpayers and stakeholders
- factors in the taxpayer's environment that influence compliance behaviour
- the present (the ongoing tax-related events or processes of the taxpayer)

Pillars of such strategy are:

- *Enacting understandable legislation* to reduce complexity and counter (generic) risks (which, in general, is the task of the legislator)
- *Giving technical solutions,* such as introducing validity checks to verify the reliability of tax data
- *Making agreements with organisations* in economic sectors to discuss relevant (generic) risks and seek for (generic) solutions
- *Using pre-filled tax returns* (to avoid making mistakes)
- *Giving information and guidance* to taxpayers by *guidance notes* supporting tax returns
  Example 59: YouTube Channel (North Macedonia)
- *Making it easy to contact tax administration* (e.g. via virtual assistant or e-tax offices)
  Example 31: Chatbot TAXANA (Slovak Republic)
  Example 47: Integral Digital Administration ('ADI') (Spain)
- *Giving a helping hand:*
  - *Electronic tax return programs* for online declarations
  - *Physical help,* for elderly people
  - *Educational support packs* for use by schools
    Example 50: The project of promotion of tax topics (Slovenia)
- *Creating a third-party interest.* The third party can be an individual citizen or an organisation. Someone else is involved who takes the responsibility for the taxpayer to submit a correct tax return. The relationship can be ad hoc, structural, or institutionalised.
  Example 54: Rewarding taxpayers (Croatia)

Tax administrations are able, with the development of digitalisation and technology, to provide new support services and assistance for taxpayers that could go beyond traditional ones (pre-filled returns). They can be extended to personalized virtual assistance services, facilities for keeping books (Example 58: e-books, myDATA (Greece)) records and accounting for tax purposes etc. All of this could improve the measures to diminish compliance risks. An example of such a virtual assistant is the Virtual Assistant Service from Spain. The virtual assistant answers questions from taxpayers about e.g. foreign trade, real estate operations, invoicing and registration, taxation, and exemptions.
Example 30: Virtual assistant tools for VAT and Censuses (Spain)

Examples of other risk reducing treatments are presented in **table 11**.

The Tax Administration of the Slovak Republic launched a project called Virtual Cash Register where high-risk professionals are sending registered income online to a tax office database. The Tax office communicates with the taxpayer using a software to send various notifications.

Example 24: Real time identification risks Virtual Cash Register (Slovak Republic)

b) *Cooperative compliance*

Cooperative compliance represents a shift in thinking for tax administrations, away from a deterrence approach where taxpayers are coerced to comply with tax rules and threatened by audits and penalties, towards a more responsive and collaborative approach.[111] The core of cooperative compliance is a relationship based on trust and transparency between a taxpayer and a tax authority. Such an approach should lead to more certainty about the tax position for a large business and to more compliance – resulting in a higher degree of certainty on tax revenues – for a tax authority. To achieve this, both parties must keep to certain principles.[112] The Netherlands was one of the early adapters of a cooperative compliance strategy, named Horizontal Monitoring.

Example 44: Cooperative Compliance for Large business (The Netherlands)

A 'cooperative compliance' approach will put the focus of a tax administration to:

- cooperation based on trust, mutual understanding, and transparency
- building a solid and professional working relationship
- concluding covenants with large businesses or tax intermediaries (for SME's)
- Encouraging businesses to introduce a tax control framework and monitoring of its workings (the same for tax intermediaries) based upon which a tax administration can diminish its workload.

Pillars of such strategy are:

- *offering pre-consultation possibilities* to reduce disagreement on complex fiscal issues
- *concluding agreements with organisations* in economic sectors to discuss relevant (generic) risks and seek for (generic) solutions
- *concluding agreements with large businesses* to work based upon trust, mutual understanding, and transparency. (e.g. horizontal monitoring)
- *concluding agreements with tax intermediaries and their clients* to work based upon trust, mutual understanding, and transparency. (e.g. horizontal monitoring)

A specific form of cooperative compliance is concluding agreements with tax intermediaries on the fiscal affairs of their clients, the small and medium-sized enterprises (SME's). The Netherlands was one of the pioneers introducing horizontal monitoring with tax intermediaries for SMEs. In contrast to cooperative compliance for large business, which entails a relationship between the tax administration and the large organisation, the SME-oriented form of cooperative compliance entails a tripartite relationship involving the tax administration, a tax intermediary, and the SME (the taxpayer/client). The Netherlands concludes compliance agreements with tax intermediaries to cultivate relationships based on trust, understanding, and transparency in order to receive tax returns from SME's with no material misstatements.

[111] OECD (2013). Co-operative Compliance: A Framework: From Enhanced Relationship to Co-operative Compliance

[112] van del Hel-van Dijk, L., & Siglé, M. (2015). Managing compliance risks of large businesses: A review of the underlying assumptions of co-operative compliance. *eJournal of Tax Res.*, 13(3): 760-783.

Example 45: Cooperative Compliance for SME's via Tax Intermediaries (The Netherlands)

These strategies include consultation possibilities for specific tax issues (Example 57: Sharing risks with taxpayers (Ireland) -), cooperation with large businesses, cooperation with tax intermediaries, and cooperation with sector organisations. Spain, for example, established a Large Businesses Forum to promote greater collaboration between companies and the State Tax Administration of Spain.
Example 46: Large business forum (Spain)

Although the aim of a coherent compliance risk management strategy is to solve as many problems as possible at an early stage, also ex-post activities, i.e. activities that take place after the tax return has been filed, will be necessary to establish compliance, because not all non-compliance could be reduced by 'upfront activities'.

3.5.3.3. Ex-post coverage of compliance risks

'Risk Covering' involves measures to correct various type of non-compliant behaviour, from unintentional non-compliance to deliberate fraud. Therefore, there are many ways to cover risks and to interact with the taxpayer, which can differ in the degree of depth but also in capacity. Using a risk covering measure does not mean that all the risks are covered. Some of them can be accepted, for example because of their small financial consequence. For reasons of efficiency and effectiveness, the measures of risk covering must be in balance with the extent of the risk and/or of the cost to taxpayer. This is called the principle of *proportionality*. It should be noted that the possible use of the measures will always depend on the existing specific legal circumstances or a political imperative.

With regard to intentional non-compliance, the risk covering activities should "make it risky to make mistakes", e.g. to make it difficult for taxpayers to engage in tax avoidance/tax evasion.

Pillars of such strategy (in addition to the measures taken to avoid unintentional non-compliance) are:

- *Increasing perceived probability of detection***.** The likelihood of being caught is essential in taxpayer's deliberations (what taxpayers hear from others, what they observe about their own tax affairs, and what they absorb from the media).
- *Creating a third-party interest.* The third party can be an individual citizen or an organisation. Someone else is involved who takes the responsibility for the taxpayer to submit a correct tax return. The relationship can be ad hoc, structural or institutionalised.

There are some basic ways to approach the *covering of risks, after the tax return is filled*:

- **Requests to the taxpayer**
  - For example, questions to complete or to clarify information of the tax return by written contact, contact by telephone, invitation for a voluntary disclosure, offering debt payment facilities.
- **Desk checks**
  - For example, a partial or full '*desk check'* which is a treatment that is carried out in the tax office in which one or more specific risks of the tax return are covered 'from behind the desk'. The check is done with available information, interpretation of law, and regulations to examine the pointed risk area. If necessary, contact with the taxpayer is possible.
  - *'Desk audit'*: In this digital era taxpayers use computers more and more for their bookkeeping. This offers the tax administration opportunities to ask the taxpayer to send an electronic copy of his accounts to the local office. Here the analysis of the records can take place. A desk audit can be followed by a partial or full audit (on site), for example, if access to underlying papers is needed. Also, the choice can be made to finish the desk audit in the office by asking the taxpayer to send the selected papers.

- **Audits**
  - For example, a *field audit* (can be a complete or partial audit); *observation on site* (to uncover instances of tax evasion or check number of staff or cash real time) or a *criminal investigation* (when the taxpayer is a suspect with specific rights and obligations) with the aim to collect evidence for a criminal court case. The Spanish tax administration developed an IT tool called "VIVI" (virtual visits for auditing). VIVI is a more efficient way to develop virtual visits for the cases were an on-site meeting is not strictly necessary.
    Example 12: VIVI (Virtual Visit) E-audit (Spain)

  - *Specific activities: multiagency treatment* is proposed for risks coming from a group of taxpayers legally connected to each other that have more issues than tax related affairs *and project treatment* is applicable for complex risks needing the support of a group of specialists or for carrying out pilots for new activities.

Examples of Risk Covering activities are presented below in **table 11**.

3.5.4. Applying an appropriate mix of treatment forms

The most effective way, *risk transfer*, can only be used in some specific and limited areas in tax administrations. Therefore, *reduction* and *covering compliance risks* remain the most important strategies for treatment of compliance risks within the context, strategy, and objectives of the tax administration. The enforcement of the law must meet all requirements of equity but, for reasons of effective and efficient performance of their duties, tax administrations must make choices with respect to the degree of examination. This means that the treatment must be businesslike and based upon rational arguments instead of arbitrary choices.

Reducing or preventing activities are, in general, undertaken before the submission of the tax return. *Risk covering or repressive activities* follow on. Also, the nature of reducing activities tends to be more general and, therefore, often not focussed on an individual taxpayer, except for interventions such as pre-consultation or those based on a cooperative compliance approach. In contrast, risk covering activities are almost always related to an individual taxpayer. A tax administration should make the most efficient use of the limited human and other resources and try to minimise the costs of interventions. Therefore, preference should be given to those forms of treatment that reach a certain level of effectiveness with minimal use of resources. This means that, in general, *risk-reducing forms of treatment* will be used first, followed by *forms of risk covering* that use minimum capacity and, finally, by methods using more capacity. Very often, an optimum result is gained with a combination of treatment forms (appropriate mix). This is the heart of CRM: knowing how to allocate available resources in the most efficient way to get an optimal result.

With tax administrations turning into 'E-Tax Administrations', all taxpayers are enabled to a single sign-on system which could provide electronic services to all taxpayers, for all tax areas and all type of income. Most tax administrations enable electronic filing of tax returns for the major taxes and the electronic payment of taxes.
Example 5: Pre-filed income tax and VAT return (Greece)
Example 7: Tool 'Alerts and Mismatches' (Portugal)
Example 8: File a tax return or pay your taxes in one click (A.E.A.T.Spain)

Subsequently administrations adopt more two-way services including alerts and notifications. They also developed automated systems and processes for exchanging taxpayer data between businesses, government bodies and tax administrations.

In an e-tax administration taxpayers are provided with e.g. online access to their own taxpayer information (e.g. registration and accounting details), mobile applications that allow taxpayers to undertake inquiries on their tax account and increasingly to be able to pay and file and self-service options, especially utilising technologies that allow the provision of more personalised services and automated support. Spain, for example, introduced *Integral Digital Administration*, which is a 'virtual desk', designed under the premise of facilitating voluntary compliance, with more than 300 specialised officials to serve telematically taxpayers throughout the country.

Example 47: Integral Digital Administration ('ADI') (Spain) [113]

In Italy, for example, nudge letters are sent to taxpayers to inform them about the difference between what they declared in the VAT tax return or in the VAT quarterly settlement and the amounts resulting from e-invoices and e-receipts.
Example 61: E-invoice nudge letters (Italy)
Example 63: Enhance taxpayers' compliance through Nudge Letters (Cyprus)

These possibilities allow the treatment phase in the future to be carried out in a context where support to taxpayer is the basis for compliance.

Generally, a mix of different forms of treatment is used to address a specific target group and/or specific (compliance) risks, rather than using a single instrument in isolation. Within the EU Member States appropriate mixes for specific risks can vary, e.g. due to cultural, organisation and other differences between the Member States.

Table 11 illustrates various treatment options presently employed by EU countries (full version of the examples is available in **Annex 1**), taking into account the different horizons.

Table 11: The matrix of examples

		Treatment Options		
		Risk Transfer	Risk Reduction	Risk Covering
Country	**Example**			
	FIRST HORIZON			
Ireland	Example 1: Customer Engagement Strategy		√	√
Greece	Example 5: Pre-filed income tax and VAT return		√	√
Portugal	Example 7: Tool 'Alerts and Mismatches	√	√	√
The Netherlands	Example 44: Cooperative Compliance of Large Business	√	√	√
The Netherlands	Example 45: :Cooperative Compliance of SMEs (via Tax intermediaries)	√	√	√
Spain	Example 46: Large Business Forum	√	√	
Slovenia	Example 50: The project of promotion of tax topics		√	√
Croatia	Example 54: Rewarding taxpayers	√	√	
Ireland	Example 57: Sharing risks with taxpayers	√	√	

[113] ADI (Spain)

Republic of North Macedonia	Example 59: You Tube Channel		√	√
	SECOND HORIZON			
Spain	Example 12: VIVI (VIrtual VIsit) E-audit		√	√
Slovak Republic	Example 24: Real time identification risks Virtual Cash Register		√	√
Spain	Example 30: Virtual assistant tools for VAT and Censuses	√	√	√
Slovak Republic	Example 31: Chatbox TAXANA	√	√	
Greece	Example 58: E- books, myDATA		√	√
Italy	Example 61: E-invoice nudge letters		√	√
Cyprus	Example 63: Enhance taxpayers' compliance through Nudge Letters		√	√
	THIRD HORIZON			
Spain	Example 47: Integral Digital Administration ('ADI)		√	√

3.5.5. Timing and quality of treatment forms

Effective treatment relies on the selection of the appropriate form of treatment and the *timing* of treatment. Advances in technology now allow for detection and treatment to occur earlier and in some cases simultaneously. Some tax risks can be and should be addressed prior to acceptance of a taxpayer into the tax system, e.g. through educating future taxpayers. However, other risks only materialise after registration as a taxpayer has occurred so analysis and treatment can only take place after registration.

Timing of the treatment depends on the timing of the detection and the character of the risk, whether it is *structural* or *incidental*. In the case of incidental risk, early execution of treatment is important. As discussed earlier in this chapter, tax administrations now engage in proactive treatment measures such as prefilled tax returns and real time checking of tax returns (see par. 3.5.3.2).

Both the timing and the quality of the treatment are contributory to the ultimate effect on the risk chain. A well-identified, analysed and assessed risk that is treated inappropriately will not address the drivers of compliance behaviour. The taxpayer will persist in non-compliance and there is a chance that his behaviour will deteriorate. The correct treatment or treatment mix should deliver sustained compliance.

The output of the phase of risk treatment should give an answer to the question of whether the tax administration has reached its goals. Therefore, the treatment plan needs to be evaluated, which take place in the next stage of the CRM process (chapter 3.6 Evaluation).

3.6. Evaluation

3.6.1. Introduction

Evaluation is the last step of the Compliance Risk Management (CRM) Process (**figure 17**). In the current society, it is crucial for tax administrations to be able to answer the question of whether they have achieved their goals. The public nowadays holds tax administrations more accountable if they are doing the right things and if they are doing them right. Tax administrations must be able to

explain how their actions[114] contribute to their strategic goals (e.g. improving compliance).

Evaluation can take place at different levels in a CRM strategy. On a strategic level, evaluation can help indicate how the administration is meeting its long-term objectives (e.g. increasing the compliance level and/or reducing the tax gap) and also to reshape tax administration future compliance improvement strategies. On a tactical level, evaluation can help to indicate how a mixture of instruments can contribute to influencing the behaviour of segments of taxpayers (e.g. large businesses, SME's, private individuals). On an activity or project level, evaluation can help guide activities towards those that work most effectively. *It is important to note that CRM is a cyclical process in which evaluation should take place systematically at each stage of the CRM process, to build a learning circle so the CRM process can be adapted when necessary*. Evaluation will very often need to have a short-, medium- and long-term horizon, in order to gauge the extent to which expected outcomes are being achieved and to ascertain if these are sustained over time. The timing of an evaluation is important and could take place, ex-ante, ex-durante and ex-post. Besides evaluating interventions that take place within the CRM cycle, the evaluation of legislation could be of importance. With regard to *legislation*, which is the basis for the administration of taxes, tax administration often have little influence on the realisation, while the complexity of legislation can be a source of non-compliance. In the Netherlands the tax administration carries out *ex-ante tests* to examine the feasibility of new legislation (so-called 'uitvoerings toets' in Dutch). For the test a template is used which provides insight into the consequences of proposals for new laws and regulations with regard to feasibility, enforceability and fraud-resistance.

Example 48: Ex-ante 'evaluation' of new legislation (The Netherlands)

The impact of digitalisation and technology on evaluation will be discussed in par. 3.6.2, a theoretical explanation of the evaluation stage will be given in 3.6.3 and the practical implementation of an evaluation in practice in 3.6.4. Due to the importance of outcome measurement for tax administrations the EU Risk Management Platform launched a project in 2018 on "Identifying new and innovative methods on outcome measurement" (FPG084). The information in this paragraph is based upon the report produced by the project group. In this report all kind of examples of evaluation of CRM activities are described.[115]

Figure 17: The evaluation phase of CRM

3.6.2. Evaluation and digitalisation

In the current era of digitalisation and technology, new ways of working probably will be adapted. This makes evaluation even more important to answer questions from stakeholders, asking if these new ways of working are (more) efficient and effective compared to the old ones. In line with these changes, also the *process of evaluation* itself will be changing. The availability of bulk data and new technologies to handle data leads to new opportunities (and challenges in dealing

[114] By "actions" we mean all activities, instruments, interventions, measures, programmes, etc., or, in other words, everything an administration undertakes in order to carry out its strategy.

[115] EU Fiscalis project "Building towards outcome measurement for Tax Administration" (FPG084) (2020).

with such massive data) for the evaluation stage. Evaluating taxpayer compliance will develop from an ex-post activity to continuous monitoring in the near future.

Using the Three Horizons model, we recognise the following stages of innovation, reshaping the *evaluation stage* of CRM (**table 12**).

Table 12: Three Horizons model of evaluation

HORIZON	EXAMPLES
FIRST HORIZON • Evaluation is an ex-post activity • Improvement of clear goal setting • Improvement of outcome measurement • Better availability of data • Improve process of evaluation (more systematically)	**Examples first horizon** • Example 22: Compliance map (The Netherlands) • Example 37: Making better use of available data (Denmark) • Example 48: New legislation (ex-ante evaluation) • Footnote 126: Tax gap calculations (UK) • Footnote 127: Evaluation of Large Business strategy (The Netherlands)
SECOND HORIZON • Evaluation is a combination of ex-post and real-time activity • Digital data gathering for evaluation from taxpayers • Use of new technologies (for research purposes)	**Examples second horizon** • Example 30: Virtual assistant tools for VAT and Censuses (Spain) • Example 31: Chatbox TAXANA (Slovak Republic) • Footnote 200: Maturity Models (EU) • Footnote 118: Client service level evaluation
THIRD HORIZON • Evaluation takes place continuously • Use of automated monitoring techniques	**Examples third horizon** • Footnote 129: Continuous monitoring

The three stages of development of the Three Horizons model, including (part of) the examples are elaborated in the theoretical (par. 3.6.3) and practical (par. 3.6.4) explanation of evaluation.

3.6.3. A theoretical explanation of evaluation[116]

In recent decades tax administrations have focussed more on traditional risk selection of individual tax returns rather than comprehensive CRM. Following the change from a traditional approach towards CRM, evaluations are now moving towards measuring outcomes of compliance activities (e.g. a change in compliance level) rather than outputs (e.g. number of audits performed).[117] While output measures represent a day to day management performance indicator, they do not provide any insight as to the outcomes or impacts resulting from tax administration activities. Currently, tax administrations have an increased demand for outcome measurements due to e.g. questions from politics and society about the added value of the work of tax administrations. To be able to measure the outcomes (or effects), a tax administration must have clear objectives on all levels in the organisation that could be operationalized into measurable indicators.

[116] EU Fiscalis project "Building towards outcome measurement for Tax Administration" (FPG084) (2020).

[117] OECD (2012). Evaluating the effectiveness of compliance risk treatment strategies, p. 11.

If we have a look at the current state of play, practice shows that a lot of tax authorities struggle with evaluation and more specifically with *outcome measurement*. The reasons for that are that e.g.:

- tax authorities lack clear goal setting which make it difficult to design a proper evaluation
- evaluation within a CRM context is often still an ad hoc process that is not embedded in the CRM strategy
- tax authorities lack the necessary data and knowledge to carry out a proper evaluation. Having data and new technologies available offers the possibility to improve the current situation, make *the process* of evaluation more efficient (and effective) and give the possibility for monitoring activities (horizon 1).

Currently, evaluation is mostly an ex-post activity (looking back if the desired goals have been achieved). Evaluation, however, is more than only looking back and could also take place before (ex-ante) and during (ex-durante) an activity takes place.

Tax authorities could be using digital technology for evaluating e.g. the perceived client service level of taxpayers.[118] If data/information due to digitalisation and technology becomes available quicker, evaluation can take place more *dynamically* (e.g. change interventions during the course of a project instead of afterwards) (horizon 2).

Evaluation also encompasses more than only *outcome* or effect measurement, because the evaluation of the *plan* and the *process* of activities of tax administrations could also have an added value. These types of evaluation are described in the **table 13**.

A more extensive description of the various types of evaluation can be found in the Fiscalis report "Building towards outcome measurement for Tax Administration" (FPG084).[119]

Table 13: Types of evaluation[120]

TERM	EXPLANATION
Plan evaluation	A plan evaluation evaluates the policy or intervention plan, i.e. the plan describing how the administration intends to achieve its goal(s). This type of evaluation answers the question of whether the underlying plan, in which the activity is elaborated, fits within the Compliance Risk Management strategy of a tax administration and whether it is reasonable to assume that the (mix of) compliance actions planned will contribute to reaching the objective set.
Process evaluation	A process evaluation focusses on the way the compliance activities are carried out. A process evaluation answers the question of how and/or why a plan works (or doesn't work).
Impact or Outcome evaluation	Outcome measurement is a form of evaluation to determine if a tax administration has reached its strategic goals (e.g. compliance). It also may contribute – in the long term – to answering the question of whether a tax administration has reached its 'societal' goals, that have led to a change in society (e.g. tax morale) *(= impact evaluation*). Outcome measurement describes if and to what extent the desired objectives of a tax administration are achieved, caused by the actions of the tax administration.

[118] Digital data gathering for monitoring and evaluation

[119] EU Fiscalis project (2020). Building towards outcome measurement for Tax Administration (FPG084).

[120] EU Fiscalis project "Building towards outcome measurement for Tax Administration" (FPG084) (2020), chapter 2.2.

3.6.3.1. Objectives tree and Program Theory model

The starting point for each evaluation should be an analysis and/or reconstruction of the underlying policy of a programme, activity or intervention before any action or intervention is undertaken. To visualise how objectives, underlying assumptions and means to achieve desired objectives are related, a so-called *objectives tree* (**figure 18**) can be used. When evaluating tax administrations treatment forms to establish if the desired goals are achieved, academic literature can provide support in testing underlying presumptions of those activities (e.g. when applying behavioural insights). Content analysis software could support qualitative analysis to make presumptions more robust and evaluate the logic of applying them (horizon 2).[121]

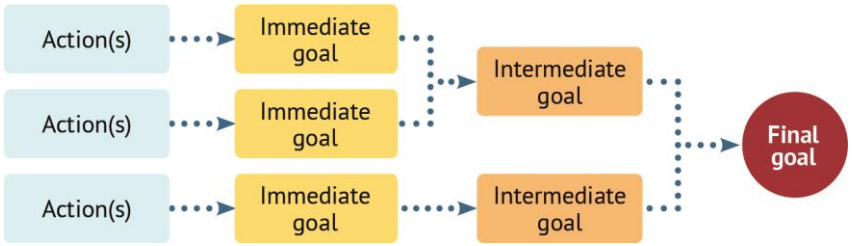

Figure 18: Objectives tree[122]

A simplified version of the Program Theory model[123], which describes the course of events, from input to outcome, and how these events are linked in a cause-and-effect chain, can be used to plan and implement an evaluation. The central part of the program theory is the *cause-effect chain*. In a very simple world where the input is both necessary and sufficient to cause the output, the cause-effect chain gives a complete description of the course of events. But in the real world there are often a lot of other factors that will affect the outcome. These other factors are *frame factors* and *external factors.* The Program theory model visualises the difference between *effectiveness* (comparing the input to the outcome) and *efficiency* (comparing the input to the output). See **figure 19** for an example of the cause-effect chain in a CRM context.

