wts study

wts global

German Research Center for Artificial Intelligence

Getting Ready for the Future of the Tax Function

Global Survey on Digital Tax Maturity and AI Readiness

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Fritz Esterer, Wim Wuyts

Is your tax department AI-ready?

Dear Readers,

The emergence of digital technologies and techniques from the field of Artificial Intelligence (AI) is progressing at an ever fast rate and is transforming a wide variety of industries. Automatically driven vehicles in road traffic, credit fraud detection in millions of data records and the automated evaluation of credit applications are just a few examples of how AI technologies already play an important role in the everyday lives of many people.

The work and daily business of tax departments will also be transformed substantially and in a way never seen before through intelligent automation and AI. The results of last year's joint innovation study between the German Research Center for Artificial Intelligence (DFKI) and WTS have impressively demonstrated the potential application of AI in the field of taxation.

However, the concrete implementation of AI applications is still in its infancy. Many companies are asking themselves:

- What can an application of AI look like in a specific tax case?
- How can AI help to realize significant efficiency gains and to reach a new level of compliance security?
- What requirements must be met?
- How AI-ready is my tax department?

As an approach to answering these questions, we present the results of our joint study on the digital maturity of tax departments. Based on the expertise of WTS Global, the report offers insight into the current status of digitalization, as well as a global perspective on the opportunities and challenges it presents. Furthermore, we present a model for the assessment of digital maturity and the systematic development of digital capabilities. Taken together, this enables a well-founded assessment of AI readiness, which allows a systematic and well-directed realization of AI potentials.

Let us find out how digital your tax department is!

Because we know:
The future is now.

Prof. Dr. Peter Loos
Scientific Director, DFKI &
Saarland University

Wim Wuyts
CEO of WTS Global

AI-ready?

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Summary

- Corporate tax departments are confronted with **various challenging developments** such as increasing compliance requirements in tax-relevant processes, stricter standards for the implementation of internal control systems and new obligations stipulating the electronic filing of tax returns.

- **Digitalization and the application of Artificial Intelligence methods** hold promise for addressing these challenges through **intelligent automation of routine activities and cognitive support for intellectual tasks,** thus leading to a long-term transformation of the tax function.

- As a foundation, a **systematic development of IT basics and capabilities** in the context of digitalization is necessary to establish the basis for further developments and digitalization initiatives. However, specific models for measuring and describing the **current state of tax digitalization** as a starting point for a precise analysis of the potentials for the use of Artificial Intelligence within the tax function are not yet available.

- The present study aims to create the basis for such a systematic assessment of the **current status of digitalization** – the "digital maturity" – of companies with regard to their tax function. It reports the **results of an empirical study** among experts from WTS Global on the **digital maturity of tax departments.**

- The result is a **comprehensive overview of digital maturity in the tax function,** taking into account various **country-specific characteristics** as well as the **opportunities and challenges of digitalization** from the perspective of the experts.

- Based on these results, **a tax-specific Maturity Model** is developed, which can be used to assess and develop the digitalization maturity of tax departments.

- The Tax Digital Maturity Model represents an approach for the **systematic evaluation of as-is situations** and enables the **consistent development of capabilities** to leverage the potentials of digitalization and AI, thus providing guidance on future developments.

Today, tax departments of large companies are confronted with various challenges that have far-reaching influences on the way the organization works [1]. Examples include increasing compliance requirements with the goal of *zero error tolerance* in the handling and documentation of tax-relevant processes, the legal necessity to implement *internal control systems* for tax or new regulations and obligations stipulating the electronic filing of tax returns, including extensive data access for local tax authorities. In many countries, such as Australia and Brazil, legal requirements are also increasing, and companies are officially required to implement appropriate data interfaces.

At the same time, digitalization and IT-based support of important tax processes offer great potential for addressing organizational requirements, such as increasing cost pressure and budget cuts, as well as for sketching out new fields of application and designing new possibilities. These developments will fundamentally change corporate tax functions and lead to increasing interlinking along the entire value chain. Digitalization within the tax function will therefore lead to greater automation of routine activities and enable real-time analyses and unprecedented optimizations due to the availability of a uniform database and corresponding analytical methods [2].

Digitalization in the sense of a digital revolution describes the continuous, transformative change and interconnection of both corporate and social processes. Digital technologies are the technical basis of digitalization, aiming at pervasive computerization and creation of connections between IT systems through information technology.