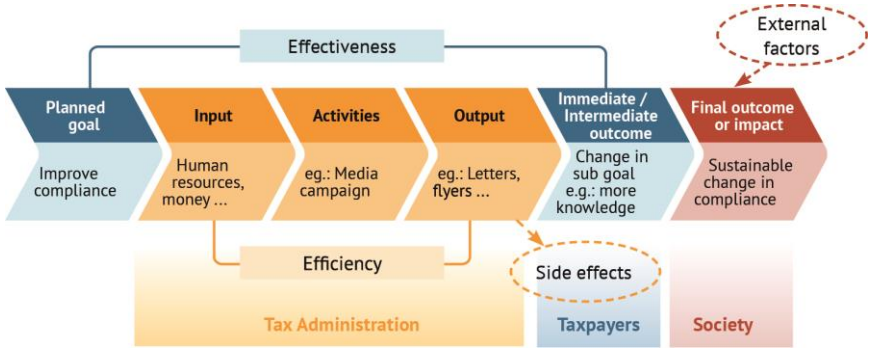

Figure 19: Cause-effect chain[124]

Effectiveness of activities within a Compliance Risk Management process is determined by comparing the input to the outcome and it is particularly associated with the extent to which taxpayer compliance (e.g. filing, reporting and payment) has been improved as a result of tax administration activities (e.g. a publicity campaign). *Efficiency* is determined by comparing input to output. *Efficiency* relates to reducing or minimising the use of resources to produce a given level of outputs (e.g. increasing the number of completed audits for a given

[121] Schebesta, H. (2018). Content Analysis Software in Legal Research: A Proof of Concept Using ATLAS.ti

[122] Source: EU Fiscalis project "Building towards outcome measurement for Tax Administration" (FPG084) (2020).

[123] Program Theory is a specification of what must be done to achieve the desired goals, what other important impacts may also be anticipated, and how these goals and impacts would be generated. Chen, H. T. (1990). Theory-driven evaluations. Newsbury Park, CA: Sage.

[124] Source: EU Fiscalis project "Building towards outcome measurement for Tax Administration" (FPG084) (2020).

level of staffing, other things being equal, would reflect improved efficiency) or conversely, increasing the volume of outputs for a given level of inputs.

The key terms used in the Program Theory Model are described in **table 14**.

Table 14: Program theory key terms

TERM	EXPLANATION
Input	*Inputs* are the resources consumed to produce the outputs. They can be described in financial terms (e.g. costs) or in physical terms (e.g. work hours).
Activities	*Activities* are the basic steps of the process where input is transformed to output (e.g. every activity undertaken by a tax administration to achieve its objectives).
Output	*Output* is what is produced (e.g. number and quality of audits, number of assessments or collected revenue, other measures taken to reduce compliance risks).
Outcome	*Outcome (Impact or effect)* refers to the typical purpose of activities, that is to achieve something such as the long-term goal of improved compliance rather than the direct output (e.g. audits). A time factor could be added to the model to divide the outcome into immediate, intermediate and long term outcomes.
Side effects	Side effects are other effects (positive or negative) than the intended ones, deriving from the actions of the tax administration.
Frame factors	Frame factors (e.g. culture, traditions) are obstacles in the process to reach the desired outcome.
External factors	External factors (e.g. changes in the economic environment) make it difficult to isolate the effect of the activity (e.g. increased revenue may be from growth in GDP rather than the effect of our activities).

An example of a *frame factor* is that taxpayer registers cannot identify those affected by the rules. The consequence is a less effective campaign. Examples of *external factors* are other control activities, new regulations or changes in the economy. Notice the difference between frame factors and external factors. Frame factors are *obstacles* in the process to reach the desired outcome, whereas external factors are factors, which make it *difficult to isolate the effect of the input*. A negative side effect of a publicity campaign could be that taxpayers are not compliant on other issues than the one that get attention in the publicity campaign because they assume that the tax authority will not be paying attention to those other issues.

See **Annex 4** for planning and designing an evaluation and the collection of the necessary data.

An example of data collection by means of new technology is *Digital data gathering*, which is a process of collecting data electronically through the use of existing technology such as personal digital assistants (PDAs or smart phones), tablets and net-books for data collection.

3.6.4. Evaluation in practice[125]

In a CRM strategy evaluation could take place at various levels. The strategic level refers to the tax administration as a whole, the tactical level refers to the target groups of private individuals, SMEs and large companies, and the operational level refers to projects or (a mix of) activities.

On a *strategic level,* so-called 'policy reviews' could take place to evaluate periodically the effectiveness and/or efficiency of the whole strategy of a tax administration (or its main policy instruments like e.g. service, supervision and fraud detection). An example is the compliance analysis the Danish Tax and Customs administration makes.

[125] EU Fiscalis project "Building towards outcome measurement for Tax Administration" (FPG084) (2020).

Example 37: Making better use of available data (Denmark)

Also macro-economic calculations of the tax gap could play a role in evaluating the level of compliance of the whole population of taxpayers (or in simplified terms: the tax gap could indicate the scope of tax evasion and tax avoidance). An extensive example of a macro-economic tax gap estimation is carried out by the UK.[126] Ex-post the Netherlands have develop a so-called 'Compliance Map' which monitors all tax revenue the tax administration has received to see if the level of compliance has changed over the years due to changes in the execution of the law and taxpayer supervision.

Example 22: Compliance map (The Netherlands)

On a tactical level, tax administrations carry out evaluations for SMEs and private individuals by means of random samples (checking or auditing tax returns randomly) to gain insight into the degree of compliance of both target groups. The sample results are also intended to test the totality of choices made in CRM in the target group concerned. For large business this could be more difficult due to the smaller number of taxpayers. However other ways of evaluating are possible. An example is the Netherlands, which conducted research in 2017 and later years to provide insight into the relationship between the tax authorities' working method at large companies, the so-called individual customer treatment (IKB), and the tax administrations' policy objective of promoting and maintaining the (tax) compliance of companies.[127]

Tax administrations should carry out outcome measurements at operational level, referring to the operation of individual instruments or actions or to a mixture of actions that have taken place within the CRM strategy.

3.6.4.1. Timing of the evaluation

The evaluation process can either be carried out on a short-term basis (immediate or intermediate outcome) or on a more comprehensive long-term basis (final outcome or impact).

a) Short-term evaluation would include e.g. assessing the percentage increase in taxpayers (affected by the intervention) filing correct tax returns on time; or the correlation between e.g. the intervention and the improvement in knowledge of taxpayers in immediate periods (*x+1,2,3*).
b) Long-term evaluation would evaluate the effect of the intervention on a longer period of time. Long-term evaluation is a more difficult process since external factors can hinder evaluation in a longer time frame. In some cases, major external factors such as an oncoming election or an unexpected event (such as COVID-19) may bring major changes that make evaluation extremely difficult.

In the example below the difference between short term and long term evaluation is illustrated.

Virtual Assistant

A tax administration which introduced a virtual assistant to deal with customer requests on the internet (e.g. Example 30: Virtual assistant tools for VAT and Censuses (Spain) Example 31: Chatbot TAXANA (Slovak Republic)) can be evaluated in the short-term as follows:

a) calculating the number of customer requests to the virtual assistance over Month 1, Month 2, Month 3 etc. (this gives a measure of the extent of use of the new virtual assistant)
b) categorising the customer requests into specific areas to facilitate future virtual assistance (e.g. improving FAQ area to assistance users in the most common questions)

[126] Tax gap estimates (UK)

[127] Rapport Onderzoek Grote Ondernemingen, Belastingdienst (2017) (In Dutch).

c) analysing the degree of satisfaction of the users with the virtual assistant (e.g. user would be required to rate his satisfaction with the virtual assistant on a level of 1-5); and evaluating whether areas with a low level of satisfaction can be improved.

In the long-term (e.g. after a year), the virtual assistant could be evaluated on the extent to which it increased the digitalisation of the tax administration e.g. how it reduced phone calls or physical meetings at the tax administration's Customer Care; or more comprehensively, whether Machine Learning techniques have helped the virtual assistance to improve itself in dealing with user requests over a specified time period.

If tax authorities will transform towards 'digital tax authorities' with a so-called data-driven strategy for which various scenarios could apply, with e.g. real time tax payments, also evaluation of activities will change. In this setting, evaluation could take place on a more continuous and automated basis. As an example, in a 'data protection' context, continuous monitoring allows for real-time insight into the threats to the system.[128] Translated to the CRM context, 'continuous monitoring' could be described as the continuous process to monitor tax returns or taxpayer data in which technology is used to establish (non) compliance and risk issues associated with the tax administrations goals to be achieved, in order to evaluate the whole of tax administrations activities. Continuous monitoring is likely to employ automated technology to simplify and mechanise the evaluation process (horizon 3).

3.6.4.2. Practical considerations

When carrying out an evaluation, some practical issues need to be considered. Examples of these issues are:

- Are the necessary resources and financial means to carry out an evaluation available?
- Is there a clear assignment of management to carry out an evaluation? Is there sufficient management commitment?
- Is the cooperation between the analysts and staff that carries out interventions arranged for?
- Should the evaluation activity be carried out internally (by the tax administration or a research department within the tax administration) or by an external research agency?
- Are there ethical issues that need to be discussed (e.g. different treatment of groups of taxpayers when working with a control group)?
- Can the necessary data be collected within the rules and regulations regarding privacy?

A more extensive description of the practical explanation of evaluation can be found in the Fiscalis report, "Building towards outcome measurement for Tax Administration" (FPG084)[129] and in **Annex 4**.

[128] Continuous Monitoring for Real Time Compliance

[129] EU (2020). Building towards outcome measurement for Tax Administration (FPG084).

4. Data, Digitalisation and Technology

4.1. Introduction

COVID-19 made it even more necessary to digitally transform the way tax administrations work. Tax administrations have quickly adjusted to a largely remote working environment, adopted innovative approaches to how they work, including the use of technology, digitalisation of service and automation of processes. Technology infrastructure was quickly developed to assist in this shift of working and this has demonstrated the agility of tax administrations.[130] The way a tax administration interacts internally and with taxpayers has permanently altered. Necessity accelerated the delivery of future digitalisation projects and even less advanced tax administrations have been pushed towards a more digital culture.

Digitalisation has been identified as a key pillar to the EUs recovery from COVID-19 and the EU is working to accelerate the technological transition by setting out concrete digital ambitions.[131] Tax administrations globally have agreed to improve the resilience of tax administrations, tax certainty and digital service transformation. Priority will be given to elements such as digital identity, e-invoicing and secure mechanism for real-time sharing of information, new ways of working and the development of new IT tools.[132]

Example 53: E-invoicing (Italy)

The last decade, the availability of data has grown exponentially and so have the technologies to process and analyse these data. New methods for data processing and analysis, based on the combined use of statistical techniques and innovative IT tools specifically tailored for management of large volumes of data have been developed. “Advanced Analytics” is the term used to identify the methods used for massive exploitation of large dataset, including Big Data processing, machine learning algorithms and predictive modelling. This approach allows tax administrations to extract new patterns and insights from data that would not be possible to obtain through traditional techniques.

Example 60: Big Data tools to calculate family relationships (Spain)

This chapter focuses on the new technologies and the use of advanced analytics in CRM that could be supportive for tax administrations.

In paragraph 4.2 a brief description of new technologies and advanced analytics to support the five steps of CRM, especially risk identification, risk analysis, and evaluation, are described.[133] These technologies can help tax administrations to make their risk analyses and fraud detection more accurate and to manage compliance (risks) in a better way. Paragraph 4.3 deals with technology to make internal processes of tax administrations more efficient. Paragraph 4.4 discusses more advanced distributed ledger technology and its potential for tax administration. Paragraph 4.5 deals with data management and governance of data due to increasing importance of data in CRM. Also changes in data collection due to increasing importance and availability and practical application of new technologies and advance analytics for CRM are reflected in this paragraph. Data privacy issues are discussed in paragraph 4.6.

4.2. New technologies and advanced analytics in CRM

New vocabulary around data processing and analysis has emerged, using words like data science, advanced analytics, predictive analytics, artificial intelligence, machine learning and social network analysis.[134] *Data science* is a broad concept

[130] OECD (2020). Tax administration responses to COVID-19: Assisting wider government

[131] A digital future for Europe

[132] Global actions to meet the current economic and administrative challenges

[133] Pijnenburg, M., Kowalczyk, W., & van der Hel-van Dijk, L. (2017). A roadmap for Analytics in Taxpayer Supervision. The Electronic Journal of e-Government, Volume 15, Issue 1, 19-32.

[134] Information Technology Glossary

that roughly contains all activities that have to do with the transformation of data to knowledge. The field encompasses preparing data for analysis, analysis of data and presenting findings to inform high-level decisions in an organisation. The 'data science' techniques can support the five steps of the CRM process, especially risk identification, risk analysis, and evaluation (chapter 3).[135] In this paragraph the main concepts, advanced analytics (par. 4.2.1), artificial intelligence, machine learning and algorithms (par. 4.2.2) and social network analysis (par. 4.2.3) are discussed.

4.2.1. Advanced Analytics

Advanced Analytics is the (semi) autonomous examination of data using sophisticated techniques and tools, typically beyond those of traditional business intelligence (BI), to discover deeper insights, make predictions, or generate recommendations. *Advanced analytic techniques* include those such as data/text mining, machine learning, pattern matching, forecasting, visualisation, semantic analysis, sentiment analysis, network and cluster analysis, multivariate statistics, graph analysis, simulation, complex event processing, neural networks.[136]

Advanced data analytics is a broad field in which *four levels of data analytics* can be distinguished: descriptive, diagnostic, predictive and prescriptive analytics, depending on the goals to be achieved. Each level has a different place in the data analysis process.

- Descriptive analytics: the examination of data, usually manually performed, to answer the question "*What happened?"* or *"What is happening*?", characterized by traditional business intelligence (BI) and visualisations such as pie charts, bar charts, line graphs, tables, or generated narratives.[137]
- Diagnostic analytics: the examination of data to answer the question "*Why did it happen?".* It is characterized by techniques such as drill-down, data discovery, data mining and correlations.[138]
- Predictive analytics: the examination of historical data to identify trends and determine if they are likely to recur, to answer the question *"What is likely to happen?"*. Predictive analytical tools provide valuable insight into what may happen in the future and its techniques include a variety of statistical and machine learning techniques, such as neural networks, decision trees, and regression (see par. 4.2.2).[139]
  Example 51: Uplift Model for campaigns to move taxpayers online (Ireland)
- Prescriptive analytics: the examination of data to answer the question *"What should be done?"* or *"What can we do to make (….) happen?"*, characterized by techniques such as graph analysis, simulation, complex event processing, neural networks, recommendation engines, heuristics, and machine learning.[140]

While traditional (descriptive and diagnostic) analytics generally focuses on insights relating to the current state, predictive analytics aims to provide users with an insight into the near or long-term future to determine the possible trends or behaviour. Both types of analytics take advantage of domain knowledge and available data, however, in traditional analysis, hypothesis of risky features emerge in the minds of domain experts, while in predictive analysis the computer algorithm generates the hypotheses and subsequently tests them on historical data. The strength of predictive analysis lies in the power of computer algorithms

[135] Pijnenburg, M., Kowalczyk, W., & van der Hel-van Dijk, L. (2017). A roadmap for Analytics in Taxpayer Supervision. The Electronic Journal of e-Government, Volume 15, Issue 1, 19-32.

[136] Advanced Analytics - Definition

[137] Descriptive Analytics -- Definition

[138] Diagnostic analytics - Definition

[139] What is Data Analytics?

[140] Prescriptive Analytics - Definition

to generate and check a vast amount of hypotheses on historical data. With predictive analytics a tax administration tries to predict a characteristic ('target') of a taxpayer or a tax return, with the help of a model.

'For example, in case of tax returns, this characteristic is often defined as true or false, depending on whether the tax return contains a particular error or not. A computer algorithm automatically generates a model based on a systematic examination of historical cases with a known target. An analysist selects a suitable algorithm and sets the parameters of the algorithm. Some popular modelling techniques are decisions trees, logistic regression, discriminant analysis, k-nearest neighbors, neural networks, support vector machines and random forests.' For an example see *VAT refund risk model*.[141]

The VAT refund risk model

This predictive model detects risky VAT declarations with a refund. The system is a mix between two statistical models (one for regular tax returns and one for tax returns of starting companies) and a set of business rules. Moreover, a submodule estimates the monetary value of a risky tax return. The core of the statistical models is formed by relatively simple logistic regression models containing some 25 predictors each (clustered in seven themes like 'predictors from the current tax return' and 'predictors based on timeliness'). The model is kept simple on purpose. This way the models may be explained internally and externally. For instance, in theory, it is possible to explain why a certain tax return has been labeled risky and another not. Moreover, simplicity ensures that feedback and new insights from VAT experts and end-users can be incorporated easily. The model is used for detecting risks. The choice whether to take action and what action is left to the business. The VAT refund risk model is supported by a random sampling scheme and some dashboards that measure its performance.

To start using predictive analytics is not easy. It is a task that every organisation can do if it is really committed to this approach and is ready to invest time and (analytical and statistical) resources that are necessary to start a project.[142] Predictive analytics does not really change the reasons why people want to know what will happen next week, month or year. However, it looks into the future more precisely and reliably than the previous tools. Predictive analytics can help those who use it to find ways how to save time and reduce costs.[143]

4.2.2. Artificial Intelligence, Machine Learning and Algorithms

Artificial intelligence (AI) applies advanced analysis and logic-based techniques, including machine learning, to interpret events, support and automate decisions, and take actions.[144]

Machine learning (ML) is an application of artificial intelligence (AI) that implements and adapts models, providing systems the ability to automatically learn and improve from experience without being explicitly programmed.[145] The focus of ML is typically on developing *algorithms* to make predictions. ML algorithms are able to process massive quantities of data, and to improve upon previous iterations by *learning* from the data they are provided. Learning problems can be roughly categorized as either *supervised* or *unsupervised*. In supervised learning, both the predictors and the outcome are observed: the aim is to predict the value of an outcome based on input measures. On the contrary,

[141] Pijnenburg, M., Kowalczyk, W., & van der Hel-van Dijk, L. (2017). A roadmap for Analytics in Taxpayer Supervision. The Electronic Journal of e-Government, Volume 15, Issue 1 (pag. 26 and 30-31).

[142] Pijnenburg, M., Kowalczyk, W., & van der Hel-van Dijk, L. (2017). A roadmap for Analytics in Taxpayer Supervision. The Electronic Journal of e-Government, Volume 15, Issue 1 (pag. 30-31).

[143] OECD (2016). Advanced Analytics for Better Tax Administration: Putting Data to Work. OECD Publishing, Paris.

[144] Artificial Intelligence - Definition

[145] Machine Learning - Definition

in unsupervised learning only the predictors are observed. The goal here is to describe the associations and patterns among a set of input measures.[146]

ML methods can represent a powerful tool for tax administrations. Indeed, they can be applied both to predict risk cases and to detect anomalies that could indicate potential errors or frauds. More specifically, supervised models are generally more appropriate when the tax administration aims at reducing nil-yielding interventions, i.e. at eliminating false negative. For example, using data on previous fraud and audit cases enables tax administrations to figure out which attributes are most highly correlated with a successful case. By contrast, unsupervised models are more suitable to identify previously undetected taxpayer segments with high rates of non-compliance.[147,148]

Therefore, *supervised learning techniques* are used if one knows in advance what to teach the machine. It typically requires exposing the algorithm to a huge set of training data, let the model examine the output and adjusting the parameters until getting the desired results. The machine can be tested by letting it make predictions for a 'validation' data set' (or in other words unseen data). Common supervised learning tasks typically encompass *regression* or *classification*.

- A **decision tree (figure 20)** is a supervised learning technique applied in regression and classification problems. *Classification trees* are used to predict the class to which the sample belongs. *Regression trees* are instead used when the outcome is a number. Each internal node of the tree is a test of an attribute, each branch is the outcome of that test, and each terminal node contains a class label. Tree-based methods are simple and useful for interpretation, but usually cannot produce accurate predictions. The decision tree relies on a schematic diagram in the form of a tree which is used to determine the flow of action or to show statistical probability.[149]

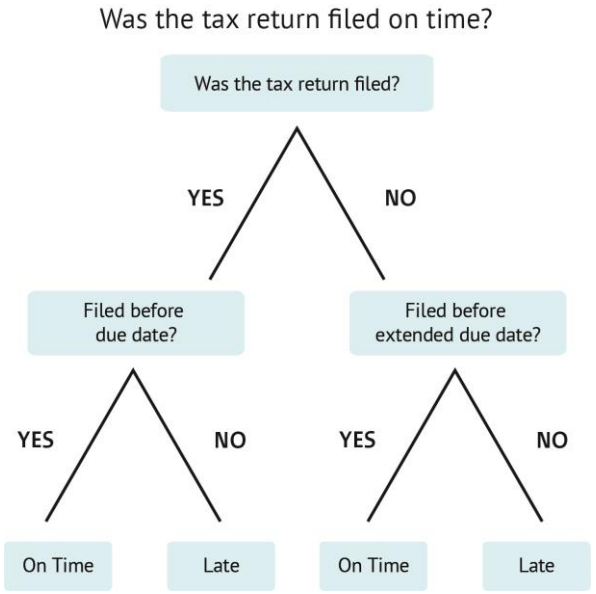

Figure 20: Example of a decision tree

- **Random forest** is a machine learning algorithm made up of a large number of decision trees. In this way, the prediction accuracy of the model can be significantly increased.
- The most advanced technique of predictive analytics is a **neural networks** algorithms designed to identify basic relations within the data set by

[146] Hastie, T., Tibshirani, R., & Friedman, J. (2009). The elements of statistical learning. Springer, New York, NY.

[147] OECD (2016). Advanced Analytics for Better Tax Administration: Putting Data to Work. OECD Publishing, Paris.

[148] Pijnenburg, M., Kowalczyk, W., & van der Hel-van Dijk, L. (2017). A roadmap for Analytics in Taxpayer Supervision. The Electronic Journal of e-Government, Volume 15, Issue 1 (par. 4.2).

[149] Pijnenburg, M., Kowalczyk, W., & van der Hel-van Dijk, L. (2017). A roadmap for Analytics in Taxpayer Supervision. The Electronic Journal of e-Government, Volume 15, Issue 1 (par. 3.2).

imitating the way how the human mind operates. An **artificial neural network** is a two-stage regression or classification model, based on the structure and functions of biological neural networks. A simple neural network, typically represented by a network diagram, includes an input layer, which receives data from outside sources, one or more hidden layers that process the data, and an output layer. The layers are connected via nodes. Using algorithms, neural networks can recognise hidden patterns and relationships in data, cluster and classify it, and continuously learn and improve over time.

Clustering algorithms are *unsupervised learning methods*. A few common clustering algorithms are K-means, mean-shift, and expectation-maximisation. They group data points according to similar or shared characteristics. Grouping or clustering techniques are particularly useful in applications when there is a need to segment or categorise large volumes of data.

4.2.3. Social Network Analysis

Social network analysis (SNA), which developed from a conjuncture of anthropology and mathematical graph theory[150], is nowadays applied in a wide range of fields and disciplines: physics, biology, epidemiology, as well as economics and politics.

SNA focusses on relationships (*ties* or *edges*) among actors (*nodes*). The actors in a network can be individuals, organisations (firms, institutions…), countries etc. There are two basic types of relationship: states and events. Similarity and social relations among nodes are state-type ties, whereas flows — of money, information etc. — and interactions are event-type ties.

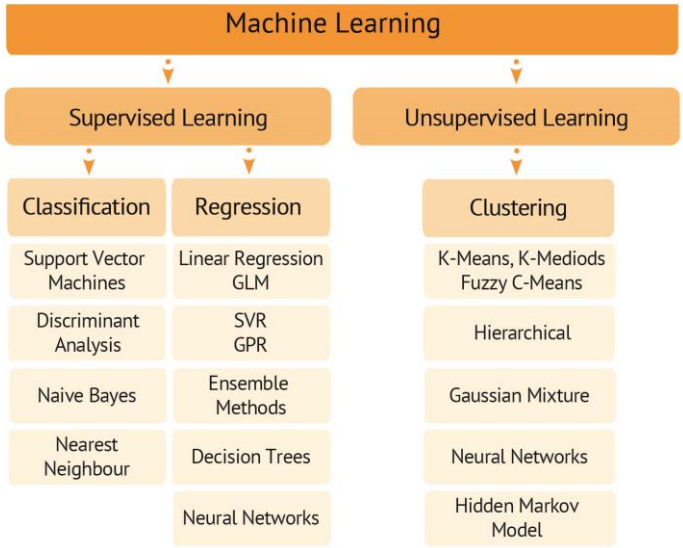

Figure 21: Machine learning techniques[151]

Network data, collected from multiple source, are usually depicted in a diagram, where points (nodes) are connected by links. Network metrics help identify who is most important or central in a network, subgroups of highly connected people, and the overall network structure. Several statistical methodologies, both qualitative and quantitative, developed SNA-driven tools to study structures and dynamics of networks. Such analyses are usually based on the following aspects:

- node attributes (e.g. age of a person, number of employees in a business, GDP…)
- ties features (e.g. direction, frequency and nature of the ties)
- network structure (e.g. triad).

[150] Hanneman, R. A., & Riddle, M. (2005). Introduction to social network methods.

[151] Source: 5 Essential Machine Learning Algorithms For Business Applications

SNA can offer new opportunities for tax administrations to reduce tax evasion and increase compliance. As an example, SNA can help detect frauds and other group-level risks, or prevent them from occurring. Indeed, by identifying links between entities (for example, through company directorships or joint bank accounts), SNA can help identify risky groups that individual-level assessment may not detect. Moreover, the identified network can be scored for risk and individual risks within the network can be profiled.[152]

Example 38: TaxNetVA (Italy)

Transaction Network Analysis (TNA)

The European Commission started using the tool Transaction Network Analysis (TNA) to crack down VAT fraud on intra-Community transactions. The cost of VAT fraud using the so called ´carousel fraud´ is one of the largest losses of revenue for EU MS. In a carousel fraud, multiple traders create a chain transaction to generate the right to deduct on domestic purchases follow by zero-rated intra-Community supplies. Typically, one trader in the chain does not know about the fraud. The rest of the traders will disappear once they have effectively received the VAT amounts ´incurred´.

The fraudster parties in the chain will normally avoid reporting their transactions in the ECSL returns, hence producing a mismatch between their EC Sales List and the VAT return of the party not participating in the fraud. The aim of the new TNA is to detect those mismatches as early as possible.

Example 32: Transaction Network Analysis (European Commission)

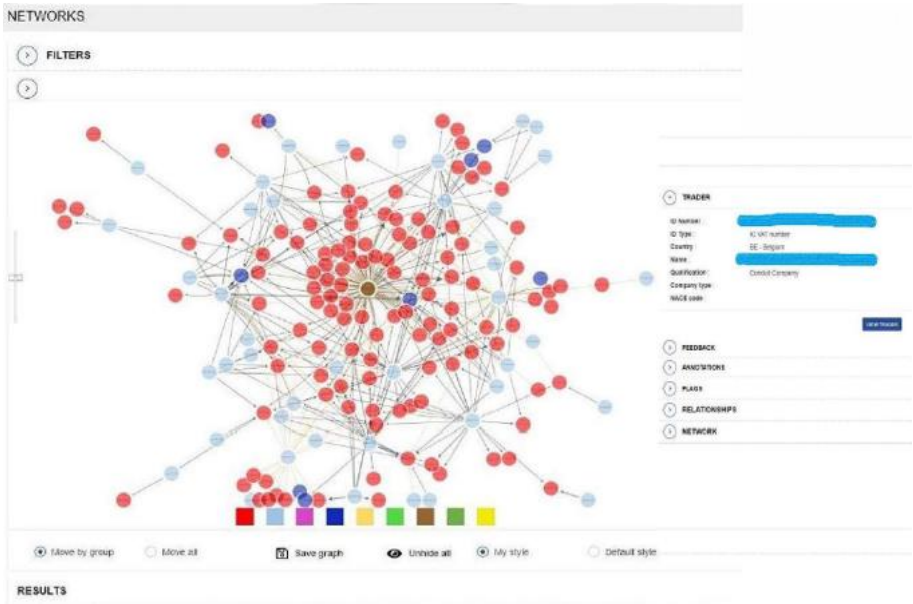

Figure 22: Example of Transactional Network analysis

4.3. New technologies and process automation

Process automation has been around for decades to automate business processes and tasks. New technologies with robotic process automation provide the tools, that tax administrations gradually incorporate into their businesses, to automate their processes and significantly improve efficiency of their work. These tools standardise and optimise the workloads, allowing tasks to be performed with high degree of accuracy, transparency and traceability and time effectiveness.

[152] OECD (2016). Advanced Analytics for Better Tax Administration: Putting Data to Work. OECD Publishing, Paris.

New technologies for process automation are discussed in the following paragraphs; "Robotic Process Automation" in par. 4.3.1, "Bots, chat bots and webcrawlers" in par. 4.3.2, and "Process mining" in par. 4.3.3.

4.3.1. Robotic Process Automation

Technology advances with Robotic Process Automation (RPA) is representing more of an evolution in process automation. Robotic Process Automation is part of the technological disruption and transformation of business processes that may be beneficial for tax administrations as well, e.g., to streamline internal processes and improve services for taxpayers, making it easier for taxpayers to understand and meet their tax obligations.

RPA is 'a productivity tool that allows a user to configure one or more scripts (which some vendors refer to as "bots") to activate specific keystrokes in an automated fashion.' The result is that the bots can be used to mimic or emulate selected tasks (transaction steps) within an overall business or IT process. These may include manipulating data, passing data to and from different applications, triggering responses, or executing transactions. RPA uses a combination of user interface interaction and descriptor technologies. The scripts can overlay on one or more software applications. [153]

'RPA, bots and process automation, basic process automation, basic robotic process automation' are terms that are extensively used in literature. They describe the same thing, RPA, that belongs to the first stage towards the Intelligent Automation Technologies, "basic process automation". [154]

Routine tasks – in other words tasks that are methodical, repetitive and rule based – can be automated with RPA while non routine tasks that involve judgement, creativity and problem solving require cognitive technologies that belong to the area of Intelligent Automation and Artificial Intelligence. [155]

RPA can facilitate typical tasks for public administrations such as reading and writing in databases, e.g. when information needs to be updated in administrative information systems, extract data, e.g. from electronically submitted applications/forms, integrate data from different information systems etc. [156] Tax administrations are dealing with loads of data and there are times that tax officials in their everyday work realise that the business processes and/or applications "do not talk to each other". In that case a solution could be given by the application of RPA technologies to perform the data transferring between the systems and processing of high volume of data.

RPA is applied to generate meaningful insights easing the workload and avoiding increased cost, unnecessarily high cycle times, inconsistent quality and impaired agility of the processes. RPA claims for a better service delivery and, moreover, for a higher process efficiency. However, the major aspect that needs to be considered when implementing RPA is not simply the automation of the process but the proper process design that allows for a real improvement when automating the process [157] and eliminating any possibility of making mistakes in the process automation, which in the end will result in fewer errors made by taxpayers and higher levels of compliance.

[153] Robotic Process Automation - Definition

[154] KPMG international (2018). Transforming the tax function through technology, a practical guide to 2020

[155] Deloitte (2017). Automate this. The business leader's guide to robotic and intelligent automation Service Delivery Transformation

[156] Houy, C., Hamberg, M., & Fettke, Peter. (2019). Robotic Process Automation in Public Administrations (Conference Paper).

[157] Houy, C., Hamberg, M., & Fettke, Peter. (2019). Robotic Process Automation in Public Administrations (Conference Paper).

4.3.2. Bots, chatbots and web crawlers

RPA with "robots" and "bots" increases efficiency of processes and effectiveness of services for the organisations and avoid or defer high investment costs of a large technology transformation. Originally, "bot" was a shortened version of "robot". There is a distinction between the two terms; however, this analysis is not of the scope of this project group. For simplification we can consider that robots are *programmable machines* that can automatically execute actions, whereas bots are *programs* that can automatically execute actions.

A *bot* is defined as a software application that is programmed to do certain tasks. Bots are automated, which means they run according to their instructions without a human user needing to start them up. Bots often imitate or replace a human user's behaviour. Typically, they do repetitive tasks, and they can do them much faster than human users could.[158] Types of bots such as chatbots and web crawlers have applications for business and can be applied by tax administrations as well.

Chatbot

A *chatbot* is a 'domain-specific conversational interface that uses an app, a messaging platform, a social network or a chat solution for its conversations. Chatbots vary in sophistication, from simple, decision-tree-based marketing stunts, to implementations built on feature-rich platforms. They are always narrow in scope. A chatbot can be text- or voice-based, or a combination of both'.[159] Chatbots can simulate human conversation by responding to certain phrases with programmed responses interacting via text or speech. They can effectively improve taxpayer services. Some tax administrations have already included chat bots in their operations. While other tax administrations recognise the benefits of the tool and are about to include it into their plans.

Example 30: Virtual assistant tools for VAT and Censuses (Spain)

[158] What is a bot?

[159] Chatbot - Definition

Example 30: Virtual assistant tools for VAT and Censuses (Spain) Example 31: Chatbot TAXANA (Slovak Republic)

Webcrawler

Webcrawlers or Googlebots are bots that can scan content on webpages all over the Internet. It is a piece of software (also called 'spider') designed to follow hyperlinks to their completion and to return to previously visited Internet addresses.[160] Webcrawlers are found to be useful bots for tax administrations to derive information from internet, i.e. information from webpages of sharing economy, valuable to identify risks of tax evasion.

Example 18: WEB scraping application (Lithuania)

Artificial Intelligence (AI) takes process automation to the next level, by incorporating human intelligence into machines using Natural Language Processing (NLP) and Machine Learning (ML). For example, chatbots enhanced with NLP can achieve voice communication improving further communication services of chatbots.

Example 30: Virtual assistant tools for VAT and Censuses (Spain)
Example 31: Chatbot TAXANA (Slovak Republic)

4.3.3. Process mining

RPA technologies can be optimized using technological tools that offer a visualized and data-based view of processes, increasing efficiency of processes on a data driven approach. An example is *process mining*: 'a technique designed to discover, monitor and improve real processes (i.e., not assumed processes) by extracting readily available knowledge from the event logs of information systems.'[161] Process mining is a novel set of tools that discover the real processes within an organisation, detect deviations from desired processes, and analyses bottlenecks and waste in the workflows. Process mining specifically uses event

[160] Web Crawler - Definition

[161] Process Mining - Definition

log data to generate process models which can be used to discover, compare, or enhance a given process.[162]

4.4. Distributed Ledger Technology ('blockchain')

4.4.1. Introduction to blockchain

One of the most hyped technologies over the past years is Distributed Ledger Technology (DTL), often referred to as 'blockchain'.[163] A blockchain is one architectural design of the broader concept of distributed ledgers. The most widely known example of blockchain technology is Bitcoin.

A blockchain could be described as: "an expanding list of cryptographically signed, irrevocable transactional records shared by all participants in a network. Each record contains a time stamp and reference links to previous transactions. With this information, anyone with access rights can trace back a transactional event, at any point in its history, belonging to any participant."[164]

In its simplest form, blockchain technology refers to a distributed database — that is, data not being stored in a central place but rather, decentralized across multiple platforms. At the core of the blockchain are 'digital ledgers' that are distributed among all network participants to serve as a common source of truth — all parties store and access their copy of the database, but with no single control hub holding a master key. In this respect, one of the key advantages of blockchain is that databases can be shared across many users without having a central administrator who proves and validates all transactions. Instead, blockchain transactions contain their own validity proof so that the role of an intermediate authority in that transaction (for example, a bank) may become obsolete. The technology ensures that access to records in the database is granted to the users that own the specific part or a 'block'. Blockchain therefore also feeds demand for transparency, as the ledger may be public and searchable. It is also almost impossible to change the information in the blocks because all blocks refer to other blocks (the chain) and are cryptographically protected.[165]

4.4.2. Blockchain in taxation

Security, trust, and transparency are some of the main benefits of using blockchain, making it well suited to tax compliance. Because blockchain is an objective, mutually agreed-upon record of transactions, multiple parties can verify every step of a process.[166] Governments and tax authorities have blockchain firmly in their sights as part of a wider move towards digitising the tax system and assessing tax in real-time. The initial focus is likely to be indirect taxation, though other areas of tax management such as transfer pricing could be brought into play as blockchain networks develop. Eventually, blockchain could become the primary means of tax collection.[167] For example, in a series of pilot projects started in 2016, the Dutch Government was using blockchain to develop a better, more efficient, and more flexible system that wouldn't duplicate data for the chain of stakeholders. These projects are aimed at achieving two specific goals: 1) Enhance knowledge regarding blockchain within the participating organisations; and 2) Develop use cases for (future) application of blockchain technology. A variety of topics and processes were covered, such as Income Tax, (digital) identity, logistics, autonomous vehicles and debt counselling.[168]

[162] What is process mining?

[163] World Economic Forum Survey Projects Blockchain

[164] Blockchain - Definition

[165] KPMG international (2018). Transforming the tax function through technology, a practical guide to 2020

[166] Could blockchain become government's best ally in driving tax compliance?

[167] Taxation in real-time: Gearing up for blockchain

[168] How the Dutch Government is exploring blockchain use cases through many concurrent pilot projects

Albeit blockchain is not the cure for the whole tax system, it could be applied in a number of areas to reduce the administrative burden and collect tax at a lower cost, helping to narrow the tax gap.[169] The potential benefits of using blockchain in taxation can be found in its core attributes: transactions and data can be recorded, shared, and synchronized across a distributed network of different network participants (for example tax administration, bank, seller and buyer of goods and services).[170] If blockchain is used for sales taxation, where the participants of the distributed ledger are the tax administration, the seller, the buyer and the bank of the buyer, block chain can ensure transparency (blockchain provides the tax administration to ensure provenance, traceability and transparency of the transaction, both the actual sells and the payment), control (access to permissioned networks is restricted to identified users), security (the digital ledger cannot be altered or tampered with once the data is entered; thus fraud is less likely and easier to spot) and real-time information (once information is updated, it is updated for everyone in the network at the same time, thus the tax administration knows exactly when the transaction has been carried out, who were the seller and the buyer, what was the good or service sold, if and when was it paid by the buyer etc.).[171] By coupling a real-time transaction registration on blockchain with an off-chain real-time tax payments, Missing Trader Intra-Community (MTIC) and 'fake invoice' frauds could be eliminated. This would immediately cut the multibillion losses of tax revenue in the EU. Moreover, recording business-to-business transactions on a distributed ledger would not introduce distortions to the current VAT regime.[172]

VAT Refund for Tourists

The Revenue Department of Thailand along with the Customs Department, Immigration Office and Krungthai Bank Public Company Limited launched a blockchain-based VAT refund service for foreign tourists in January 2020. They can claim their VAT refunds via the Thailand VAT Refund for Tourists (VRT) App. The project aims to improve operational efficiency and offer more convenience for tourists who wish to claim VAT Refunds.[173]

Tax administrations are interested in applications of blockchain technology and some actions, pilot projects and studies have taken place, to identify areas for application in the tax administration (for example, as stated above in the Netherlands, then in Australia, China etc.). Typically, VAT management and payment were the first designed applications, although at the academic level. Moreover, blockchain technology can be used in cases that require the coordination of actions between tax administrations, between tax administrations and taxpayers or between internal departments of a tax administration. Furthermore, the expansion of the digital world and the shared economy will probably force tax administrations to seek new legislation, methods and technologies to ensure the collection of taxes. Blockchain would be a potential partner in these efforts. It is admitted that this technology can change the way taxes are collected: the responsibility for collecting the tax on income or sales may possibly shift completely from tax authorities towards the participants of the shared economy.[174]

[169] Could blockchain become government's best ally in driving tax compliance?

[170] Distributed Ledger Technology, Worldbank Group (2017)

[171] How blockchain technology could improve the tax system

[172] Allessie D., Sobolewski M., Vaccari L., & Pignatelli F. (Editor) (2019). Blockchain for Digital Governments. EUR 29677 EN, Publications Office of the European Union, Luxembourg.

[173] VAT Refund for Tourists

Blockchain-based VAT refund service

[174] BLOCKCHAIN: Concepts and potential applications in the tax area (1/3)

4.5. Data management

'Data management is the practice of collecting, keeping, and using data securely, efficiently, and cost-effectively. The goal of data management is to help people, organisations, and connected things optimise the use of data within the bounds of policy and regulation so that they can make decisions and take actions that maximise the benefit to the organisation.'[175]

4.5.1. Data management strategy

A robust *data management strategy* is becoming more important than ever as tax administrations increasingly rely on data. Data management is a continuous and dynamic process that involves a wide range of tasks, policies, procedures, and practices.

A formal data management strategy helps tax administrations clearly define their main goals, prioritise activities, and invest in the appropriate analytics technologies. It is a crucial first step to implement an effective data analysis. Indeed, such a strategy helps tax administrations continuously evaluate the process of data collection, storage and building datasets, and identification of taxpayer preferences, behaviour and risks. Moreover, a solid data management strategy enables tax administrations to deliver more efficient services to businesses and citizens, which in turn can increase compliance and drive economic output. An effective data management strategy can also increase transparency, which decrease tax evasion and tighten the international community. Finally, such a strategy ensures data privacy and security.

Effective data management requires an accurate knowledge of the sources of information, as well as of the structure of data, including – in case of acquisition through a specific schema - mandatory and optional contents, and a deep awareness of the legal framework and of the timing and methods of acquisition. This knowledge is a fundamental requirement for integration of data into the overall data assets of the tax administration.

4.5.2. Governance of information

Another important pillar in the context of data management is the *reliability of information*. It must be taken into due consideration to graduate the accuracy of the corresponding action. Reliability can be linked to the nature of the subject who communicates data (e.g. the taxpayer, his counterpart in the transaction or another public administration) or to the method of acquisition (e.g. transmission flows that fulfil a legal obligation or collection on the web). The huge amount of data handled by tax administrations can be problematic since it is easy to get lost in data without keeping focus of the *purpose* of analysing such data. One of the current risks is the loss of control of information and the inability to manage data in its entirety (lack of governance).

The success of a tax administrations 'data household', in terms of maturity, is what has been called *governance of the information* (**figure 23**). **Data governance** defines standards, processes, and policies to maintain data security, quality, semantic clarity, completeness and integration, which allows for opportunities for servicing taxpayers and managing compliance (risks).

[175] What is data management?

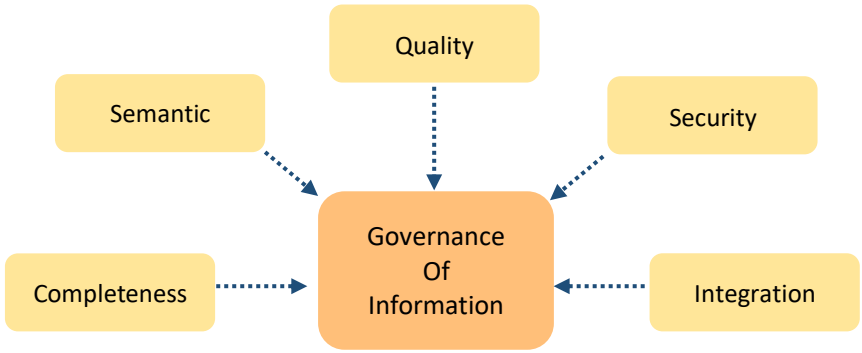

Figure 23: Governance of information[176]

In this sense, there are important aspects that require a delicate and careful treatment in the management of such data:

1. *Collection and preparation of data* (par. 4.5.3)
   Collection of data must necessarily be based on legal procedures endorsed by current regulations as well as agreements with third parties that respect the data protection regulations and that have a clearly defined prior purpose aligned with the objectives of the administration, that is compliance with tax obligations in the case of tax administrations. Collected data need to be cleaned and raw data need to be transformed into the right shape and format for analysis, including making corrections and combining data sets.

2. *Storage and security* (par. 4.5.4)
   'Metadata' need to be managed properly to create a complete picture of the data, providing a summary of its changes, locations, and quality while also making the data easy to find. Data storage needs to merge various data sources and provide a clear path for data analysis. Data storage also must comply with sufficient security and custody requirements to prevent leaks, theft and interference by unwanted third parties.

3. *Use: purpose and authorisation (par. 4.6)*
   The use of the data must guarantee that only the people involved in its use have access to them, with the establishment of access limits depending on the hierarchy, specific departments where the work is carried out, and use in activities within a compliance risk management context. It may be useful to create specific data analytics and/or compliance risk management teams that guarantee that these data are not handled by other staff in the organisation. Thus, these teams would keep focus of the *purpose* of the use of the data, distribute the data to the members of the organisation that will need it for their actions within the compliance risk management context and restrict access to non-essential data.

4. *Control system and sanctions* (par. 4.5.7)
   What is essential is to have a control system in place of all the previous phases, so that at any time it can be analysed how the data was obtained and how it was used, to subsequently audit its use. The massive nature of the data and its use makes it essential to control procedures based on random sampling, which previously requires defining the weaknesses of the system as well as those data that pose a greater risk. As a complement to the above, a sanctioning regime is required that discourages the inappropriate use of data in the organisation.

The Commission has proposed a *Regulation on European Data Governance* as part of its data strategy. This new Regulation will play a vital role in ensuring the EU's leadership in the global data economy.[177]

[176] IOTA (2016). "Data Analytics in the Spanish Tax Agency" by José Borja Tome, Deputy Director, IT Department, Spanish Tax Agency.

[177] European Commission (2021). A European strategy for data

4.5.3. Data collection for tax administration

Collecting tax is at its core a data challenge. If the tax administration has the relevant data available about the taxpayer, the due tax can 'easily' be calculated and collected. The main opportunity for tax administrations in the digital era counts the fact that a thoroughly digitalised economy should allow for providing the correct data for taxation. If the tax administration is allowed access to the relevant data sources, the taxation process could be more simple, efficient and correct. However, the amount of data that is available to tax administrations is increasing rapidly.[178]

Tax administrations today find themselves collecting an ever-increasing amount of tax data coming from traditional sources (self-reported data received directly from the taxpayer and data achieved through third-party data sources, for example employers or financial institutions) along with digital ones such as digital payments, electronic invoicing and connected devices (e.g. online cash-registers and point-of-sale solutions). At the same time, many administrations are expanding their data collection capabilities even further into new areas, including third parties from online trading, asset leasing, payments to subcontractors and value-added tax (VAT) invoices. In this way tax administrations become 'data intelligent'.[179]

There are basically two types of data which form the basis for the tax administration's assessment of the taxation:

1. Self-reported data received directly from the taxpayer
2. Data obtained through a third-party data source (for example employers, insurance companies or financial institutions).

Sometimes a hybrid between the two types emerges, when self-reported data can be validated by comparing the data to available third-party data source, which cannot be directly applied as third-party data, but still can shed some light on the quality of the self-reported data.

An important change in data collection in the digital era for tax administrations has been the emergence of multiple *formats* in which data can be contained. *Structured data* can take the form of databases and spreadsheets delineating names and figures in columns with headers. *Unstructured data*, as the name implies, holds data in undefined structures including emails, social media posts, and text messages, which currently could be processed by the tax administrations through the use of the new technologies.

Also, information from other tax administrations provides a very valuable insight for the management of compliance risks in the local tax administration. Active cooperation between member states improves this source of data which e.g. can be used for making processes more efficient, for cross-checking and risk identification. For example, tax administrations within the EU can use the data received by means of Automatic Exchange of Information (AEOI) to prefill tax returns (e.g. non-financial information such as income and pensions), for cross checking and risk analysis (e.g. financial information, data on beneficial ownership), for monitoring tax avoidance (e.g. rulings and APA's, country by country information and information on fiscal constructions).[180]

The challenges in obtaining data on the business' transactions are much bigger than obtaining data to establish the tax position of individual taxpayers. Relevant data sources could be data on public spending, which discloses a part of the turnover for businesses delivering services and goods to the public sector. Such a data source would be far from enable a fully pre-populated tax return for the business; still, it would provide highly relevant data for assessing a part of the tax

[178] Administrative cooperation in (direct) taxation in the EU

[179] PWC (2018). The data intelligent tax administration whitepaper

[180] 2021 IOTA Forum on the Use of Data from AEOI

returns. Other relevant data sources could be access to invoicing data (B2B), B2C transactions, bookkeeping data or payment data.

Another important source of information is that of *financial intermediaries*. In the face of any transaction, ultimately there is a payment. Where this payment is made in a traced way (and this is the growing trend given the development of the digital economy), financial operators can be useful sources of information. Some tax administrations have therefore introduced communicative obligations involving these subjects, and consequently access, more or less easily, to data that allow to indirectly reconstruct the business volume of economic operators. On the buyer side, if natural persons, financial transactions reveal important elements regarding their spending capacity and allow to carry out analyses on the consistency with the declared income.

Finally, among the information sources, an ever-increasing importance assumes, on the basis of the role of intermediaries in transactions, the *platforms and marketplaces* that intervene in contacting demand and supply on the web. Such platforms sometimes also intervene in the process of collecting and distributing payments. The European Union on the one hand and the tax administrations on the other are developing regulatory schemes to introduce obligations for these subjects, as information providers. In this strategy, the coordinating role of the European Union is fundamental, given the need to prevent diversified systems that would inevitably lead to produce unfair tax competition between MS.[181]

4.5.4. Data storage in tax administration

Data of tax administrations are often stored in various systems (databases, data warehouses etc.). To be able to manage data across these systems, tax administrations need data management platforms. Such software platforms collect and organise data from a variety of sources. The most important change in data management is reducing manual data processes and moving to a high level of automation.[182] Reducing the need for manual data management is a key objective of a new data management technology, the *autonomous database*.