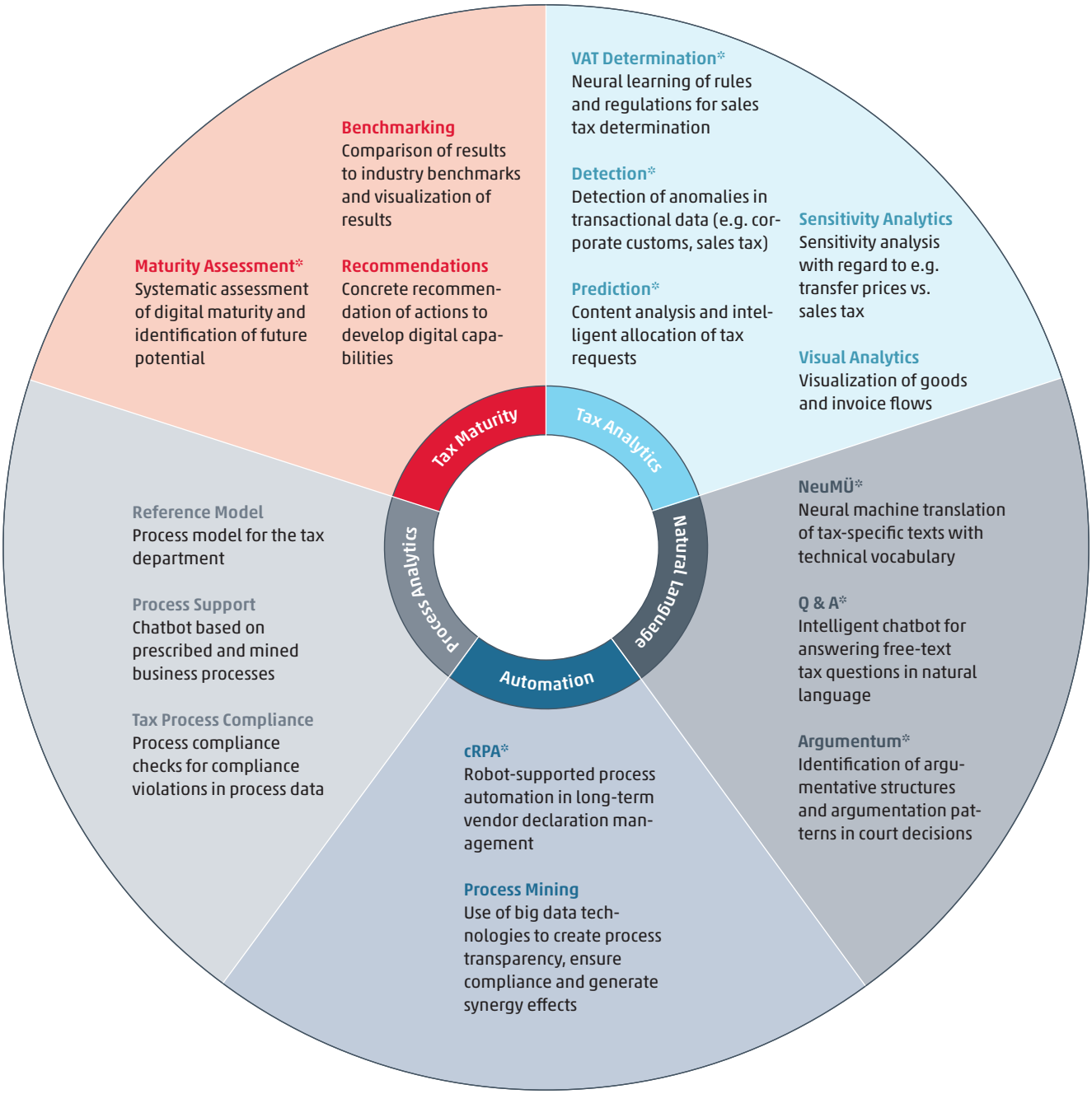
From a corporate perspective, the objective of digitalization is to integrate information systems into work processes and to automate routines. The use of digital process management technologies, such as Process Mining and Robotic Process Automation (cf. Glossary), and the use of Artificial Intelligence (AI) methods can contribute to obtaining more detailed insights into tax data and to deriving action-relevant information from it. The term **Artificial Intelligence** describes the attempt to model human intelligence, i.e. building a computer or programming it so that it can solve problems autonomously. In contrast to early AI projects that focused on replicating the cognitive abilities of a human in their entirety, today's research is essentially interested in creating solutions to solve specific problems in well-defined scenarios or tax areas.