The creation of a data warehouse permits to historicise the acquired data, allowing to carry out long-term analysis and to study trends of the observed phenomena, and therefore constituting an indispensable tool for the risk identification, risk analysis and evaluation phase of the CRM process.

Example 56: Croatian Tax Administration's Data warehouse (Croatia)

In general, the digitalisation of the economy and the enormous amount of data available, together with the development of new technologies, has shifted the CRM processes towards greater *centralisation*. Data management and information technology have moved their centre of gravity from support activities to core activities of tax administrations. In this regard, in order to maximise the potential of the increasing datasets, new skills in tax administrations such as data scientists, statisticians and IT professionals are essential. They are charged to work closely to the professional skills related to the 'business' (e.g. tax experts, auditors) to get maximum result.

For example, in the Spanish tax administrations, advanced analytical projects are led by IT analytical project leaders and in order to evaluate their feasibility, they cooperate with business people who act as business analytic project leaders.

181 Council Directive EU 2021/514, amending Directive 2011/16/EU on administrative cooperation in the field of taxation.

182 KPMG International (2021). Tax Data Management - The hidden engine for future-proofing tax management

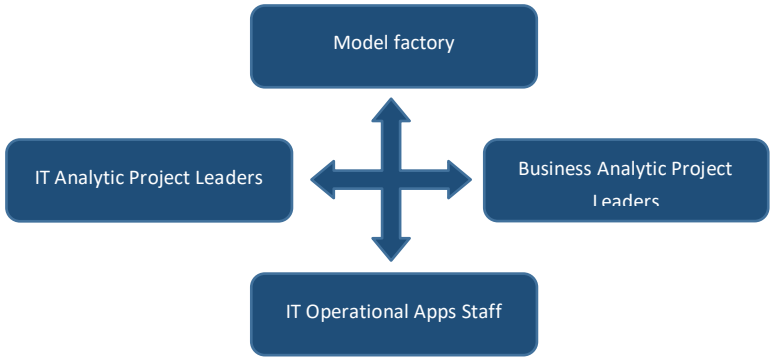

Figure 24: Data Driven in tax administration[183]

4.5.5. Organisational aspect of data management

The General Data Protection Regulation (GDPR) requires to put in place appropriate technical and organisational measures to implement the data protection principles effectively and safeguard individual rights. This is 'data protection by design and by default'. In essence, this means tax administrations have to integrate data protection into their business processes and practices, including throughout the entire CRM process. Data protection by design is about considering data protection and privacy issues upfront in everything a tax administration does. It can help to ensure to comply with the GDPR's fundamental principles and requirements, and forms part of the focus on accountability of the tax administration and its staff.[184]

All these actions need to be reflected in the corresponding protocols that allow the design of the systems of use and control of the data. These protocols will allow for a legal and technological security in the management of the data both with respect to the senior executives, as well as those responsible, as well as the habitual users of the data in the application procedures. These protocols should be subject to periodic review given the rapid evolution of the use of data.

4.6. Data Privacy issues

The CRM process involves various stages where data is being collected, stored, analysed and decided upon. Data is vital for the CRM process to be successful. In fact, digitalisation and technology have enabled the faster collection and faster analysis of more massive data. This enables tax administrations to use this data in order to collect taxes in a more efficient manner as well as reducing tax evasion and tax avoidance. For example, an OECD survey found that advanced analytics is the main application for selection of audit cases.[185]

This dependency on data, however, triggers issues of data privacy which need to be given their due attention in order to avoid data privacy breaches, and potential legal consequences. In fact, data privacy has become vitally important, particularly since the introduction of the General Data Protection Regulation (GDPR).[186] The GDPR is an EU regulation on data protection and privacy of all individuals within the EU and the European Economic Area (EEA). It came into force as from 25th May 2018, superseding the Data Protection Directive 95/46/EC. The GDPR aimed primarily to give control to individuals over their personal data. In fact, GDPR contains provisions and requirements pertaining to the processing of personal data of individuals (formally called data subjects in the

[183] IOTA 2016. "Data Analytics in the Spanish Tax Agency" by José Borja Tome, Deputy Director, IT Department, Spanish Tax Agency.

[184] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC.

[185] OECD (2016). Advanced Analytics for Better Tax Administration: Putting Data to Work. OECD Publishing, Paris.

[186] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC.

GDPR). The GDPR introduced one single, technologically neutral and future-proof set of rules across the EU. This means that regardless of how technology and the digital environment develop in the future, the personal data of individuals in the EU should be secure, and their fundamental right to data protection respected.

The GDPR aimed at introducing more transparency, as well as stronger rights, as summarized in **table 15** below:[187]

Table 15: GDPR – transparency and rights

MORE TRANSPARENCY
- Businesses will be able to collect and process data only for a well-defined purpose. They will have to inform the user about new purposes for processing. - Businesses will have to inform the user whether the decision is automated and give him/her a possibility to contest it.
STRONGER RIGHTS
- Businesses will have to inform users without delay in case of harmful data breach. - The user will have the right to access and get a copy of his/her data, a business has on him/her.

One, therefore, needs to check that the way in which data is being stored and maintained in the CRM process is in conformity with the requirements of GDPR.

The main principles of GDPR are enshrined in its Article 5 which was designed to guide how people's data can be handled. In fact, this article states that personal data should be:

(a) processed lawfully, fairly and in a transparent manner in relation to the data subject ('lawfulness, fairness and transparency');

(b) collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes; further processing for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes shall, in accordance with Article 89(1), not be considered to be incompatible with the initial purposes ('purpose limitation');

(c) adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed ('data minimisation');

(d) accurate and, where necessary, kept up to date; every reasonable step must be taken to ensure that personal data that are inaccurate, having regard to the purposes for which they are processed, are erased or rectified without delay ('accuracy');

(e) kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data are processed; personal data may be stored for longer periods insofar as the personal data will be processed solely for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes in accordance with Article 89(1) subject to implementation of the appropriate technical and organisational measures required by this Regulation in order to safeguard the rights and freedoms of the data subject ('storage limitation');

(f) processed in a manner that ensures appropriate security of the personal data, including protection against unauthorised or unlawful processing and against accidental loss, destruction or damage, using appropriate technical or organisational measures ('integrity and confidentiality')."

The following matters need to be taken into consideration when dealing with data:

- **Data minimisation**: Tax Administrations should not collect more personal data than required from individuals. Sensitive data about an

[187] Adopted from A new era for data protection in the EU: What changes after 25th May 2018.

individual (such as race or ethnic origin, political opinion, religious belief, genetic or biometric data, health information and sexual orientation) should be explicitly excluded from analysis.[188]

- **Integrity and confidentiality**: The necessary information security safeguards should be implemented in order to prevent information being leaked through hackers or accidental loss, destruction or damage. Where possible, access controls to information should be in place. This is particularly important, especially when considering the fines that may be imposed, and the damage to reputation that may be suffered, for an organisation which is a victim of a data breach.
- **Accountability**: Tax Administrations should ideally document how personal data is being held and handled. Clear and specified reasons should be stated for keeping personal data.
- **Purpose limitation**: Data should be held for the shortest time possible. If the data becomes outdated or unnecessary, it must be deleted.
- An individual's personal data and that individual's identity should be kept separate. This can be achieved through:
  - **Pseudonymisation** i.e. the detachment of data and identity. The data and the individual cannot be reconnected without some extra information held separately from the data.
  - **Anonymisation** i.e. the complete removal of identity from personal data. In this case, no one can identify the person whose data was collected.
  - **Encryption** i.e. the conversion of personal data into non-readable information. In this manner, data can only be read through algorithms, an encryption key and a decryption key.

Automated processing and GDPR issues

GDPR states that a "data subject" shall have the right not to be subject to a decision based solely on *automated processing*, including *profiling*, which produces legal effects concerning him or her or similarly significantly affects him or her".[189]

Tax administrations typically collect data from taxpayers and third parties, integrate these different sources of data, and process such data to categorise taxpayers on the basis of their compliance risks. The way in which these systems operate perfectly match the definitions of data processing, profiling and automated decision making contained in the GDPR. However, from analysing the text of the GDPR, it emerges that tax authorities, because of the public interests they are fulfilling, are enabled to use ICT instruments which might facilitate, also through profiling and data matching, the carrying out of tax authorities' tasks.[190]

In fact, GDPR introduced important exceptions to the general provisions relating to data processing, profiling and automated decision making, in an effort to achieve a balance between the privacy rights of taxpayers and the public interest relating to tax compliance. GDPR states that processing of data is lawful if necessary for the performance of a task which is carried out in the public interest or in the exercise of official authority vested in the controller.[191] Furthermore, automated decision making is permitted if a legislative measure is adopted for the permission of use of automated decision making by tax authorities.

[188] Unless required by the exceptions in GPDR Article 9(2).

[189] GDPR, Article 22.

[190] Scarcella, L. (2019). Tax compliance and privacy rights in profiling and automated decision making

[191] GDPR, Article 6(1e).

5. Internal Risks

5.1. Introduction

Earlier chapters focused on the compliance risks that taxpayers present to the tax administration and how these risks are handled by means of a comprehensive *Compliance Risk Management (CRM) strategy*. Working along the lines of a CRM strategy has consequences for the *internal work processes* of a tax administration (organisational structure, human resources, information technology, business processes, communication, decision making, planning et cetera) and the *staff* involved in it.

This chapter addresses the *internal risks* faced by the tax administration (as an institution) and emphasises the importance of *integrated management* covering both internal and external risks. Management of these internal risks will support the successful implementation and execution of CRM.

Staff commitment

Staff commitment is for example an important factor in the successful implementation of CRM. Several changes can be identified when moving *from a traditional risk oriented approach towards a comprehensive CRM strategy* or *when implementing changes due to digitalisation and technology.* Staff may view these changes as either positive or negative. Management needs to understand how staff experiences these changes. Vision, good communications, openness, education and consistent messages are all necessary to build up acceptance of the change process among staff. It is important for management to support the changes and reflect that consistently.

To be able to discuss these internal risks in a systematic and structured way we use the 'Enterprise Risk Management' model of businesses as guidance. Therefore, we discuss very briefly in par 5.2 what Enterprise Risk Management is about. Next, we will discuss the internal risks, starting with Governance and Culture in par 5.3, Strategy and Objective setting in par 5.4, Performance in par 5.5, Review and Revision in par 5.6 and Information, Communication and Reporting in par 5.7. In par 5.8 reference will be made to another project of the Fiscalis Risk Management Platform, the Fiscalis Maturity Model project (FPG089).

5.2. Introducing Enterprise Risk Management

Enterprise Risk Management (ERM) is central to the strategic management of a business. It covers a series of well-defined steps which, when taken in sequence, identify risks and provide insight into potential measures for controlling opportunities and threats to the delivery of the strategic objectives of the business. Effective risk management takes account of probability and/or impact factors, limits exposure to risk, and helps to get *'in control'*, i.e. manage the risk of failure in achieving the objectives.

The Committee of Sponsoring Organisations of the Treadway Commission (COSO) provides a framework for ERM for businesses, which is also applicable to public organisations as tax administrations.[192]

The COSO framework itself is a *set of principles* organized into *five interrelated components*:

- **Governance and Culture**: Governance sets the organisation's tone, reinforcing the importance of, and establishing oversight responsibilities for, 'enterprise risk management'. Culture pertains to ethical values, desired behaviours, and understanding of risks in the organisation.
- **Strategy and Objective-Setting**: Enterprise risk management, strategy, and objective-setting work together in the strategic-planning process. A risk

[192] Enterprise Risk Management (Integrating with Strategy and Performance)

appetite is established and aligned with strategy; business objectives put strategy into practice while serving as a basis for identifying, assessing, and responding to risks.

- **Performance**: Risks that may impact the achievement of strategy and business objectives need to be identified and assessed. Risks are prioritised by severity in the context of risk appetite. The organisation then selects risk responses and takes a portfolio view of the amount of risk it has assumed. The results of this process are reported to key risk stakeholders.
- **Review and Revision**: By reviewing organisational performance, an organisation can consider how well the enterprise risk management components are functioning over time and in light of substantial changes, and what revisions are needed.
- **Information, Communication, and Reporting**: Enterprise risk management requires a continual process of obtaining and sharing necessary information, from both internal and external sources, which flows up, down, and across the organisation.

The process of Enterprise Risk Management can be summarised in **figure 25**.[193]

Internal risks of tax administrations may exist in a number of critical areas that can be linked to the aforementioned components, such as: 'corporate' governance, human resources, information technology, business processes, partnerships, financial control and legislation. In the remaining paragraphs (5.3. until 5.7) we will address these areas very briefly.

Figure 25: Process of Enterprise Risk Management

5.3. Governance and Culture[194]

Governance

In order to successfully achieve the objectives of the tax administration, a holistic view is required. Most problems that a tax administration experiences are related to both internal (organisational) and external (environmental) risks and should be seen from an organisational wide perspective.

The sustainability and full value of managing internal risks is realised when it is practiced in an integrated fashion and when it is tied to other corporate functions such as planning, resource allocation and performance management. If management of internal risk is practiced as a separate exercise, its true value will not be realised. There is also a close connection with the implementation of quality assurance within an organisation. Integrated management of internal risks is intertwined with a tax administration's operating activities. It is most effective when built into the tax administration's infrastructure.

Management of internal risks makes clear what the role and responsibility of management and staff are. Once a strategy is set that fits with the organisation's

[193] Enterprise Risk Management (Integrating with Strategy and Performance), page 7.

[194] The description of this paragraph is based upon COSO: Enterprise Risk Management (Integrating with Strategy and Performance), page 6.

mission and vision, risk management provides an effective way for management to fulfil its role, knowing that the organisation is attuned to risks that can impact strategy and is managing them well. Applying internal risk management helps to create trust and instil confidence of stakeholders in the current environment, which demands greater scrutiny than ever before about how risk is actively managed.

Culture

Organisational culture is one of the critical success factors in the implementation of risk management in an organisation, which can enable or impede responsible risk taking. It reflects a multitude of facets ranging from values, leadership styles, controls, reward mechanisms and many other aspects. These facets combine to create a set of behaviours that visually define and energise the organisation.

A tax administration requires a healthy risk culture, leadership, and innovation. It enhances a proactive climate of problem solving, communication, and risk taking that is essential for achieving the organisation's goals. It requires long-term commitment that involves a strategic and functional overhaul of all policies, processes, and systems, followed by management of its impact on the workforce and corporate performance.

Change in culture is a significant challenge and requires determined and ongoing commitment.[195] What lens does management use to monitor the risk culture, and its change? As things change how will management make sure that it has an appropriate and timely response?

[195] Kavanagh, M & Ashkanasy, N. (2006). The Impact of Leadership and Change Management Strategy on Organizational Culture and Individual Acceptance of Change during a Merger. British Journal of Management.

5.4. Strategy and objective setting[196]

At a strategic level, a tax administration should have a sound strategy in place to protect the tax administration's reputation, and safeguard accounting for public funds. At an operational level, effective risk management ensures delivery of major projects and programmes, provides early warning of potential problems and identifies potential opportunities. Effective risk management will ensure that it becomes everyone's responsibility.

All staff, and particularly managers, should identify, understand and manage risks to their objectives, and develop an appreciation of which risks can be tolerated and which risks cannot. Higher management should set the example by applying the right 'tone at the top'. Management should be able to articulate clearly the organisation's risk appetite and how it might influence specific decisions.

With regard to applying a sound CRM strategy, it is important that management understands the principles of CRM and takes decisions (on business processes, staff, IT, performance measurement et cetera) in line with requirements of CRM.

5.5. Performance (identify, understand and manage risks)[197]

To identify internal risks (i.e. risks related to business processes, human and financial resources, IT and technology, staff skills, performance, external cooperation et cetera) that can pose a threat to achieving the goals of the tax administration, the following *examples of questions* could be considered:

- Is the organisational structure adequate to achieve the administration's goals and objectives?

[196] Enterprise Risk Management (Integrating with Strategy and Performance), page 6.

[197] Enterprise Risk Management (Integrating with Strategy and Performance), page 6.

- Are the right business processes in place? Are they effective? Are they efficient?
- Are there adequate resources (finance and staff) to handle work demands?
- Does staff have the skills necessary to perform their functions effectively and efficiently?
- Are there clear lines of accountability for all key business processes in the organisation?
- Are the key performance indicators sufficient to show the effectiveness and the efficiency of the tax administration's efforts?
- Is the technology infrastructure adequate?
- Are the necessary IT systems in place and are they working properly?
- Are the processes for the different phases of compliance risk management arranged for (identifying, analysing, choosing/prioritising, carrying out activities, evaluating)?
- Does the legislative framework have gaps or allow unintended interpretations?
- Are external partnerships (e.g. industry groups, accountancy and legal boards) used to support the goals of the administration?

All staff, and particularly managers, should identify, understand and manage internal risks following from these questions, which could – within the functioning of CRM – lead to conclusions about for example:

- The functioning of the compliance risk management process (e.g. severe risks are not identified, the wrong treatment has been applied, a low quality of activities or low productivity is achieved)
- The working of the internal organisation and systems (e.g. failure in IT support, internal communications break down, unclear roles and functions, bad organisation or leadership)
- Number, skills, competences and behaviour of staff (e.g. low number of staff, insufficient education, inappropriate attitude towards taxpayers, integrity issues)
- Evaluation and reporting (e.g. inappropriate key performance indicators, insufficient evaluation or reporting)

It is considered important that all internal risks or problems are covered in some way and that it is done within a holistic approach. Each tax administration has to decide which tools and mechanisms should be used for different kinds of risks in other to get 'in control' of its business.

5.6. Review and revision[198]

A tax administration needs to manage its internal risks adequately to get 'in control' on these risks. This is a process that will be never ending due to continuous changes in society, e.g. legislation, economic circumstances, new technologies et cetera, that will influence its performance. By reviewing its performance, an organisation can consider how well the internal risk management components are functioning over time and in light of substantial changes, and what revisions are needed. Two aspects are relevant:

- The organisation (or an external party on behalf of the organisation) identifies and assesses internal and external changes in society that may substantially impact strategy and business objectives. Examples are: new technology, changes in management, new legislation, changes in economic environment, restructuring the organisation
- The organisation monitors its own performance of managing internal risks to establish continuous improvement. Opportunities to become more efficient (and effective) may occur in the following areas: new technology, IT legacy, and historical shortcomings in business processes.

[198] Enterprise Risk Management (Integrating with Strategy and Performance), page 6.

5.7. Information, Communication and Reporting[199]

Internal and external communication and continuous learning improve internal risk management understanding and skills at all levels of an organisation. The process provides a common language, guides the decision-making at all levels while at the same time allowing organisations to tailor their activities at the local level.

Generally, CRM approaches are multi-faceted approaches that need involvement and responsibility of the whole organisation and ask for close cooperation between e.g. front line 'service' and 'contact' staff and 'audit' staff. Where this type of change has been undertaken – when moving from a more traditional risk oriented approach to a comprehensive CRM strategy –, extensive communication is a key element in increased understanding and engagement. Extensive communications also need to ensure that staff are able to establish a line of sight between key strategic goals, aggregated/priority risks and its day-to-day activities.

Equally, it is important to ensure that periodic measurement and reporting, at various levels, is structured in a way that reinforces the line of sight between key strategic goals, aggregated/priority risks and day-to-day activities and explains it to external stakeholders (society, politicians).

In general, the work of a tax administration could be driven by the call for more rules or more supervision after incidents (e.g. occurrence of fraud) – i.e. micromanagement. A more comprehensive communication in which the tax administration explains the ins and outs of its CRM strategy and discusses the level of being 'in control' of its internal risks (e.g. IT, staff, key performance indicators) would not help to prevent incidents from occurring but could help to bring the discussion with society and politicians more a macro-level and give the opportunity for applying a more coherent and systematic CRM strategy.

Example 62: "Compliance Risk Management Letter" (Annual Plan) (The Netherlands)

Capability Maturity Model

The Fiscalis Project Group, FPG089, developed a Capability Maturity Model (CMM) for tax administrations for assessing the maturity of CRM in their tax administration with the aim to enhance Compliance Risk Management. This tool could serve as a benchmarking or educational tool for improving (elements of) Enterprise Risk Management.[200]

[199] Enterprise Risk Management (Integrating with Strategy and Performance), page 6.

[200] EUROPEAN COMMISSION (2021). Compliance Risk Management Capability Maturity Model, A tool for assessing and improving the performance of Compliance Risk Management in tax administrations.

Annexes

Annex 1 - Examples

This annex contains examples related to the compliance risk management that tax administrations of the EU apply in their processes. They have been collected via questionnaires sent by the group FPG083, as described in the following paragraphs.

Methodology

The platform economy, digitalisation, big data, blockchain technology, the Internet of Things, robotisation, gamification, and more, are causing significant change in our personal lives, in business life and in society. These developments lead to disruptions in the economy and offer both opportunities and challenges for citizens and businesses.

All new developments impact the task of tax authorities and, therefore, the compliance risk management process. They offer great opportunities for servicing taxpayers and managing compliance, but, on the other hand, will also bring-up new fiscal risks.

The FPG 083 group planned to include this encounter between digitalisation/technology and compliance risk management in the updated compliance risk management guide with practical examples from the tax administrations.

In view of the above, in November 2018 the Fiscalis Project Group FPG 083 "Update of the Compliance Risk Management Guide" invited participants of the RISK MANAGEMENT PLATFORM of EU MS, to provide their answers to a questionnaire with relevant questions in order to achieve the best possible result. The questionnaire was sent via the EU Survey.

At that time, the group received a great number of replies from various MS. However, it decided additionally to ask again MS for the very latest developments that were taking place in their TAs, related to the challenges of the fast-evolving digital era. Therefore, in March 2020, a new mini questionnaire was sent via EU survey.

All replies from MS for both questionnaires have been studied by the group and are presented in this annex. References to these practical examples can be found in the report's chapters.

Overview of examples

Number	Description	Country	Paragraphs
Example 1	*Customer Engagement Strategy*	Ireland	§1.3.3, §3.5.1
Example 2	*Compliance Risk Management Strategy*	The Netherlands	§1.3.3
Example 3	*Compliance Risk Management Strategy*	Latvia	§1.3.3
Example 4	*Strategic Reorientation*	The Netherlands	§1.4
Example 5	*Pre-filed income tax and VAT return*	Greece	§2.4, §3.5.4
Example 6	*SAF-T - A Tool for e-Audit and Compliance*	Portugal	§2.4
Example 7	*Tool 'Alerts and Mismatches'*	Portugal	§2.7, §3.5.1, §3.5.4,
Example 8	*File a tax return or pay your taxes in one click (A.E.A.T.)*	Spain	§2.7, §3.5.1
Example 9	*MyAADE: Direct online payments*	Greece	§2.7
Example 10	*Web application for CRM*	Portugal	§3.1
Example 11	*Risk Identification and Risk Analysis with use of "Hermes"*	Spain	§3.2.1, §3.3.2
Example 12	*VIVI (Virtual Visit) E-audit*	Spain	§3.5.3
Example 13	*Use of algorithms: APPLE – learning scheme*	Italy	§3.2.3
Example 14	*Obtain data from digital platforms*	Denmark	§3.2.3
Example 15	*Obtain data from rental housing platforms*	Spain	§3.2.3
Example 16	*Prefiled tax returns with data obtained from digital platforms*	Estonia	§3.2.3
Example 17	*Obtain data from Sharing economy platforms*	Finland	§3.2.3
Example 18	*WEB scraping application*	Lithuania	§3.2.3, §4.3.2
Example 19	*Use of Third Party Data*	Denmark	§3.2.3
Example 20	*Renta Web software*	Spain	§3.2.3, §3.3.4
Example 21	*Payment Risks*	Spain	§3.2.3
Example 22	*Compliance Map*	The Netherlands	§3.2.4, §3.3.3, §3.6.4
Example 23	*Use of new technology to predict taxpayer compliance*	Spain	§3.2.4
Example 24	*Real time identification risks Virtual Cash Register*	Slovak Republic	§3.2.4, §3.5.3
Example 25	*Macro-environmental analysis*	The Netherlands	§3.2.4
Example 26	*'Real time' insight for debt collection*	The Netherlands	§3.2.4, §3.3.3, §3.3.4
Example 27	*"Comparison with Sector"*	Spain	§3.2.4, §3.3.4
Example 28	*Risk Ratios - Ranking*	Malta	§3.2.4, §3.3.2, §3.4.3
Example 29	*Tax Gap Example*	Italy	§3.2.4
Example 30	*Virtual assistant tools for VAT and Censuses*	Spain	§3.2.4, §3.5.3, §3.6.4, §4.3.2
Example 31	*Chatbot TAXANA*	Slovak Republic	§3.2.4, §3.5.3, §3.6.4, §4.3.2
Example 32	*Transactional Network Analysis*	European Commission	§3.3.3, §4.2.3
Example 33	*Availability of risks within tax administration*	Malta	§3.3.2

Example 34	*"So.no.re" Making better use of available data*	Italy	§3.3.2
Example 35	*Root cause analysis (behaviour of taxpayer Individual Compliance Prediction*	Ireland	§3.3.3
Example 36	*Making better use of available data*	Belgium	§3.3.3
Example 37	*Making better use of available data*	Denmark	§3.3.3, §3.6.4
Example 38	*TaxNetVA*	Italy	§3.3.3, §4.2.3
Example 39	*CRM based on (sub)segmentation*	The Netherlands	§3.3.4
Example 40	*Composite Model for VAT refund*	Croatia	§3.4.3
Example 41	*Debt management prioritisation*	Greece	§3.4.3
Example 42	*Making better use of available data*	Portugal	§3.4.2
Example 43	*Strategic Picture of Risk*	United Kingdom	§3.3.3, §3.4.3
Example 44	*Cooperative Compliance of Large Business*	The Netherlands	§3.5.3
Example 45	*Cooperative Compliance for SME's (via Tax intermediaries)*	The Netherlands	§3.5.3
Example 46	*Large Business Forum*	Spain	§3.5.3
Example 47	*Integral Digital Administration ('ADI')*	Spain	§3.5.3, §3.5.4
Example 48	*Ex-ante 'evaluation' of new legislation*	The Netherlands	§3.6.1
Example 49	*Project Analysis, modelling and risk management system" (i.MAMC)*	Lithuania	§3.2.4, §3.3.2
Example 50	*The project of promotion of tax topics*	Slovenia	§3.5.3
Example 51	*Uplift Model for campaigns to move taxpayers on line*	Ireland	§3.2.4, §3.4.3, §4.2.1
Example 52	*Reducing the administrative burden and increasing tax compliance*	Croatia	§2.4
Example 53	*E-invoicing*	Italy	§4.1
Example 53bis	*E-receipts*	Italy	§2.7
Example 54	*Rewarding taxpayers*	Croatia	§3.5.3
Example 55	*Online direct payment of VAT*	The Netherlands	§2.7
Example 56	*Croatian Tax Administration's Datawarehouse*	Croatia	§3.3.2, §4.5.4
Example 57	*Sharing risks with taxpayers*	Ireland	§3.5.3
Example 58	*E-books, myDATA*	Greece	§3.5.3
Example 59	*YouTube Channel*	Republic of North Macedonia	§3.2.4, §3.5.3
Example 60	*Big Data tools to calculate family relationships*	Spain	§4.1
Example 61	*E-invoice nudge letters*	Italy	§3.5.4
Example 62	*"Compliance Risk Management Letter" (Annual Plan)*	The Netherlands	§5.7
Example 63	*Enhance taxpayers' compliance through Nudge Letters*	Cyprus	§3.5.4
Example 64	*Statistical Analysis System (Malta)*	Malta	§3.3.2

Example 1: Customer Engagement Strategy (Ireland) - §1.3.3, §3.5.1	
Background	A new Customer Engagement Strategy (CES) has been developed since 2015 so that customers are able to interact with Revenue Administration providing modern online services that are easy to use and that customers wanted.
Key points	The key objectives to enhance this service for compliance included: • establishing electronic channels as the norm, while still maintaining alternative channels; • influencing customers to use the most efficient channel for their transactions; • understanding taxpayer needs and priorities; • commitment to cater for those unable to use digital services; • improving communications and increasing awareness of entitlements and obligations achieving customer service and trade facilitation standards.
Results	https://taxinstitute.ie/wp-content/uploads/2019/07/Revenues-Slides-on-Customer-Engagement-Strategy-1-May-2018.pdf

Example 2: Compliance Risk Management Strategy (The Netherlands) - §1.3.3	
Background	The Compliance Risk Management strategy that originates from 2016 has been updated in 2020. Central in the updated strategy are the facts and circumstances of citizens and businesses that play a role in the capability and willingness to comply and the intelligent use of information with sufficient safeguards. Politicians and society expect the Tax Administration to respond quickly to changes in society (is flexible), that it shows how it fulfils its social role properly (dare to look to the effect of laws and regulations in practice) and that it works from a human perspective (considering the needs and interests of taxpayers). This has been further elaborated in the updated strategy.
Key points	The foundation of the strategy remained unchanged: "we strive for as many citizens and companies as possible to voluntary comply with the tax rules, without coercive and costly actions on the part of the tax authorities." The core pillars of the strategy are: • We put citizens and businesses first and • We are flexible where possible and required, such as during the COVID-19 crisis, and strict where necessary, such as when tackling undermining. The strategy helps in various situations to make the right choices when implementing tax legislation in business processes and when deploying a mix of services, supervision, and investigation to check if taxpayers fulfil their obligations. With the emphasis on avoiding errors as much as possible. The tax administration describes the substantiated choices for carrying out activities for specific target groups in its Annual Plan.
Results	https://open.overheid.nl/repository/ronl-57ded8a3b426d9001140319c30fb5a2f1c5fdccc/1/pdf/uitvoerings-en-handhavingsstrategie-belastingdienst-januari-2022.pdf

Example 3: Compliance Risk Management Strategy (Latvia) - §1.3.3	
Background	The State Revenue Service of The Republic of Latvia (SRS) has implemented Compliance Risk Management (CRM) and the CRM strategy is part of the multiannual strategic plan which is organised on three levels – strategic, tactical and operational- depending upon the management level at which decisions are made.
Key points	The risk management process in the SRS is organised on three levels – strategic, tactical and operational – depending upon the management level at which decisions are made concerning the planning of actions after identification, analysis, evaluation and prioritising of the risks and also evaluation of the results of planned activities is made. The organisational model of the SRS risk management consists of SRS Risk Management Steering Committee (determines the risk management policy and supervises the risk management process, makes the decisions concerning inclusion of specific risks into the strategic level risk register and on the actions for the prevention or reduction of strategic level risks, and also evaluates the risk management results; of Sectoral risk management committees in various areas of SRS business activities; and the SRS structural units according to their competency are organising their risk management

	process, coordinating it and are responsible for risk management of their processes.
Results	https://arhivs.vid.gov.lv/sites/default/files/state_revenue_service_2020_public_report.pdf

Example 4: Strategic Reorientation (The Netherlands) - §1.4	
Background	The Netherlands Tax Administration (NTA) carried out a *strategic reorientation*. This resulted in different future scenarios for the societal context as well as organisational perspectives. Strategic reorientation addresses challenges and future perspectives that could impact the (execution of the) CRM strategy.
Key points	To make flexible long-term plans, the NTA employs the method of scenario thinking. In terms of this approach to forecasting, the NTA distinguishes the following activities: 1. Environmental analysis: analysis of external trends and developments that may have an impact on the tax administration and tax system; 2. Internal analysis: analysis of the availability, deployment and agility of resources within the organisation; 3. Stakeholder consultation: collecting external views on the (future) role and strategy of the NTA. Scenario planning: scenarios are used to depict the possible outcomes of alternative future developments. A distinction is made between two types of scenarios (both described in extremes): *external scenarios* describing the outside world and *organisational scenarios* describing the inside world, both aimed at 2030. To give a picture regarding organisational scenarios, the NTA has been imagined as a highly automated organisation, a high-quality legal organisation focused on audits and customized solutions, a mainly internationally oriented organisation and an organisation driven by excellent customer services.
Results	The scenarios have been used to refine the corporate perspective. Scenario thinking helps to (re)evaluate the impact of possible future developments on different aspects such as CRM, taxpayers' relationships, future organisational competences, corporate and main public values.

Example 5: Pre-filed income tax and VAT return (Greece) - §2.4, §3.5.4	
Background	Since 2014 the Independent Authority for Public Revenue (IAPR) in Greece collects digital information from third parties regarding specific sources of income and the corresponding withholding tax. All entities in Greece that make payments for salaries or pensions are obliged by the tax law to transfer digitally the information to the tax administration every year.
Key points	The information refers to salaries and pensions with their corresponding withholding tax that pre-file the specific codes of the digital E1 income tax return form, not allowing the taxpayer for any change or modification. This information of income facilitates taxpayer with the submission of an income tax return with the correct amounts of income received and the tax that has been withheld. No changer or modification by the taxpayer are allowed. Additionally, other sources of income such as income from savings and their corresponding tax or loan instalments appear in the E1 income tax return form (in a pop- up table) as information only, assisting the taxpayer to fill in his/her income tax return. In 2022 the IAPR introduced the VAT pre-filed return form with the information, e-invoices, that are transferred to the digital platform myDATA of the Greece tax administration IAPR. The purpose of the pre-filed VAT return is to facilitate the taxpayer with VAT return submission. The pre-filed amounts in the VAT return codes can be modified by the taxpayer.
Results	Income tax return of Individuals is filed accurately, avoiding any mismatches or possible mistakes. Since 2022 VAT return that is filed with information from e-invoices facilitates businesses and the work of TA. https://www.aade.gr/en/mydata

Example 6: SAF-T - A Tool for e-Audit and Compliance (Portugal) - §2.4	
Background	The SAF-T is an OECD recommendation adopted by Portugal in 2008, which is meant to improve the effectiveness and efficiency of tax audits and to reduce costs. SAF-T is now being used far beyond the audits and has been an engine for the digital transformation of the global eco-system (tax administration, companies, government bodies, etc.)
Key points	A set of innovative projects were developed around SAF-T, aiming to prevent - by increasing taxpayers' compliance; mitigate - by increasing difficulties on tax fraud and evasion and detect - by enabling a better and faster risk analysis. SAF-T helps to improve compliance and increase the tax revenue. It also covers a developing innovative reporting solution for tax compliance, based on the SAF-T accounting information, which simplifies the reporting by pre-filling the financial statements and other information in one single declaration, instead of reporting it to several different public bodies. This process facilitates compliance by pre-filling the declaration, ensures accuracy of data and the interoperability with other government bodies.
Results	https://edicomgroup.com/blog/portugal-makes-it-mandatory-to-declare-the-saf-t-accounting-file

Example 7: Tool 'Alerts and Mismatches' (Portugal) - §2.7, §3.5.1, §3.5.4	
Background	The treatment of a risk consists on a set of measures aimed to increase compliance in a certain business area or in a particular sector of taxpayers where non-compliant taxpayers are categorised by the reasoning of being non-compliant. The Portuguese tax administration has developed a tool that seeks to reinforce the potential of emails, and allows the incorporation of a behavioural approach, namely the use of specific nudges for certain target segments of taxpayers. The tool, called a system of "alerts and mismatches", consists in sending an email alerting the detected situation and inviting the taxpayer to provide feedback.
Key points	The email presents the detected situation and invites the taxpayer to consult the tax administration web portal, where a set of situations will be presented, in the form of predefined answers, and the taxpayer can select one of them. For each selected response, the taxpayer is immediately informed of which actions he should take to regularise his situation. It also allows taxpayers to select answers that justify the situation they are in, without having to take additional action. The advantages over a simple email are to let you know which taxpayers have consulted the alert on the tax administration's website; to allow the taxpayer to justify the situation, if applicable; and to allow the taxpayer to recognise that information is missing and is immediately informed of the procedures to be followed to regularise the situation. In situations where non-compliance persists, or in more complex situations, the email sent refers to the situation, also in the finance portal, but instead of having predefined answers, allows the taxpayer to respond in open text, in which case the response will have to be analysed by an tax administration employee, who in turn can also interact with the taxpayer (using an interface in the web portal), also empowering at this stage the voluntary compliance.
Results	On taxpayers who do not change the behaviour or do not present an accepted justification, regular enforcement procedures (fines, additional settlements, inspections) will be carried out. However, this occurs in a smaller number, and with fewer situations of litigation than they would have been if the previous stages of incentive to voluntary compliance had not been implemented.

Example 8: File a tax return or pay your taxes in one click (A.E.A.T.Spain) - §2.7, §3.5.4	
Background	The Spanish Tax Agency makes available to taxpayers an app for smart mobile devices (smartphones and tablets) that offers the possibility of carrying out a lot of procedures with or without user identification in a simple and agile way. Taxpayers can install or access the "Tax Agency" app simply by scanning a QR code, from devices with Android operating system (version 6.0 or higher) or iOS (version 11 or higher) or by

	downloading the “Tax Agency” app to their mobile device from the Market place corresponding to their device.
Key points	Services offered by the “Tax Agency” app: When the application is opened it will show a notice with the "Privacy Policy and Terms of Service" and "Data Collection and Use", which taxpayer must accept to access the application. At the bottom of the screen, the taxpayer will find the following options: "Management", "Notifications", "Users", "Information" and "Settings". By default, the application opens in the "Management" category. In this case, the "Tax Agency" app allows taxpayers for whom the Spanish Tax Agency has all the data, to submit their income tax return with a single click. The Tax Agency adds a new service to its "app" to make the deferral application quicker, the consultation and payment of debts (download it here: Tax Agency: tax Agency app). A new feature in the mobile app will allow you to carry out the most common procedures in the tax collection area, saving time and travel, without limitation of timetables and quickly and easily (see the leaflet, user guide and videos here (version long / short version) on the use of the three functionalities). The taxpayer can request total or partial deferrals, check the status of their debts and obtain a certificate of being up to date if they have debts and make the corresponding income, all of which is almost instantaneous.
Results	https://sede.agenciatributaria.gob.es/Sede/en_gb/ayuda/consultas-informaticas/renta-ayuda-tecnica/servicios-app.html Tax Agency: Access the Tax Agency app: Pay, defer and consult (agenciatributaria.gob.es)

Example 9: myAADE: Direct online payments (Greece) - §2.7	
Background	Direct online payments is a service available by the Independent Authority for Public Revenue (IAPR) in Greece via its AADE web page: myaade.gov.gr. Taxpayers can pay their taxes, debts, or arrears through the online payment solution IRIS, (supported by Interbank Systems) in which all banks participate.
Key points	The benefits for the taxpayers include instant credit of payments of taxes, without the delay of 1-4 days. The payment is made directly in the web banking of the bank and in AADE that is constantly informed. Thus, those who need immediate repayment for reasons such as the issuance of tax clearance or repayment of arrangements, with the new service, have the possibility to issue the relevant certificates immediately.
Results	

Example 10: Web application for CRM (Portugal) - §3.1	
Background	The Portuguese Risk Management Unit (DSGR) has developed a web application to run the CRM Cycle. The objective is to build a database of all the identified risks, to record the various aspects that characterise the risk, and in general to record the risk analysis, in the various aspects, facilitating the process of prioritisation, propose the most appropriate treatment and evaluate the results based on past developments.
Key points	The web application continuously carries out the process of identifying risks using various sources. The main source of identification has been the audit reports and specific area studies. However, important risks have been recorded based on reports from other units or monitoring the environment through the media. Risks are categorised by type of tax, taxpayer activity area, taxpayer segment, compliance risk type (register, filing, declaration, payment). During the risk analysis, the financial impact, impact on perceived effectiveness of tax administration, impact on tax administration's reputation is assessed. • Identification of the underlying behavioural variables; • Evolution of risk (past developments and expectations of future developments in the absence of treatment); • Treatment perspectives (description of the possibility of various treatments, taking into account their cost, ease of implementation and expected effectiveness).
Results	After the evaluation it is possible to obtain a list of the risks already analysed, being able to compare them, thus facilitating the

	prioritisation process allowing the selection of the risks whose treatment is more crucial.

Example 11: Risk Identification and Risk Analysis with use of "Hermes" (Spain) - §3.2.1, §3.3.2	
Background	A tool based on Big Data technology called "Hermes" has been developed by the Spanish Tax Agency as a single system of taxpayers' risk Identification and risk analysis.
Key points	For all identified taxpayer risks, HERMES calculates: • "Score": Probability of that Risk happening to a taxpayer. From 0 to 10 points. (A lot with 10 points, a little with 0, Medium: 6 points for example); • "Efficacy" (economic relevance of the risk. What is expected to obtain if the risk is properly treated by the tax administration); • "Difference" (the amount debt, in case of tax collection risks or the gap between what was declared and what should have been declared in case of tax audit risks); • "Percentage" of the difference on the efficacy.
Results	Hermes also provides a report for any and identified taxpayer Risk, called "Genio". It´s a report with the explanation of why the risk has been activated and can also contain the actions to be taken to eliminate it. Advantages of the new "Hermes" system: Its flexibility, simplicity, reliability, and ease of interpretation. Since 2018, HERMES Risk are been successfully used in taxpayer selection procedures for control and recovery purposes in the Spanish Tax Administration.

Example 12: VIVI (Virtual Visit) E-audit (Spain) - §3.2.2, §3.5.3	
Background	One of the most recent IT tools developed by the Tax Auditing Department and the IT Department of the Spanish Tax Agency is "VIVI" (virtual visits for auditing). VIVI is a more efficient way to develop virtual visits for the cases were an on-site meeting is not strictly necessary. VIVI is fully compliant with the tax auditing procedure established in the Spanish law and has the same validity as a live meeting. For this solution to reach its highest potential, the system includes the possibility to sign documents and exchange records or other documents, just as would happen in a face-to-face meeting but by electronic means.
Key points	The procedure starts with the taxpayer being appointed for a visit of a tax auditor. If the auditor´s office is not convenient to him, he will be able to opt for another office more to hold the visit. There he (or his representative) will be assisted by a tax agent who will take him to the visiting room, grant him access to the videoconferencing system and facilitate the virtual visit. Under no circumstances the taxpayer will operate the computer. The visit will develop like a face-to-face one, with questions of the tax auditor on relevant issues. The auditor will be the moderator of the videoconference and he will decide the screen they see. VIVI includes or is connected to the following tools: • A videoconferencing system; • An Electronic Registry to load documentation delivered by the taxpayer; • The electronic signature of both the tax official and the taxpayer; • The electronic file of the taxpayer, so that the tax official can access to all the information.
Results	In the tax audit area, virtual visits (VIVI) are already a real alternative and, at the end of 2021, 6,000 procedures have been formalized, which implies that this system, even though it is voluntary for the interveners, is being used significantly. The forecast is to extend this instrument to the other areas of action of the Spanish Tax Agency.

Example 13: Use of algorithms: APPLE – learning scheme (Italy) - §3.2.3	
Background	Italian Revenue Agency (IRA) provides a methodology to design an effective learning scheme intended to enhance the IRA's ability to identify non-compliant individuals through income and wealth indicators.
Key points	APPLE is a tool to cross-check all internal and external data available in the Tax Register to detect taxpayers that declare inconsistent income or do not pay income taxes, completely or in part. APPLE is composed

	by two data marts: APPLE business index and APPLE wealth index. In the first case, the user is looking for indicia of an economic activity carried out, apparently undeclared. For example, non-domestic utilities, insurance contracts, and the ownership of commercial vehicles can represent indicia of an economic activity. In the second case, the declared income is compared with wealth indicia – such as amount of financial investments, ownership of properties or luxury cars – to find incoherencies and risks.
Results	The proposed methodology is available to all local offices and it is used to both analyse data on the population and to select more risky taxpayers.

Example 14: Obtain data from digital platforms, (Denmark) - §3.2.3	
Background	In Denmark, renting out property and transport are the most used forms of sharing economy. The Danish Ministry of Industry, Business and Financial Affairs estimates that the total value of transactions within these two forms of sharing economy in 2015 was between 425 and 625 mill. DKK (57-84 mill. EUR) and that there are around 140 digital platforms operating in Denmark. The Danish Government and a wide range of parties in the Parliament agreed on the principles for a new model of taxing of parts of the sharing economy in Denmark.
Key points	The main focal points of the agreement are person-to-person short-term rentals of property, cars, and boats. The political agreement entails that the yearly basic allowance on income from specific sharing economy activities will be higher if the income is earned through a third party (e.g., a platform) that reports the income to the tax administration. Agreement with platforms on automatic exchange of information about income from sharing economy activities.
Results	On May 17th, 2018, the Danish Customs and Tax Administration made a deal with Airbnb on exchange of information regarding income from rentals in Denmark through Airbnb.

Example 15: Obtain data from rental housing platforms (Spain) - §3.2.3	
Background	A new form came into force in July 2018. The Form 179 is a new instrument to control tourist rental housing on platforms such as Airbnb or Windu.
Key points	All individuals and entities that provide the intermediation service are the ones obliged to submit the informative statement, every 4 months, with identification of the owner of the property, the owner of the right to lease the property (if it is different from the owner) and the people or entities renting the property. Also, it includes identification of the property, including the cadastral reference, number of days for the holiday booking as well as the start date and money charged by the owner for renting the house.
Results	During 2021, 3 million declared registrations have been obtained. https://sede.agenciatributaria.gob.es/Sede/en_gb/procedimientoini/GI44.shtml

Example 16: Prefilled returns with data obtained data from digital platforms (Estonian) - §3.2.3	
Background	The Estonian Tax and Customs Board (ETCB) entered a cooperative agreement with various digital platforms for information sharing.
Key points	The platforms first ask consent from the drivers for income information to be shared with the ETCB. Where consent is given, the platforms compile the relevant data into a single file with names, personal codes and income amounts, and send this file to the ETCB before the beginning of income tax return submitting period. The ETCB pre-fills the natural persons' income tax returns using all relevant data. The natural person must check the prefilled data, amend if necessary and submit the income tax return. The process is entirely electronic.
Results	https://www.ela.europa.eu/sites/default/files/2022-01/GP-fiche_EE_Tax_compliance_support.2021_EN.pdf

Example 17: Obtain data from Sharing economy platforms (Finland) - §3.2.3	
Background	The Finnish Tax Administration (FTA) has focused efforts on sharing economy platforms related to the accommodation industry, P2P lending and crowd funding activities. While domestic legislation has been effective at collecting third party data from P2P and crowd funding platforms within Finland, it cannot be applied where the platform only has a presence in a third country.
Key points	The FTA has also used website scraping techniques and international administrative cooperation, including receiving data through spontaneous exchange.
Results	https://www.vero.fi/en/About-us/contact-us/forms/descriptions/annual-information-return-from-a-reporting-platform-operator/obligation-to-report-information-about-services-and-sales-transmitted-via-digital-platforms/

Example 18: WEB scraping application (Lithuania) - §3.2.3, §4.3.2	
Background	The Lithuanian tax administration use web scraping to get information from the digital economy platforms.
Key points	They aggregate and analyse extracted data. After identification of sellers, they compare scraping results with internal database and distinguish most risky taxpayers and undeclared incomes.
Results	

Example 19: Use of third Party Data (Denmark) - §3.2.3	
Background	The Danish Customs and Tax Administration makes great use of third-party data to effectively manage PIT (personal income taxes), which constitutes about half of the tax base, reflected in pre-populated tax returns that are locked after a certain implementation period.
Key points	The process can be seen as a “nudge” producing a “compliance by design” scenario where most individuals with simple tax affairs can passively accept a pre-populated return, although opportunities remain open to make changes or amendments to the return. Between 2008 and 2014, 20 lines were locked progressively, covering both taxable income and deductions, including wage income; pensions, unemployment benefits and entitlements for students; interest paid on loans and mortgages; and contributions to charity. The impact of the locking of line items can be assessed with a high degree of certainty using data from compliance analyses based on random audits conducted. The findings from the random audits show how the locking of 20 line items over this period has resulted in a permanent reduction of the net tax gap by about DKK 300mn. The findings confirm (unsurprisingly) the importance of opportunity as a driver of error. The most recent round of random audits found a factor 136 difference in error proportion for locked and open line items respectively. The locking of line items implies a transfer of responsibility from taxpayers to the tax administration. Legal reform, as a result, has established that the tax administration is responsible for the accuracy of locked line items as well as line items covered by third party data. While taxpayers no longer can make changes to locked line items, they have recourse to appeal mechanisms in the event that information supplied by third parties is perceived as incorrect.
Results	

Example 20: Renta Web software (Spain) - §3.2.3, §3.3.4	
Background	The Personal Income Tax Return Help Program, called "Renta Web" is a software created by the Spanish Tax Agency to facilitate the filing process of the Personal Income Tax returns, with the taxpayer's personal, family and economic details available up to a certain date.
Key points	The taxpayer accesses the tax agency server directly and confirms or adds any detail or income, in such a manner that they can easily process their draft/return for all types of income. All taxpayers can use Renta WEB, even those with earnings from economic activities.

Results	In 2022 (exercise 2021) a total of 17.061.339 income tax returns were submitted through this system. Agencia Tributaria: 4.1.4. Campaña de Renta

Example 21: Payment Risks (Spain) - §3.2.3	
Background	The Spanish Tax Administration came out to models of payment risk based on the payment behaviour risk.
Key points	• **Payment Risks related to late payments of taxes and accumulation of arrears** - The aim of this measure was to grant payment by instalments only when the taxpayer has a temporary cash problem, but not in those cases when the taxpayer is only searching for a source of funding. • **Payment Risks related to artificial insolvencies created** - The development of new IT TOOLS based on Big Data has contributed a lot in this decision. Tax Collection Department decides to bet on them. To use them in order to detect fraud tax collection. The Selection and Risk Analysis Team is tackling fraud and enhancing debt recovery by: • Defining the risk indicators- developed the 7 (seven) Tax Collection Risk Profiles and for each Profile, the Spanish Tax Administration develops risks. • Using advanced IT Tools (Data Science and Big Data) to identify tax debtors' behaviour patterns. - The search for relationships between bad debtors ("The Poor"), with individuals with an estimated wealth of more than 1 million euros. ("The Rich")
Results	The use of these models has allowed increased the efficiency of debt recovery considerably.

Example 22: Compliance map (The Netherlands) - §3.2.4, §3.3.3, §3.6.4	
Background	The Netherlands developed a so-called compliance map in which all tax revenue is classified to its level of 'assurance' related to the risk of not being collected.
Key points	The compliance map monitors, at the strategic level of the Tax Administration, the tax revenues of the total population of taxpayers and thus provides global insight into the relationship between implementation, compliance activities and legislation and the risks to tax revenues. The compliance map categorises the total amount of tax revenue received, based upon the 'level of assurance'. This insight is important to know the overall risk that a tax authority will not receive the tax revenues if it does not make service, supervision or enforcement efforts. Dashboards with available data and expert estimations are the basis for this type of categorisation. The qualitative criteria that are used for categorisation are e.g. complexity of legislation, level of automation, taxpayer characteristics, international aspects of taxation, possibility of tax refunds. The quantitative criteria are e.g. number of taxpayers, number of tax returns, number of tax assessments, number of objections and appeals, corrections of non-compliance. After classifying tax revenue in the compliance map, a more in-depth analysis is made by means of analysis of the numbers that are the basis of the compliance map combined with expert opinions, and by means of comparing the current year to the previous years to see what trends can be discovered. The compliance map provides management of the tax administration with guidance on compliance risk management activities.
Results	The yearly insight provided by the compliance map is intended as an insight at corporate level, alongside other insights about (non-) compliance, that can be used for making choices of activities for the execution of the Compliance Risk Management strategy.

Example 23: Use of new technology to predict taxpayer compliance (Spain) - §3.2.4	
Background	Model prediction of failures taxpayers. It uses a prediction algorithm, which has been previously trained with specific cases of about 100 data from each debtor.
Key points	The objective is to detect new clients that are likely to fail in the coming years, in order to anticipate measures and actions by Tax Administration.
Results	The model is currently used on all taxpayers on which an inspection is started, to predict if they are going to pay or not, in order to adopt, in the cases that allows the law, measures to ensure payment.

Example 24: Real time identification risks Virtual Cash Register (Slovak Republic) - §3.2.4, §3.5.3	
Background	In 2017, the Tax Administration of Slovak Republic launched a project called virtual cash register.
Key points	A selection of taxpayers, mainly known as high risk professionals (i.e. lawyers, dentists etc.) are sending registered income online to Tax office database. The communication with these taxpayers is done only via internet (tax returns of all taxes, application etc.). The Tax office communicates with the taxpayer using a software in order to send various notifications. An Index of taxpayers is kept regarding their reliability (IDS) and which it assesses taxpayers by selected criteria, resulting to some benefits.
Results	

Example 25: Macro-environmental analysis (The Netherlands) - §3.2.4	
Background	NTA performs yearly macro-environmental analysis with a 3-10 year horizon to identify societal developments that can impact the strategic agenda and the CRM strategy of the tax administration.
Key points	The analysis consists of a study of the demographic, political, economic, social and technological events and trends, and in topics that are thought to be relevant for the strategic choices of the NTA. The purpose of the macro-environmental analysis is to identify possible trends within society that are blind spots so far to the tax administration, yet impact the strategic agenda and the CRM strategy of the tax administration. Moreover, it aims to strengthen the NTA's ability to anticipate on future developments and to consider external (stakeholder) needs.
Results	Previous analyses have identified several macro developments and trends that warrant further research by the NTA, such as public transparency, automated taxes and sustainability. Follow-up research projects have been initiated on these items. Moreover, the trend analyses were used in establishing the NTA long-term vision, strategic risks and long-term personnel planning and update of the CRM strategy.

Example 26: 'Real time' insight for debt collection (The Netherlands) - §3.2.4, §3.3.3, §3.3.4	
Background	In 2013-2014, the Netherlands Tax Administration (NTA) implemented the Dynamic Monitoring (DM) and Debtor Insight tools.
Key points	Together these tools automatically, and in almost real time, check the income and assets of debtors, the available collection measures and outstanding debt. As soon as a match appears, the collector will be advised of the most efficient and effective collection and recovery measure with the minimum negative consequences for the taxpayer. The use of these tools also allows the NTA to prioritise the work. Currently DM is in a stage of further development in order to strengthen supervision and to collect and recover at an earlier stage and in the most efficient way.
Results	https://www.oecd.org/tax/forum-on-tax-administration/publications-and-products/successful-tax-debt-management-measuring-maturity-and-supporting-change.pdf, chapter 7.

Example 27: "Comparison with Sector" (Spain) - §3.2.4, §3.3.4	
Background	An IT TOOL called "Comparison with Sector" has been created, with the purpose of comparing an entity with similar ones, based on some pre-selected ratios.
Key points	The objective is to be able to make an easy comparison of a taxpayer, which allows to check at a glance in which parameters the entity presents anomalous values in relation to other entities of similar conditions. The sources to obtain the data to build the ratios comes from the Spanish Databases.
Results	This tool has multiple functionalities. One of them is to provide the initial non-payment risk assigned to each taxpayer.

Example 28: Risk Ratios – Ranking (Malta) - §3.2.4, §3.3.2, §3.4.3	
Background	The Maltese Tax Administration wanted a system where risk ratios could be analysed at different levels, namely at overall level (ranking of sectors), at business sector level (ranking of taxpayers within a particular sector), and at taxpayer level (taxpayer risk profile).
Key points	The objective of this multi-level system of reporting is to analyse particular business sectors which are at more at risk than other sectors and particular businesses which are at more risk than others in the same business sector. The abovementioned analysis contributes to the identification, analysis and prioritisation steps of CRM. For the OVERALL RANKING the whole taxpayer population is segmented into a specified list of business sectors. The report is executed for a number of consecutive years and for each business sector the average number of businesses in the sector, the risk ratios (e.g. purchases to sales ratio, capital expenditure to sales ratio) for each business sector and the standard deviation for particular risk ratios are used. For the SECTOR LEVEL one or more business sectors are analysed for a number of consecutive years. The taxpayers in the selected business sector/s are then ranked according to different risk ratios (showing rank number, percentile rank and quartile). The report also shows other information such as defaulting Businesses in the selected business sectors.
Results	This report helps to highlight taxpayers which are most at risk within a particular business sector. For the TAXPAYER LEVEL a Risk Profile on a particular taxpayer for a specified number of consecutive years is produced such as a comparison of the taxpayer's risk ratios to the business sector ratios, the taxpayer's size compared to the whole business sector, reconciliation between taxpayer data obtained from different sources to identify any mismatches."

Example 29: Tax Gap Example (Italy) - §3.2.4	
Background	The Italian Revenue Administration has been developing analyses concerning the Tax Gap for more than 20 years. The tax gap provides a useful tool for understanding the size (both in absolute and in relative terms) and nature of non-compliance. Therefore, depending on the level of detail of the estimates, it can also be employed to determine the risk profiles of specific taxpayers' categories or to develop performance indicators for the evaluation of the activities of the tax authority.
Key points	Italy calculates the tax gap with respect to several kind of taxes: the analysis at first focused on Value Added Tax (VAT) and IRAP (Regional Tax on Productive Activities, specific to the Italian tax legislation) and then was expanded to include Personal Income Tax (PIT), Corporate Income Tax (CIT) and other taxes. Since 2016, tax gap figures are collected in an annual report attached to the Update to Economic and Financial Document (DEF). The main results are derived using a top-down approach based on tax data and National Accounts (NA): in this approach, information derived from NA data is subject to specific corrections in order to make it coherent with the tax legislation, so that a measure of non-compliance can be derived through the difference between adjusted NA data (e.g. potential tax base, potential tax...) and the corresponding aggregate within administrative data (e.g. declared tax base, actual tax payments…). For instance, VAT gap estimates make usage of NA data aggregates such as Households Consumption, General Government Investments and Intermediate consumption and Market enterprises Investments and Intermediate consumption.

	In recent years, the top-down approach has been complemented with a bottom-up methodology (currently for VAT and IRAP only), which allows a more detailed comprehension of the phenomenon.
Results	As a result of the estimation procedure, for each type of tax, several indicators can be derived (not all of them are made public). Generally, they comprise: • tax not remitted to tax authority (e.g. VAT gap) • tax base concealed to tax authority (e.g. undeclared VAT base) which can be expressed both as monetary amounts (in millions of euros) and as a percentage of the potential tax/tax base, or as a ratio to GDP. Based on the level of detail of NA data (in the top-down approach) or exploiting information from bottom-up estimates (where available), also a break-down of these figures by economic sector, geographic localisation (region/province) and taxpayers' categories can be produced.

Example 30: Virtual assistant tools for VAT and Censuses (Spain) - §3.2.4, §3.5.3, §3.6.4, §4.3.2	
Background	The Immediate Supply of Information System, called SII, is a new strategy in VAT management to provide taxpayers with a new assistance service based on the use of the electronic channel and new technologies. SII came into force last 1 July 2017.
Key points	Help services has been incorporated on the Spanish Tax Agency website in order to resolve doubts about how SII works as well as VAT legislation. Virtual Assistant Service on the Web, gets answers for any doubts taxpayers have about foreign trade, real estate operations, invoicing and registration, taxation and exemptions etc.
Results	Finally, there's an Economic Activity Search Engine where the taxpayers describe with one or two words the economic activity they do. Then the search engine indicates the heading or headings of the IAE (Economic activity Tax) tariffs and equivalent activity code (CNAE) applicable to a certain activity, as well as related information of interest. This helps the taxpayer to fulfil the Economic Activity Tax form correctly. https://www.agenciatributaria.es/AEAT.internet/en_gb/Inicio/Ayuda/Manuales__Folletos_y_Videos/Canal_de_la_Agencia_Tributaria_en_Youtube/Suministro_Inmediato_de_Informacion_del_IVA__SII_/Introduccion__English_version_/Introduccion__English_version_.shtml https://www.agenciatributaria.es/AEAT.internet/en_gb/Inicio/La_Agencia_Tributaria/Campanas/_Campanas_/Herramientas_de_asistencia_virtual/Herramientas_de_asistencia_virtual.shtml

Example 31: Chatbot TAXANA (Slovak Republic) - §3.2.4, §3.5.3, §3.6.4, §4.3.2	
Background	The Financial Administration of the Slovak Republic launched in the area of client measures TAXANA chatbot in September 2018.
Key points	The chatbot application is used to provide automated communication between taxpayers and the financial administration, both through the financial administration portal and on Facebook. In this area of digitisation and automation Financial Administration was a pioneer among state institutions. Financial Administration was the first state institution to introduce such an automated chat into communication with its clients and will continue to work on the improvement.
Results	Chatbot of Financial Administration of SR is advising to taxpayers from 9/2019 mainly in the VAT and income tax area. Based on feedback from chat users it is still improving. In 2019 TAXANA used 113,988 unique users as a source of information send more than 745,375 queries. TAXANA provides simplified access to selected forms and, as part of advanced services to citizens, on request sends the selected document directly to the specified email address. TAXANA also informs as it is able to talk to a lot of people at once, it not only saves operator costs, but also helps clients get information without having to wait for a free operator. https://dataconcept.digital/case-study/taxana/

Example 32: Transaction Network Analysis (European Commission) - §3.3.3, §4.3.2	
Background	The European Commission started using the tool Transaction Network Analysis (TNA) to crack down VAT fraud on intra-Community transactions. The cost of VAT fraud using the so called ´carousel fraud´

	is one of the largest losses of revenue for EU MS. In a carousel fraud multiple traders create a chain transaction to generate the right to deduct on domestic purchases follow by zero-rated intra-Community supplies. Typically, one trader in the chain does not know about the fraud. The rest of the traders will disappear once they have effectively received the VAT amounts ´incurred´. The fraudster parties in the chain will normally avoid reporting their transactions in the ECSL returns, hence producing a mismatch between their EC Sales List and the VAT return of the party not participating in the fraud. The aim of the new TNA is to detect those mismatches as early as possible
Key points	TNA is an automated data mining tool that interconnects Member States' tax IT platforms. • In this way, cross-border transaction information can be quickly and easily accessed, and suspicious VAT fraud can be reported nearly in real time. • TNA also boosts cooperation and information exchange between national tax officials. Eurofisc officials can now cross-check information against criminal records, databases, and information held by Europol and OLAF.
Results	https://ec.europa.eu/commission/presscorner/detail/en/IP_19_2468

Example 33: Availability of risks within tax administration (Malta) - §3.3.2	
Background	The Malta Tax and Customs Administration (MTCA) uses a Data Warehouse where all third party information obtained from different sources are incorporated.
Key points	The tax administration obtains data on a periodic basis from difference data sources. A data warehouse has been developed over the years which provides data from different sources on a particular taxpayer. This data is held both on a current status as well as historically. New data sources can be added to the data warehouse as deemed appropriate.
Results	This data helps the tax administration in analysing the verifiability of the taxpayer's tax declarations compared to the third party data and, consequently, any instances of tax evasion.

Example 34: "So.no.re" Making better use of available data (Italy) - §3.3.2	
Background	So.no.re is a risk analysis tool aimed to detect those taxpayers, both Italian and foreign citizens, who declare a fictitious foreign residence for avoidance purposes.
Key points	This application is an effective tool for risk analysis activities, which collects different third parties' data, and identifies those individuals who have kept strong connections with the Italian territory, despite their declared offshore residence.
Results	There are many different elements that are considered significant from this point of view, each of them with a specific risk-score, related to both personal and economic relationships, such as having a family member living in Italy, a business activity (or being a business partner in an Italian company), electricity consumption, leasing contracts, registered deeds, holding a car or a motorcycle, having exported or imported capitals from abroad, etc. The occurrence of two or more of these risk indicators, in a given tax year, contributes to evaluate the overall taxpayer's risk of fictitious foreign residence, together with a more comprehensive investigation of his fiscal position.

Example 35: Root cause analysis (behaviour of taxpayer Individual Compliance Prediction (Ireland) - §3.3.3	
Background	Predicting compliance outcomes in "Pay as you earn" (PAYE) income tax customers, with a specific analytical approach taken and using types of Data taken from their PAYE account, employment & pay records, online activity, PAYE credit & reliefs claimed and demographic profile.
Key points	The objective of the project was to identify new and known characteristics and risks from yielding PAYE compliance projects including; undue credits, undeclared income, underpayments. etc.
Results	The current yielding rate for PAYE compliance projects 30%. The top 10% of cases from a test data set scored by the model yielded 55% of the time. This is a 25% difference in the rate of yield predicted and an

	uplift of 80% over current performance. Our findings will be presented to our business customers the PAYE teams so we can discuss how the results can improve their intervention efficacy.

Example 36: Making better use of available data (Belgium) - §3.3.3	
Background	Segmentation analysis is done by continually analysing and scaling tax and behavioural data and sociodemographics. Segments within the data collected can be identified by using clustering techniques, where the objective is to detect similar segments or clusters.
Key points	Based on similarities and differences between tax payer observations, distance metrics must be compiled. These metrics are defined on contextual knowledge (by tax experts) and not only using black box mathematical equations and techniques.
Results	

Example 37: Making better use of available data (Denmark) - §3.3.3, §3.6.4	
Background	The Danish Customs and Tax Administration has applied a CRM strategy based upon a segmentation that covers the total economy.
Key points	For each segment, is set a strategy focusing on lowering the tax gap and heightening the compliance level. Strategies are drafted following an early process, which in large follows the Compliance Risk Management Model. The compliance analysis is carried out with a defined cadence in order to facilitate measuring tax gap development and the corresponding knowledge on taxpayer behaviour, and thereby regularly update and adjust the segment strategies, their activities, and the portfolio of activities aimed at minimising the tax gap and heightening the compliance level.
Results	https://www.imf.org/en/Publications/CR/Issues/2016/12/31/Denmark-Technical-Assistance-Report-Revenue-Administration-Gap-Analysis-Program-The-Value-43728

Example 38: TaxNetVA (Italy) - §3.3.2, §4.2.3	
Background	TaxNetVA is a decision support system currently used by the Italian Revenue Agency to detect tax evasion and frauds. It is based on a powerful visual language for graph databases and on advanced network visualisation techniques, which allow users to visually define and extract suspicious patterns.
Key points	TaxNetVA organises massive amount of data in a graph structure, where nodes represents taxpayers and edges represent different types of economic and social relationships among them (e.g., representatives, partnerships and e-invoicing). The system exploits graph pattern matching technologies to extract and analyse subgraphs that match one or more desired patterns. Indeed, it offers visual tools to interact with those subgraphs that corresponds to a given pattern, in order to get more details or to filter out less relevant information. Moreover, TaxNetVA implements new centrality indexes to automatically rank taxpayers based on their fiscal risk.
Results	TaxNetVA is designed to support the following strategic areas: tax assessment and fight against fiscal frauds. These activities are mainly carried out on three organisational levels: provincial, regional and central, and TaxNetVA allows to adopt local initiatives also in the national context.

Example 39: CRM based on (sub)segmentation (The Netherlands) - §3.3.4	
Background	As in the segment of private individuals the major compliance risks stayed more or less the same over the years, relatively much effort has been taken to carry out in-depth root cause analysis (as part of a random desk audit programme) on these risks, which led to insights on relevant sub segments of private taxpayers.
Key points	The random programme provides for sections of the tax return where many errors are made and opinions of desk auditors on the question whether the “error” was made on purpose or not.

	The integration of data analysis, behavioural sciences and expertise of staff administering the law, proves to be especially fruitful to carry out root-cause analysis. NTA found out, a.o. that life events like a divorce or retirement caused errors in several sections of the tax return. Also starters (starting a small business) and quitters turned out make mistakes that led to non-compliance. Reasons for the errors are e.g. lack of knowledge, complexity of legislation, lack of capacity to deal with tax matters et cetera.
Results	These analyses open windows of opportunities for more dedicated or tailored (sets of) measures to prevent mistakes from happening rather than correcting errors after the tax return has been filed.

Example 40: Composite Model for VAT refund (Croatia) - §3.4.3	
Background	In 2018 one of the results of CRM in the Croatian Tax Administration (CTA) is the application for automated process for VAT refund (three automatic iterations per month) in area of VAT refund, depending when the request is submitted).
Key points	Taxpayers are being analysed through the special Composite Model for VAT refund. Depending of the analysis, taxpayers are being rated into four groups: non-, low, medium and highly risky. On non-risky taxpayers, VAT automatic refund is being performed without any manual work by tax officers. On low and medium taxpayers, VAT automatic refund is being also performed in 30 days but with prescribed business procedures toward each taxpayer. All VAT refunds, except highly risky taxpayers, are automatically returned to the taxpayers via electronic payment.
Results	Automated process for VAT in three automatic iterations per month. Recognising the taxpayers who have preference to the risk. Uniform treatment. Reducing internal risks. Significantly increase awareness and knowledge of CTA employees on risk analysis. Before the automatic VAT refund, taxpayers are ranked according to risk indicators and the refund is made depending on the results of the ranking. The composite model for automatic VAT refund is based on risk indicators that indicate taxpayers' potential fraud or risk behaviour. The rank is calculated by an advanced mathematical algorithm depending on the values of the risk indicators, application TACS is used for this purpose. The final result is categorisation of taxpayers into 4 categories. Categories are marked with colours that represent probability of fraud. Red represents high risk of fraud, orange represents medium risk of fraud, yellow represents low risk of fraud and green represents that there is no risk of fraud.

Example 41: Debt management prioritization (Greece) - §3.4.3	
Background	An automated system developed internally in Greek Independent Authority for Public Revenue (IAPR), based on a risk analysis model that exploits a vast array of data, to detect new Debt Cases for allocation, to prioritise the Debt Cases. The main objective to be served is to assist tax collection units to efficiently manage their debt portfolio by • Tracking down the most important debt cases with a costless & time-saving procedure • Proposing the appropriate enforcement measures for each case • Ensuring that debtors with the same profile/characteristics are treated uniformly
Key points	The procedure is applied monthly on non-compliant debtors with new debts. Debt cases are prioritised based on a risk analysis model that exploits a vast array of data. The risk analysis criteria are grouped in three categories based on the general characteristics of each debt, the specific characteristics of each debtor, and information from third parties. They are used in conjunction to provide a score for the respective ranking of all cases.
Results	The ranked cases enriched with debtors' profile data and the indication of enforcement measures are uploaded on an intranet site where they become available for download to the collection units with respect to their regional competence. The highest ranked cases are allocated through a case manager application to the competent tax offices where the head of the collection department has to assign them individually to collection

	auditors. The case manager application enables real time monitoring of each case along with the enforcement actions.

Example 42: Making better use of available data (Portugal) - §3.4.2	
Background	The Portuguese Risk Management Unit (DSGR) has developed a web application to run the CRM Cycle. The objective is to build a database of all the identified risks, to record the various aspects that characterise the risk, and in general to record the risk analysis, in the various aspects, facilitating the process of prioritisation, propose the most appropriate treatment and evaluate the results based on past developments.
Key points	The web application continuously carries out the process of identifying risks using various sources. The main source of identification has been the audit reports and specific area studies. However, important risks have been recorded based on reports from other units, or monitoring the environment through the media. Risks are categorised by type of tax, taxpayer activity area, taxpayer segment, compliance risk type (register, filing, declaration, payment). During the risk analysis, the financial impact, impact on perceived effectiveness of tax administration, impact on tax administration's reputation are assessed. • Identification of the underlying behavioural variables • Evolution of risk (past developments and expectations of future developments in the absence of treatment) • Treatment perspectives (description of the possibility of various treatments, taking into account their cost, ease of implementation and expected effectiveness)
Results	After the evaluation it is possible to obtain a list of the risks already analysed, being able to compare them, thus facilitating the prioritisation process allowing the selection of the risks whose treatment is more crucial.

Example 43: Strategic Picture of Risks (SPR) (United Kingdom) - §3.3.3, §3.4.3	
Background	Significant tax risks are brought together at a departmental level in a 'Strategic Picture of Risk' (SPR) which draws on a mix of internal/external information and data to enhance HMRC's understanding of customer behaviour and tax risk.
Key points	The Strategic Picture of Risk (SPR) is the department's top-level assessment of the compliance risks that HMRC faces, driven by data, analytics and business insight. • HMRC regularly assesses the risks to tax revenue. • This process makes use of the Tax Gap and is used to influence the planning of response to risk. • The assessment also uses operational data, business intelligence, and external information to enhance our ability to understand customer behaviour, and the risks HMRC manage.
Results	https://assets.publishing.service.gov.uk/media/5c8828f7ed915d50aa142f8e/tackling_tax_avoidance_evasion_and_other_forms_of_non-compliance_web.pdf

Example 44: Cooperative Compliance for Large business (The Netherlands) - §3.5.3	
Background	The Netherlands Tax Administration (NTA) has been working with Horizontal Monitoring (HM) for large businesses since 2005. HM is part of a comprehensive compliance risk management strategy with regard to large companies. The NTA concludes individual horizontal monitoring covenants with large companies. The covenants are based on transparency, understanding and mutual trust. HT is aimed at promoting structural tax compliance and faster legal certainty based on the principles of mutual understanding, mutual transparency and informed trust.
Key points	The benefits of HM relate to obtaining faster legal certainty and an improved working relationship. By working real-time and taking into account the work done back and forth, compliance further increases and costs are lower for both parties, partly because tax disputes after filing returns are more often avoided. An important starting point is

	that all parties take responsibility for achieving efficient and effective taxation. The premise for adjusted supervision from the side of the NTA is that sufficient attention is paid to tax control within the company (tax control framework).
Results	https://download.belastingdienst.nl/belastingdienst/docs/leidraad_toezicht_grote_ondernemingen_dv4231z5fd.pdf

Example 45: Cooperative Compliance for SME's via Tax Intermediaries (The Netherlands) - §3.5.3	
Background	'Horizontal monitoring (HM) tax intermediaries' is a form of cooperation between private parties (tax intermediaries and their clients) and the tax authorities. In HM taxpayer supervision is based on trust, understanding and transparency between the Netherlands Tax Administration (NTA) and the entrepreneur and his adviser, where agreements are made between them on how they deal with each other. These agreements are laid down in covenants.
Key points	In HM tax intermediaries, the NTA relies on the work that the tax intermediary does for its client (the company). The supervision by the NTA can be adjusted accordingly. The starting point in HM is that the tax intermediary timely submits a tax return on behalf of the company. The basis for HM lies in the attitude and behaviour (trust, understanding and transparency) of both the company and the tax intermediary and the internal quality system of the tax intermediary. In addition, relevant tax risks that may lead to differences of opinion are discussed by the tax intermediary with the tax authorities before the return is filed (pre-consultation). In this way, the quality of het tax returns is guaranteed in advance. The NTA for its part can quickly provide certainty about the taxes due. Supervision of the covenant and the quality of the tax returns generally takes the form of a random audit sample control and monitoring.
Results	https://download.belastingdienst.nl/belastingdienst/docs/leidraad_horizo_toezicht_fiscaal_dienstverl_dv4071z7pl.pdf

Example 46: Large business forum (Spain) - §3.5.3	
Background	Spanish Tax Administration set up a Platform called "Large Businesses Forum" to promote greater collaboration between companies and the State Tax Administration.
Key points	As a result "Best Practices Code" was drawn up and approved by the Large Businesses Forum, to foster a mutually co-operative relationships between the Spanish Tax Agency and the companies subscribing it.
Results	Collaboration framework between large companies and the Tax Agency, based on the principles of transparency and mutual trust, through knowledge and sharing of problems that may arise in the application of the tax system.

Example 47: Integral Digital Administration ('ADI') (Spain) - §3.5.3, §3.5.4	
Background	A new Integral Digital Administration ('ADI'), a 'virtual desk' designed under the premise of facilitating voluntary compliance with more than 300 specialized officials to serve telematically to taxpayers throughout the territory.
Key points	The Comprehensive Digital Assistance Administrations (ADIs) are dedicated exclusively to the attention and assistance to the taxpayer by electronic and telephone means. With this, the entire population can be attended to during extended hours, costs for the taxpayer are reduced, since they can solve the doubts that arise without having to travel, the unification of criteria is favoured and a greater specialisation of the functionaries. The model is based on the creation in a first phase of two or three Comprehensive Digital Assistance Administrations, with a pilot test in the last quarter of 2020 in Valencia. The location of these Administrations will take into consideration, among other factors, the ease of serving taxpayers in the different co-official languages and the demand for assignments by officials. The service channel will preferably be through outgoing calls, always upon request for an appointment.
Results	https://www.youtube.com/watch?v=4LJlGb9hnBQ

Example 48: Ex-ante 'evaluation' of new legislation (The Netherlands) - §3.6.1	
Background	In the Netherlands the tax administration carries out ex-ante tests to examine the feasibility of new legislation (so-called 'uitvoerings toets' in Dutch). For the test a template is used which provides insight into the consequences of proposals for new laws and regulations.
Key points	Key-elements in the ex-ante test are: • The test contains an impact section that indicates what the expected impact of the proposed legislation on implementation is. • In making the estimation, the factors considered include the size of the affected target group, the extent to which adjustments in automation are needed and the extent of the staff implications. • In addition, all new legislation is reviewed for the aspects of complexity, fraud resilience and enforceability. • In 2023 for the first time an effort is made to organise a preliminary impact assessment on a comprehensive list of possible legislative proposals. This is aimed at improving the decision making process as to the feasibility of the composition of legislative packages from a Tax Administration view.
Results	On average some 160 ex-ante tests are carried out each year. Template (in Dutch): https://www.rijksoverheid.nl/documenten/rapporten/2021/09/21/uitvoeringstoetsen-belastingplan-2022

Example 49: Project Analysis, modelling and risk management system (i.MAMC) (Lithuania) - §3.2.4, §3.3.2	
Background	The project "Smart Tax Administration System (i.MAS)" is of great importance to Lithuania because it can serve as a tool in the fight against the shadow economy. The shadow economy has a negative impact on the tax revenues of the state and includes illegal activities where tax obligations may be avoided or other illegal tax benefits may be obtained.
Key points	The Smart Tax Administration has the following objectives: 1) reducing the shadow economy and increasing tax revenues; 2) improving the efficiency of tax administration; 3) reducing the administrative burden for taxpayers. These objectives are to be reached by installing electronic services and by shifting the tax payers' transactions data collection, processing, management and delivery to electronic space. All analysis is based on information obtained from taxpayers: VAT invoices data and waybill data. Cross-checking of VAT invoices, comparison of waybill data and invoices.
Results	All studies mentioned above are completed by the end of June 2019 and are audited by the National Audit Office of Lithuania (see link). https://www.eurosai.org/handle404?exporturi=/export/sites/eurosai/.content/documents/materials/Smart_Tax_Administration_System_summary.pdf

Example 50: The project of promotion of tax topics (Slovenia) - §3.5.3	
Background	Since 2014, the Slovenian tax authorities have been promoting tax topics at schools in order to increase tax literacy for children and young persons.
Key points	Emphasis is given on topics about tax compliance (tax history, taxes nowadays, why is paying taxes good, consequences of non-paying taxes) are delivered to the students in schools by employees of the Slovene Financial Administration, to strengthen awareness on tax compliance as a social value.
Results	In all the questions asked, the group who listened to the lectures increased the positive attitude to the importance of taxes for the society and the awareness of how taxes affect our daily lives compared with the group who did not listen the lectures. The proportion of negative responses (such as tax is no needed, nothing is wrong if the tax is not paid or nobody pays taxes...) remains below the limit of 4% after the lectures (before lectures was more than 15%). It follows that lectures have positive effect, as it is clear that it influences the decisions of young people in choosing the answers.

Example 51: Uplift Model for campaigns to move taxpayers online (Ireland) - §3.2.4, §3.4.3, §4.2.1	
Background	In April 2016, a letter was sent to taxpayers who last made a claim for tax relief on medical expenses using a paper form and a random control group was selected who did not receive the letter. Two separate models were built to predict: • The likelihood that a taxpayer will move online to claim tax relief on medical expenses after being sent a diversion letter; • The likelihood that a taxpayer will move online to claim tax relief on medical expenses in the absence of a letter. This model was built using the data of the taxpayers in the control group. Every taxpayer was assigned response probabilities, one with the letter and one without. The taxpayers with the biggest difference between these two probabilities are the group thought to be most likely to change their behaviour as a result of receiving the letter. The model identified a group of approximately 10% of the total taxpayers mailed who had a significantly higher incremental response to the letter than the rest of the taxpayers. We used the Incremental Response Modelling node in SAS Enterprise Miner to build the model.
Key points	Uplift modelling is a predictive modelling technique that directly models the incremental impact of a treatment (such as receiving a letter) on an individual's behaviour towards the use of Revenue online services.
Results	The predicted high response group had an incremental response rate of 5.9 percentage points compared to 2.7 percentage points for the other responders. In other words, the intervention was over twice as effective in the group identified by the model as being more likely to respond.

Example 52: Reducing the administrative burden and increasing tax compliance (Croatia) - §2.4	
Background	The current Croatian Government recognized the importance of reducing administrative burdens for businesses in general in all business segments and in January 2017 adopted the Action Plan for Administrative Disbursement of the Economy in 2017, covering seven sectorial areas. The execution of the Action Plan was determined using the Standard Cost Model (SCM) methodology. In June 2017 the Government adopted a Decision on the extension of the application of the SCM methodology for measuring and targeted reduction of the administrative burden for businesses, based on which a systematic analysis of additional forty legislative areas affecting business operations has started.
Key points	The action plan was prepared using the standard cost model (SCM), which has been widely applied in the EU. The SCM methodology is a tool in the framework of assessing the economic impacts of regulations for measuring the administrative cost that the business sector has in relation to regulation and bureaucracy. The administrative burden for businesses is measured by the following standardized SCM formula: • Cost of time for an administrative obligation x • Gross hourly cost (wage) x • Material and overhead cost (30%) x • External tariff x • Frequency in a year = administrative cost for an entrepreneur x • Number of businesses to which the regulations apply = administrative cost for the whole economy
Results	The Croatian Tax Administration (CTA) has carried out measurement in the field of personal income tax and compulsory contributions, profit tax, VAT, general tax law, fiscalisation and local taxes, games of chance and administrative cooperation. Through the above mentioned questionnaires (that were anonymous), apart from the response of the time spent for a particular administrative obligation, the tax administration has also collected a large number of proposals for reducing administrative burden and improvement of business processes as well as objections to the work of the tax administration in general. Some of these proposals have already been adopted in the

	course of measuring administrative burdens, and the measures to be implemented in 2018 have also been envisaged and included in the aforementioned Government Action Plan for 2018.

Example 53: E-invoicing (Italy) - §4.1	
Background	In 2014 e-invoicing became mandatory in public procurement for central administrations and in 2015 for local administrations. In 2018, e-invoicing for automotive fuels and suppliers of private contractors to PP.AA. became mandatory as well. Since 1 January 2019, mandatory e-invoicing was introduced in almost all B2B and B2C transactions.
Key points	The tax authority provides a set of free online services, such as a web portal and a free APP, through which VAT taxable persons can generate and check an e-invoice, as well as send it to the Exchange System (ES). The e-invoices are sent to the ES in XML format, which allows to check the validity of the data contained in the document (e.g. the document integrity, the coherence of the invoice data content, the uniqueness and the deliverability of the invoice). Economic operators can send invoices to the ES through different channels of communication, choosing the most appropriate for their own needs (Secure File Transfer Protocol, Certified email, Web portal…). Once the e-invoice has been delivered, the exchange system provides a delivery receipt, which is evidence that the invoice has reached the recipient. The Italian tax administration uses data retrieved from e-invoicing also to prefill periodical VAT returns that can either be accepted as they are, or modified.
Results	The e-invoicing has proved to be an important driver in promoting the digital transition, for both public administration and economic sectors. Moreover, it enhanced collaboration and cooperation between Italian Revenue Agency and taxpayers (only in 2019, it induced compliance for €2.1 billion). Tax and accounting obligations for VAT operators are reduced and simplified, with a consequent reduction of costs and errors.
	E-invoicing has made a substantial contribution to reducing the tax gap: the VAT tax gap is estimated to have been decreased over 10 billion euro from 2017 to 2020. Finally, e-invoicing allows timely detections of frauds or omitted VAT payments before submitting the return: in 2022 the Revenue Agency identified and blocked fraud for false VAT credits for almost 9 billion euros.

Example 53bis: E-receipts (Italy) - §2.7	
Background	Since 1 January 2019, traditional receipts have gradually been replaced by electronic receipts. A receipt must be provided (when an invoice is not required) in case of businesses involving the selling of goods in public premises or in closed markets, or providing food and beverages in public bars and restaurants. From 1 January 2021, all economic operators (except those exempted by law) are required to use a telematic cash register (or the web service provided by the Italian Revenue Agency) to issue e-receipts.
Key points	The telematic cash register, connected to the internet, automatically prepares the file containing the tax data of the daily operations to be transmitted to the Revenue Agency.
Results	The introduction of e-receipts entails simplifications and advantages for economic operators. For example, it is no longer necessary to keep a register of fees. In fact, electronic storage and electronic transmission of data replace the obligations of recording the operations carried out on each day. Furthermore, it is no longer necessary to keep copies of commercial documents issued to customers, with a consequent reduction in costs and operational advantages: in fact, this system allows the Revenue Agency to promptly and correctly acquire the tax data of the operations to make them available - through free services - to the VAT operators themselves or their intermediaries, supporting them in completing the VAT return and in paying taxes.

Example 54: Rewarding taxpayers (Croatia) - §3.3.2	
Background	As an incentive for the taxpayers' "good" behaviour with their tax obligations, the reward can be given to third parties that will increase the taxpayer's compliance.
Key points	The lottery game conducted in Croatia in the context of fiscalisation, for citizens who had to collect invoices that have passed the verification by the tax administration and that have been registered in the tax administration before issuance by the seller; and send them to the tax administration if they wanted to take part in the lottery game. The purpose was to increase the number of cash invoices that had undergone a fiscal procedure, or that were properly registered with the tax administration, by the help of citizens who had to ask and take the invoice with them after buying products or goods and paid in cash.
Results	During the first round of the third season of the lottery game (in 2015) Croatian citizens have sent more than 80,000 envelopes with more than 1,600,000 invoices. That was nearly twice as many than in the first two seasons, which was a clear sign that citizens continue to largely support fiscalisation, the introduction of order and the suppression of the grey economy.

Example 55: Online direct payment of VAT (The Netherlands) - §2.7	
Background	In 2018 Netherlands Tax Administration (NTA) started an experiment for online payment of VAT for self-employed entrepreneurs. This experiment was part of a larger pilot for the integration of online accounting software, filing tax returns and direct online payment. The pilot was directed at improving the interaction with taxpayers.
Key points	Entrepreneurs are currently increasingly paying their VAT and payroll taxes to be remitted via iDEAL. Until end 2022, they were dependent on the possibilities offered by their accounting and payroll software. By enabling VAT payments via 'Mijn Belastingdienst Zakelijk' (direct portal of the tax administration) payments via iDEAL are expected to increase even further. NTA offers immediate certainty to the taxpayer by instantly communicating that the tax return is received and payment was successful.
Results	IDEAL in particular offers ease of payment. One no longer needs to type in any data, but just click a few times on the screen and the payment is done. The payment reference and amount are pre-filled. In this way, a logical and clear-cut VAT-return "flow" has been realised.

Example 56: Croatian Tax Administration's Data warehouse (Croatia) - §3.3.2, §4.5.4	
Background	The Croatian Tax Administration (CTA) built a Data warehouse (DWH) for collecting data from taxpayers (forms fulfilled using the ePorezna portal. ePorezna is a unique portal of the CTA and a central place where taxpayers can access the electronic services of the CTA according to the One-Stop-Shop principle. Available services include taxpayer data management, receipt of acts, submitting forms and requests, and many other services) and data from 20 other sources (different institutions in Croatia, sources from the EU and third countries). DWH has an increment on daily basis and has historical data. All data are collected for specific purpose and used to tracking behaviour of taxpayers.
Key points	The way of using data from DWH is creating risk through risk analyses using TACS (Tax Audit and Compliance System) a tool to get profile of risks. The risks are used in 9 type of tax (VAT, social contributions, CIT, PIT, Fiscalisation, Real estate transfer tax, tax on winnings from games of chance and fee for organising games of chance, local taxes, tax collection) and it is developed 60 composite model and 500 risks.
Results	The DWH has currently integrated over 80 sources partly from internal CTA sources from taxpayers (forms fulfilled using the ePorezna portal) and partly from other sources (various institutions in Croatia, sources from the EU and third countries). Easier access to data. The DWH provided fast and easy access to data that was not available to CTA. In this way it was possible to define risk indicators and assess taxpayers' risk behaviour. More than 600 risks identified and implemented. Optimized compliance and fraud detection processes.

Example 57: Sharing risks with taxpayers (Ireland) - §3.5.3	
Background	Traders in mineral oils must have excise licences for every premises. All traders must make a return every month of the volumes of products received by and supplied to a licence during the previous month (ROM 1 return).
Key points	The objective was to employ data from ROM1 returns to risk rank and profile the mineral oil trader case base and provide data to allow excise control officers to gain further insights into their compliance base. Mineral Oils Data from ROM1 returns were analysed to risk rank and profile the mineral oil trader cases and also, to provide data to allow excise control officers to gain further insights into their compliance base. Risk based output was supplied to the business as part of evaluation.
Results	Lesson learned: Consultation with the business is key to progressing the project especially in a niche area such as excise.

Example 58: e-books, myDATA (Greece) - §3.5.3	
Background	myDATA (my Digital Accounting and Tax Application) is the name of the new electronic platform by which Independent Authority for Public Revenue (AADE/IAPR) introduces electronic books into the daily lives of businesses. Electronic Books is a very important step in the digital transformation of the Tax Administration and its relationship with businesses. The goal is primarily to serve businesses by providing an innovative digital platform for fulfilling their tax obligations, which will lead to the automation of tax declaration and will relieve them of their current obligations, such as Filing of Customers-Suppliers Lists.
Key points	Along with reducing the administrative costs of businesses, IAPR e-books enhance the transparency of transactions by providing a digital business collaboration environment for the pricing of goods and services. They also establish the credibility of the tax administration's relationship with businesses and act as a mechanism for voluntary compliance and prevention of tax evasion and smuggling, as well as facilitating consistent business in the refund of taxes. The myDATA online web platform provides easy solutions for everyone. Both for businesses that have computerized accounting systems that can transmit the necessary data in bulk and automated, and for other companies that can transmit data in a simple way, through a registration form on the website of IAPR. The introduction of IAPR e-books does not cease accounting for businesses, and the role of the accountant for the proper visualisation of transactions on the myDATA platform remains critical.
Results	https://www.aade.gr/myData-IAPR-e-books

Example 59: YouTube Channel (North Macedonia) - §3.2.4, §3.5.3	
Background	The official YouTube channel of the Public Revenue Office (PRO) is in use, which aims to improve the communication of the PRO with the public, especially with the target groups that use social networks.
Key points	Internet communication and the application of new channels of interaction with different types of audiences.
Results	The official You Tube channel of the Public Revenue Office available provides an overview of videos from more important events organized by the PRO, promotion of new services and projects, interviews of senior management and tax experts, interactive instructions for filling out applications, etc.

Example 60: Big Data tools to calculate family relationships (Spain) - §4.1	
Background	Since 2017, Spain is using Big Data tools to calculate family relationships and total net wealth of all taxpayers.
Key points	Set of Big Data tools has been implemented in Spanish Tax ADMINISTRATIONS for the calculation of the Family Unit, with the declared and presumed family (brothers, cousins, in-laws…) and to calculate the wealth of all taxpayers and their families, held through several corporations, whatever the lever of depth at which it is found, at market value.

	Thanks to this tool, it is possible to gather relatives and create family groups. And also, to calculate the total value of a taxpayer's wealth or family environment in order to control situations of risk of fraud. The Agency takes into account family, to determine all the assets in the sphere of influence of a possible fraudster and to be able to carry out verification actions in situations that present risks.
Results	A total of 519.213.575 family relations have been calculated in 2023.

Example 61: E-invoice nudge letters (Italy) - §3.5.4	
Background	A letter is sent to taxpayers to highlight the difference between what they declared in the VAT tax return or in the VAT quarterly settlement and the amounts resulting from e-invoices and e-receipts.
Key points	By the use of new technology and telematics, the Italian Revenue Agency makes available to taxpayers, or to their intermediaries, the elements and information available about them, in order to stimulate the fulfilment of tax obligations and encourage the spontaneous emergence of tax bases. The entire process is managed through an application (SPACE) that provides information on taxpayers and risk criteria to all officers, in order to allow them to provide assistance to taxpayers willing to regularize, and to monitor the results in the perspective of subsequent control activities. The aim is to inspire a compliance behaviour of the taxpayer showing him the differences.
Results	The aim is to inspire a compliance behaviour of taxpayers, who can thus voluntarily rectify their position (by paying reduced sanctions).

Example 62: "Compliance Risk Management Letter" (Annual Plan) (The Netherlands) - §5.7	
Background	The Annual Plan 2023 explains how the Tax Administration will implement its Compliance Risk Management strategy and which activities it applies to reach its strategic goals (compliance).
Key points	The Annual Plan contains: • The mission, vision and strategy of the Tax Administration • The treatment of private individuals • The treatment of SME's • The treatment of Large Businesses • Fraud-investigations • Aspects that relate to the functioning of the Tax Administration as an organisation (e.g. Personnel, Automation, Legislation, Strategic Risk analysis) • Key Risks from the Strategic Risk Analysis
Results	https://open.overheid.nl/documenten/ronl-368e529c07af2d50f099bc5c98be53df6366a7dc/pdf (in Dutch)

Example 63: Enhance taxpayers' compliance through Nudge Letters (Cyprus) - §3.5.4	
Background	The Cyprus Tax Department, uses third-party information for risk management purposes in order to enhance tax compliance.
Key points	After matching the data with the tax base, one method of using the abovementioned information, is by sending nudge letters to the taxpayers that have not been registered, have not submitted their tax returns for consecutive revenue years, or based on the analysed information they have omitted to declare sources of income in their tax returns (declarations). In the nudge letters it is not specified what source of income has been omitted to be declared or of which value it is.
Results	The nudge letters campaign maintains 97% response rate. For the non-compliant taxpayers, legal prosecution follows.

Example 64: Statistical Analysis System (Malta) -§3.3.2	
Background	The Maltese Tax and Customs Administration (MTCA) will introduce a Statistical Analysis system
Key points	The tax administration will introduce a high-end statistical analysis system (SAS) that uses artificial intelligence to draw data from different registries to assess the individual's illiquid and liquid assets, like

	property, land, vehicles and other assets and compare them to their declared income in order to help the tax authorities to identify taxpayers whose declared income is not proportional to the assets owned.
Results	This system will help the tax and customs administration in analysing the wealth accumulated by a taxpayer vis-à-vis this taxpayer's income tax declarations in order to identify any potential undeclared wealth sources and, consequently, undeclared income for tax purposes.

Annex 2 - Heuristics and Biases relevant to taxpayer behaviour

Heuristics and Biases

Tax behaviour is influenced by subconscious routines and biases that could even result in decisions that are not optimal or even positive for the taxpayer. A large amount of behaviour is the result of unconscious decision-making processes, because our mental capacity to consciously process information is limited. To deal with these limits, our brain uses two systems for decision making: one conscious and reflective for decisions that are complex and/or important to us, while the other system is unconscious and automatic and concerns all other decisions.[201] This system is governed by habits, heuristics and biases. Habits form when actions are repeated many times and become automatic, heuristics are mental shortcuts in thinking that facilitate quick decision making, and biases are (systematic) errors in thinking/processing information (that affect decision making/judgement). The use of heuristics often results in biases. Research on heuristics and biases has identified many shortcuts and missteps that influence our decision making.[202]

Some examples that are relevant for taxpayer behaviour are the confirmation and information bias, the risk aversion bias, the status quo bias and the optimism bias:

- **Affect heuristic**: A heuristic in which current emotion—fear, pleasure, surprise, etc.—influences decisions. The emotional response, or "affect" in psychological terms, plays a lead role in this heuristic. It is shorter in duration than a mood, occurring rapidly and involuntarily in response to a stimulus. The affect heuristic is typically used while judging the risks and benefits of something, depending on the positive or negative feelings that people associate with a stimulus. It is the equivalent of "going with your gut". If their feelings towards an activity are positive, then people are more likely to judge the risks as low and the benefits high. On the other hand, if their feelings towards an activity are negative, they are more likely to perceive the risks as high and benefits low.
- **Confirmation bias:** The inclination of people to give more attention and value to information that confirms their ideas and expectations and not giving attention to information that contradicts them.[203]
- **Information bias:** A bias that often coincides with the confirmation bias. The inclination is to keep on looking for information even if people already have an answer in an endless search for the optimal choice.[204]
- **Status Quo bias:** People want to hold on to the status quo and any change feels like a loss and brings the feeling of insecurity.[205]
- **Optimism bias:** People rate the probability that something bad will happen as less than the actual probability it will happen.[206]
- **Risk aversion bias:** People have a strong risk aversion. They don't like uncertainty and choose the certain option over the uncertain option.[207]
- **Present bias/Hyperbolic discounting:** The present bias occurs when people place greater value on something achieved in the present moment, rather than the same reward in the future. When given a choice between the same reward now or in the future we will choose for the pay-off now. Hyperbolic discounting is a cognitive bias, where people choose smaller, immediate

[201] Kahneman, D., & Egan, P. (2011). Thinking, fast and slow (Vol. 1). New York: Farrar, Straus and Giroux.

[202] For an illustration on the quantity and diversity of cognitive biases: Cognitive bias cheat sheet.

[203] Plous, S. (1993). McGraw-Hill series in social psychology. The psychology of judgment and decision making. New York, NY, England: Mcgraw-Hill Book Company.

[204] Baron, J., Beattie, J., & Hershey, J. C. (1988). Heuristics and biases in diagnostic reasoning: II. Congruence, information, and certainty. Organizational Behavior and Human Decision Processes, 42(1).

[205] Kahneman, D., Knetsch J. L., & Thaler, R. H. (1991). Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias. Journal of Economic Perspectives, 5 (1).

[206] Shepperd, J. A., Waters, E. A., Weinstein N.D., & Klein W.M. (2015). A Primer on Unrealistic Optimism. Current directions in psychological science, 24(3), 232-237.

[207] Goode, E. (2002). A conversation with Daniel Kahneman. On profit, loss and the mysteries of the mind. The New York Times, 11(05).

rewards rather than larger, later rewards — and this occurs more when the delay is closer to the present than the future.[208]

These are just some of the biases that govern the decision-making process and behaviour of taxpayers. When tax administrations want to influence taxpayer behaviour, they have to take into account that a lot of the decisions taxpayers make are based on these unconscious and automatic mechanisms.

[208] O'Donoghue, T., & Rabin, M. (1999). Doing it now or later. American Economic Review, 89(1).

Annex 3 - Intrinsic and extrinsic motivations of taxpayers

Motivation is an important driver of behaviour. This driver of (taxpayer) behaviour is about the varying motives that taxpayers are willing or unwilling to comply with. These motivations can be intrinsic or extrinsic.

Intrinsic motivation involves engaging in a behaviour because it is personally rewarding: performing an activity for its own sake rather than the desire for some external reward. Essentially, the behaviour itself is its own reward.[209]

Extrinsic motivation means that people are motivated to perform a behaviour or engage in an activity to earn a reward or avoid punishment.[210] In this case, you engage in behaviour not because you enjoy it or because you find it satisfying, but in order to get something in return or avoid something unpleasant.

It is likely that the highest levels of compliance would occur when intrinsic motivation and extrinsic motivation are aligned. Research shows that this can be the case, but research also shows that external motivation can influence and change the internal motivation. All forms of external incentives, both positive in the form of rewards and negative in the form of punishment, influence the internal motivation. Of great importance is the fact that external incentives can either increase (support) or decrease (destroy) the internal motivation. Extrinsic rewards or punishments can crowd out intrinsic motivation.[211] For example, if a taxpayer is willing to comply but is treated like someone who is unwilling to comply and threatened with sanctions, then this could have a detrimental effect on the willingness to comply of this taxpayer.

A. Intrinsic motivations that can influence taxpayer behaviour

Important intrinsic motivations that can influence taxpayer behaviour are for example: the personal norms and values that shape how taxpayers view themselves and the way they want to act, the trust they have in tax administrations and the perceived fairness of the tax administration. The resistance they feel if they are obligated to do things or to change things is also important. Each of these intrinsic motivations is discussed in more detail in the following paragraphs.

- Personal Norms

Personal norms are the ethical values and moral convictions of an individual. These shape how people view themselves and this view influences how important they find it to adhere to the rules or the law. It also influences how important they find it to pay their fair share of taxes, and whether they 'believe' in paying taxes and whether they feel morally obligated to do so (tax morale). Most people like to do 'the right thing' and think that it is important to fulfil their tax obligations in the right way. Research has shown that 90-93% of taxpayers view themselves as moral taxpaying citizens.[212]

- Trust & Fairness

Trust in (tax) authority plays an important role in compliance behaviour.[213,214,215] This trust is a prerequisite for the willingness to accept decisions made by the tax administration. This acceptance leads to a higher level of compliance.[216]

[209] Ryan, R. M.; Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. Contemporary Educational Psychology. 25 (1), 54–67.

[210] Ryan, R. M.; Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. Contemporary Educational Psychology. 25 (1), 54–67.

[211] Frey, B. S., Jegen, R. (2000). Motivation Crowding Theory: A Survey of Empirical Evidence. Institute for Empirical Research in Economics, University of Zurich. Working Paper No 49.

[212] Braithwaite, V. (2006). Ten Things You Need To Know about Regulation and Never Wanted to Ask. Australian Law Librarian, Vol 14 No. 3, Spring 2006.

[213] Murphy, K. (2004). The role of trust in nurturing compliance: A study of accused tax avoiders. Law and human behavior, 28(2).

[214] Scholz, J. T., & Lubell, M. (1998). Trust and taxpaying: testing the heuristic approach to collective action. American Journal of Political Science, 42.

[215] Goslinga, S., van der Hel-van Dijk, L., Mascini, P., & van Steenbergen, A. (Eds.) (2019). Tax and Trust - Institutions, Interactions and Instruments, Eleven International Publishing.

[216] Tyler, T. R. (2001). Trust and law-abidingness: A proactive model of social regulation. Boston University Law Review, 81(2).

An important factor that influences trust in the tax administration is the way that taxpayers perceive fairness of the enforcement of rules (or perceived justice). Different areas of justice influence the perceived justice:

1 procedural justice refers to fairness of the process that leads to the decisions that a tax administration makes.[217] This fairness depends on a mix of different elements like accuracy, consistency, impartiality, verifiability, and the possibility to correct decisions.[218,219] Another important element is the possibility to be involved in the process of decision making[220]
2 interactional justice refers to the degree to which the people affected by decision are treated by dignity and respect.[221] Sometimes this is regarded as an aspect of procedural justice[222]
3 distributive justice refers to the fairness of the distribution (of taxes in this case) between groups in society. Research has shown that if taxpayers perceive the distribution of taxes as fair they are more willing to comply[223,224]

Justice must be perceived to exist in all these areas in order for the taxpayer to perceive the tax system as fair. This perception will increase the willingness to comply.

All areas are therefore important, but tax research shows that procedural justice is of particular importance.[225] If the procedures are perceived as just, fair and legitimate, then the authority will be perceived as just and fair. The decisions of the authority, that is to say the outcome, will therefore also be perceived as more just and fair. An individual may thus perceive an authority as just and fair even if it has made a decision that goes against the individual, if the authority acts fairly when dealing with the case. This leads in turn to fewer complaints about the authority's decisions.[226]

A specific aspect of justice is retributive justice. This justice refers to the justice that is meted out after an individual has committed a crime. Retributive justice entails that it would be bad to punish more than the crime deserves, the punishment must be in some way proportional to the gravity of the crime.[227]

- Resistance

People do not like change and usually resist change and infringements on their personal autonomy or freedom. When this happens, they are hard to get in motion. Resistance encompasses the ways in which people react to change or actions they

[217] Lind, E. A., & Tyler, T. R. (1988). The social psychology of procedural justice. New York: Plenum Press. In Y. Cohen-Charash, Y. & P. E. Spector (2001). The Role of Justice in Organizations: A Meta-Analysis. Organizational Behavior and Human Decision Processes, 86.

[218] Makkai, T., & Braithwaite, J. (1996). Procedural Justice and Regulatory Compliance. Law and Human Behavior, 20,

[219] Leventhal, G. S. (1980). What should be done with equity theory? In K. J. Gergen, M. S. Greenberg, & R. H. Willis (Eds.), Social exchange: Advances in theory and research, New York: Plenum.

[220] Van Dijke, M., & Verboon, P. (2010). Trust in authorities as a boundary condition to procedural fairness effects on tax compliance. Journal of Economic Psychology, 31.

[221] Schermerhorn, J. R., Hunt, J. G., & Osborn, R. N. (2005). Organizational Behaviour. John Willey & Sons. Inc.: Hoboken, NJ, USA.

[222] Greenberg, J., & Cropanzano, R. (1993). The social side of fairness: Interpersonal and informational classes of organizational justice. Justice in the workplace: Approaching fairness in human resource management. Hillsdale, NJ: Lawrence Erlbaum Associates.

[223] Kirchler, E., & Berger, M. M. (1998). Macht die Gelegenheit den Dieb? Einstellungen zu Steuern und Tendenzen zur Steuerhinterziehung. Jahrbuch der Absatz-und Verbrauchsforschung, 44.

[224] Kirchler, E. (1999). Reactance to taxation: Employers' attitudes towards taxes. The Journal of Socio-Economics, 28(2).

[225] Kirchler, E., & Hoelzl, E. (2006). Modelling Taxpayers Behaviour as a Function of Interaction Between Tax Authorities and Taxpayers. Managing and Maintaining Compliance edited by H. Elffers, P. Verboon and W. Huisman. Legal Publisher, The Hague.

[226] Murphy, M. (2002). "Trust me, I'm the taxman": The role of trust in nurturing compliance, Centre for Tax System Integrity, The Australian National University.

[227] Walen, A., "Retributive Justice". The Stanford Encyclopedia of Philosophy (Winter 2016 Edition), Edward N. Zalta (ed.).

must take and can take many forms.[228] Two of these are especially relevant for understanding noncompliant taxpayer behaviour, namely inertia and reactance.

Inertia is synonymous for inaction and is caused by people resisting the change or action itself, which leads to passiveness and immobility. It is a (subconscious) preference for the status quo. This passive behaviour can be caused by the perception that they are unable to complete these tasks (also called a lack of self-efficacy) or at least not sure of their ability, which can lead to procrastination or avoidance of the difficult task. People generally avoid too difficult tasks, because they do not like negative emotions such as doubt or the feeling of failure. This is relevant for tax compliance, because fulfilling tax obligations can be a complicated and difficult task for most people. Because of the (perceived) difficulty people might avoid or procrastinate their tax duties, in fear of failing to complete these tasks correctly. Procrastination and avoidance can then lead to (involuntary) non-compliance.[229]

Reactance means resistance against restriction of freedom and comes from a need for personal autonomy. When this arises, people usually do the opposite of what was intended or refuse any change and this also increases resistance to persuasion. [230,231] Reactance might arise when there are too many restrictions or obligations or when the language which tax administrations use is very restrictive. One may here think of letters in which it is insisted that the taxpayer behaves in a certain way; "you must reply by tomorrow (or else…)" or when their freedom of responding in a way they see fit is taken away. If you take on a (too) intimidating tone or are too restrictive they will feel threatened in their freedom, and might respond with refusal to cooperate or their willingness to comply might drop. The greater a person's motivation to control his or her choices, the more intense reactance should be. It can be assumed that especially entrepreneurs who take the risk of establishing an enterprise perceive taxes as a severe reduction of their profit and possibilities for reinvestment. Since entrepreneurs have possibilities to avoid and/or evade taxes, reactance motives may lead to such behaviour tendencies.[232]

Perceived restriction of freedom is related to positive attitudes toward tax evasion, lower tax morale, and reported tendencies to act against paying taxes. Employers who had run their firm only a short time felt greater loss of freedom and displayed greater reactance than employers with more extensive experience.[233]

This can happen even, or maybe especially, when people are very willing but feel like they are not being treated as such. This is closely related to the concept of perceived justice and deterrence (see below). With deterrence this kind of threatening messages are often used, which can lead to reduced feelings of justice and reactance.

B. Extrinsic motivations that can influence taxpayer behaviour

Extrinsic motivations that are important for taxpayer behaviour are, for example, the expectations of their social peers (social norms) and the perceived chance of detection and sanctions (deterrence).

- Social norms

Social norms are unwritten rules of behaviour. People often conform to what they think other people expect. People are inclined to follow the behaviour of others or how they think they ought to behave according to the people in their social group. Social norms can be transformed into personal norms when they are internalised by

[228] Knowles, E. S., & Riner, D. D. (2007). Omega approaches to persuasion: Overcoming resistance. In Pratkanis, A. R. (Ed.), The science of social influence: Advances and future progress (pp. 83-114). New York, NY: Psychology Press.

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[230] Brehm, J. W. (1966). A theory of psychological reactance.

[231] Knowles, E. S., & Riner, D. D. (2007). Omega approaches to persuasion: Overcoming resistance. In Pratkanis, A. R. (Ed.). The science of social influence: Advances and future progress (pp. 83-114). New York, NY: Psychology Press.

[232] Kirchler, E. (1999). Reactance to taxation: Employers' attitudes towards taxes. The Journal of Socio-Economics, 28(2).

[233] Kirchler, E. (1999). Reactance to taxation: Employers' attitudes towards taxes. The Journal of Socio-Economics, 28(2).

an individual and become a part of his or her values.[234] Within social norms we differentiate between injunctive and descriptive norm, respectively the way we think 'it should be' and the way the norm is visible in an individual's environment.[235] Usually, these overlap, but if they conflict a visible negative descriptive norm (for example: a lot of people in your environment evade tax) can have more impact on behaviour.[236,237]

- Deterrence

Deterrence means increasing the perceived probability of detection and sanctions. According to this idea, whether a taxpayer chooses to be noncompliant depends on fear on the one hand and economic self-interest on the other. The fear of punishment or retribution, in the shape of feelings of guilt and the risk of social stigmatisation, is weighed against pure economic self-interest.[238] This can have a direct effect on compliance, but can also have the indirect effect of supporting social norms in favour of tax compliance. The most important aspect of deterrence is probably this norm-reinforcing function. Tax administrations traditionally have a high expectation of deterrence for influencing behaviour. An important notion to consider for tax administrations is that deterrence is a complex aspect (and small aspect) of motivation and, to understand its functioning, tax administrations need to take into account more than just the theories on rational choice.[239]

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[235] Cialdini, R.B., Reno, R.R., & Kallgren, C.A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. Journal of Personality and Social Psychology. 58 (6), 1015–1026.

[236] Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms. Psychological science, 18(5), 429-434.

[237] Cialdini, R., Kallgren, C., & Reno, R. (1991). A focus theory of normative conduct. Advances in Experimental Social Psychology, 24, 201–234.

[238] Taylor, N. (2001). Understanding Taxpayer Attitudes Through Understanding Taxpayer Identities. Centre for Tax System Integrity, The Australian National University. Working Paper No 14.

[239] Braithwaite, J. (2018). Minimally sufficient deterrence. Crime and Justice 47.

Annex 4 - Planning and designing an evaluation

The EU Fiscalis Project on Outcome Measurement has developed a framework for putting outcome measurement into practice within a Compliance Risk Management strategy. **Figure 26** presents an overview of suggested steps of the outcome measurement process. The process is divided in three stages:

- forming an outcome measurement plan
- implementation of measured action
- understanding and applying results

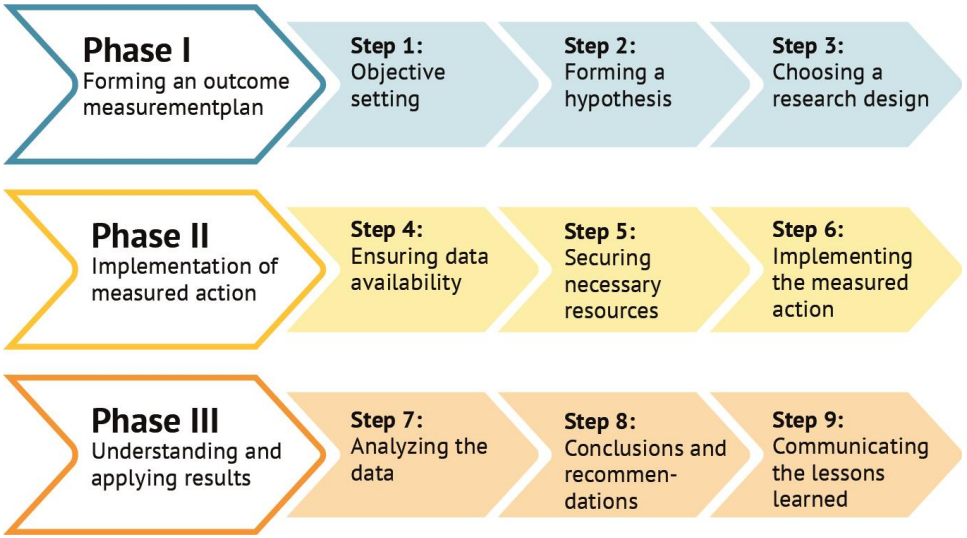

Figure 26: Outcome Measurement steps in practice[240]

Although evaluation is the last stage in the Compliance Risk Management process, it is strongly recommended to plan an evaluation well in advance before the start of an activity (e.g. a programme, project or intervention).

An *outcome measurement plan* should include e.g.:

- the aim and type of evaluation
- the rationale/policy objectives (reasons for the intervention)
- the design of an evaluation (evaluation methods, sampling method (i.e. selecting a subset of units or "sample" from a larger population), identification of relevant variables/indicators etc.
- data collection methods (e.g. web forms, paper questionnaires, telephone calls etc.)
- organisation of the evaluation (e.g. project manager, participants, time scales, resources etc.)
- the analysis and interpretation of results
- the communication of results and lessons learned
- adaptation of activities and/or interventions, if necessary

The *design of an evaluation* (Phase 1, step 3 of the outcome measurement plan) comprises choosing the method or methods. The *Maryland Scientific Methods Scale* (MSMS)[241] (**figure 27**) ranks different evaluation methods based on how robustly *causal* links between desired goals and actions of the tax administration can be established. The MSMS distinguishes 5 levels of validity, with level 5 representing the strongest (= causal) relationship and level 1, the weakest (= correlated) relationship. Depending on the goals of an outcome measurement, the practical possibilities and the availability of necessary resources, a decision must be made as to what level of 'validity' of the results is necessary or possible. It is not always possible (e.g. limitations in creating a design or availability of data) or necessary (e.g. management decisions on available resources) to establish a causal relationship (levels 3-5 MSMS). At this stage, the types of performance indicators that can be used to measure success of the programme are also determined.

[240] Source: EU Fiscalis project "Building towards outcome measurement for Tax Administration" (FPG084) (2020).

[241] Maryland Scientific Methods Scale (From Evidence-Based Crime Prevention (2002), p. 13-21, Lawrence W. Sherman, David P. Farrington, et al.).

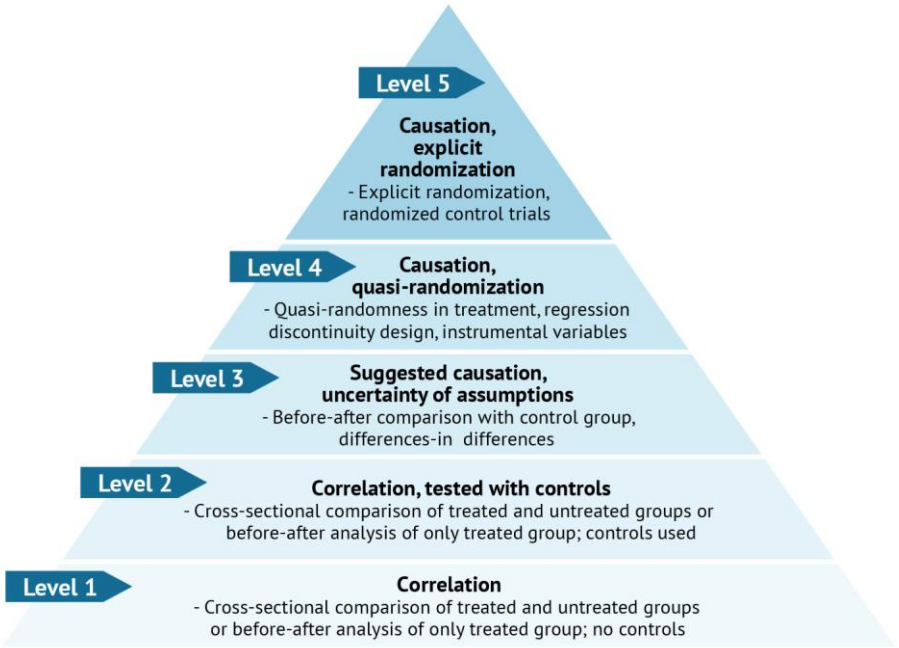

Figure 27: Maryland Scientific Methods Scale (MSMS)

A more extensive description of the theoretical explanation of evaluation can be found in the Fiscalis report "Building towards outcome measurement for Tax Administration" (FPG084).

Annex 5 - List of participating Member States

The following representatives of tax administrations participated in the Fiscalis Project Group, FPG/083 and FPG/012, to update the Compliance Risk Management Guide for Tax Administrations, chaired by representatives of the Coordination Sub Group of the Compliance Risk Management Platform, Stavroula Evliatou and Lisette van der Hel:

Member State	Participant
Croatia	Ksenija Cipek
Cyprus	Elina Symeonidou
Greece	Theodora Aivazoglou
	Stavroula Evliatou
Ireland	Amy Reville
Italy	Serena Nuzzi
Malta	Ivan Bugeja
	Joanna Spiteri
Spain	Isabel Baz Valverde
The Netherlands	Soraya van der Zouw
	Lisette van der Hel

Glossary of terms

TERM	DESCRIPTION
Advanced analytics	Practice of using statistical techniques for predicting and making conclusions about the causes and consequences of certain behaviour.
Blockchain	Blockchain is a ledger that can be added to but not modified, making it very secure. Each entry is secured into blocks of entries, and each new block is linked to the previous one.
Collaborative economy	Involves online business through social online channels, such as privately renting property via platforms such as Airbnb or Booking, online transportation services such as Uber, and professional sales via online platforms such as eBay. In this business model, which merges supply and demand, the users of this portal that provide their services receive a material benefit, thus creating a heightened interest of the tax authorities to tax user receipts.[242]
Compliance Risk Management	A systematic process for making substantiated choices about how to effectively stimulate compliance and prevent non-compliance.[243]
Compliance Risk Management Model	Shows the steps in the CRM process, set in context, compliance objectives and strategies.[245]
Compliance Risk Management Process	Shows the different steps in the decision making cycle.[245]
Compliance	The willingness of a taxpayers to fulfil their tax obligations.
Consequence	A result of a chosen alternative. Can be both a negative and a positive result (outcome) and can include both effects on taxpayer behaviour perspective and resource costs from a tax administration perspective.[245]
Context	The environment in which the tax administration operates.
Data	Information relating to taxpayers for use by tax administrations.
Data mart	A subset of the data contained in a data warehouse to carry out effective and accurate analyses.
Data mining	An analytic process designed to explore data in search of consistent patterns and/or systematic relationships between variables, and then to validate the findings by applying the detected patterns to new subsets of data.
Data warehouse	A particular database containing historical data.
Deterrence	The indirect effect of a treatment option on the compliance level of a taxpayer.
DLT	Distributed Ledger Technology (DLT) refers to a novel and fast-evolving approach to recording and sharing data across multiple data stores (or ledgers). This technology allows for transactions and data to be recorded, shared, and synchronized across a distributed network of different network participants.[244]

[242] Collaborative economy

[243] Compliance Risk Management Capability Maturity Model (2021)

[244] Distributed Ledger Technology

Effectiveness	The relationship between the input and the outcome of a compliance activity.
Efficiency	The relationship between the input and the output of a compliance activity.
Enforcement communication	Systematic communication to improve taxpayer compliance.
Evaluation	Evaluation is the structured interpretation and giving of meaning to predicted or actual impacts of proposals or results.
Extent	The tax amount involved in an occurred risk.
External context	The part of the environment outside the tax administration.
Frequency	The number of times the risk will occur.
Horizon scanning	The systematic examination of potential threats, opportunities and likely future developments, including (but not restricted to) those at the margins of current thinking and planning.
Horizontal monitoring	The supervision by non-governmental organisations, institutes or associations.
Input	Resources used in a compliance activity, e.g. human resources, IT-equipment and data
Integrated Risk Management	The process through which data is made available, furnishing reports and assembled information to decision-makers for analysis of the activities.
Internal context	The part of the environment inside the tax administration.
Intermediaries	Third parties that provide services between taxpayers and tax authorities.
Likelihood	Probability that a risk will occur.
Neural Networks	An analytical technique modelled after the process of learning cognitive systems and the neurological functions of the brain and capable of predicting new observations (on specific variables) from other observations (on the same or other variables) after executing a process of so-called learning from existing data.
Objectives	The specifically measurable desired results and outcomes of the organisation.
Outcome	A change due to the compliance activity, which relates to the objectives, e.g. increased voluntary compliance of the tax administration.
Predictive Analytics	Category of data analysis that aims to predict future outcomes based on historical data and analytical techniques such as statistical modelling or machine learning.
Productivity	The relationship between the input and the output of a compliance activity.
Relational databases	A set of data tables, which are linked together and made up of columns (fields) and rows, in which the data is stored.
Risk	A probability or threat of damage, injury, liability, loss, or any other negative occurrence that is caused by external or internal vulnerabilities, and that may be avoided through pre-emptive action.
Risk analysis	The phase in which identified risks and risky taxpayers are systematically weighed and grouped in relative order.
Risk area	Collection of connected risks.
Risk covering	A repressive activity carried out against deliberately non-compliant taxpayers.

Risk identification	The phase in which sources and signals are transferred into a list of potential risks.
Risk indicator	A weighed variable pointing to a potential risk.
Risk picture	A list of areas, groups of taxpayers or sectors where risks are expected.
Risk prioritisation	The choice of risks, which will be treated.
Risk reduction	A form of risk treatment aimed to lessen the extent of exposure to a risk and/or negative consequences associated with occurrence of a risk in the coming period.
Risk tools	Product(s) that enable a tax administration to undertake its mandate of applying risk management principles to direct and indirect tax regimes in order to mitigate associated current or emerging risks.
Risk transfer	Passing the risk to another organisation.
Risk treatment	Process performed to manage the negative effects of risks in order to reduce or neutralise their impact on the objectives.
Sharing economy	See Collaborative economy.
Strategy	A chosen approach to reach an objective.
Tax gap	Difference between tax revenue as it "should be" and as "it is" collected, for a given period and in a given jurisdiction or region.[245]
Taxpayer behaviour	The level of willingness of a taxpayer to fulfil his/her tax obligations.

[245] The concept of tax gaps

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