However, the implementation of digitalization projects and the application of AI methods to tax-related problems is currently mostly carried out in the context of specific use cases.

Figure 1 provides an overview of tax-related application fields of AI as well as specific use cases that have already been investigated within the scope of joint research activities between WTS and the German Research Center for Artificial Intelligence (DFKI) [3]. In addition, software implementations exist for a large number of the listed use cases. One example that has been successfully implemented is anomaly detection in import/export handling as a corporate customs sub-process. In order to implement that use case, very individual conditions, data constellations, system landscapes, etc. had to be taken into account, while a general model for the systematic collection of requirements and guidance of development is lacking.

Introduction

Figure 1. Overview of AI use cases by DFKI and WTS in the field of taxation



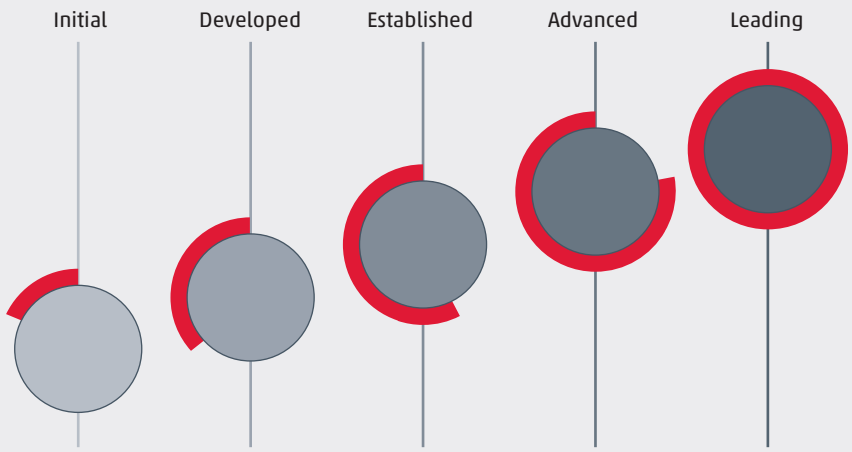
* a software implementation is available for this use case

As the implementation of AI techniques is currently focused on specific use cases and on the special conditions that prevail there (e.g. individual data formats and structures), this generally has the following implications for the realization of such projects:

- **Need for extensive consulting:** Systematic approaches for the identification and evaluation of digitalization and AI potentials within control processes do not exist. Accordingly, these must be examined individually, involving extensive consulting work and little standardization.
- **Lack of comparability:** General models for comparing the development status of different tax processes within a company or between different companies are not available.
- **No overview of linkages:** Dependencies between subject-related technical questions and their influence on specific tax processes and on the potentials of certain technologies that can offer support in this constellation are currently missing.

As a result, questions and measures needed to implement digitalization projects cannot be dealt with in a structured way ("Where do you start?", "Where are the potentials?", "How do I develop further?", "What is the procedure?").

Figure 2. Maturity levels for the assessment of digital maturity



To approach this issue, a systematic measure and concept to guide such development is necessary. The notion of maturity can provide valuable guidance and structure in this context: In general, **maturity** is defined as a measurement of the ability of an organization to continuously improve in a particular discipline [4]. **Maturity models** are instruments to systematically assess and represent as-is situations, to guide initiatives for improvement by providing a roadmap, and to measure the progress achieved [5]. They typically include a sequence of maturity stages (also called levels) that form an evolutionary path covering various stages from an initial state to maturity [6]. Figure 2 shows a five-level classification of maturity stages.

However, specific models to measure and describe the maturity of digitalization as a basis for a precise analysis of the potentials for the use of Artificial Intelligence within the tax department are not yet elaborated.

The present study aims to create the basis for a systematic assessment of the current status of digitalization – the "digital maturity" – of companies with regard to their tax function. For this purpose, the results of an empirical study among experts from WTS Global on the digital maturity of tax departments are presented and corresponding core statements are derived from these findings. The result is a comprehensive overview of the status of digitalization, taking into account various country-specific characteristics as well as the opportunities and challenges of digitalization from the perspective of the experts. Based on these results, a tax-specific maturity model is then presented, which can be used to evaluate the digitalization maturity of tax departments. The model represents an approach for the systematic evaluation of the as-is situation for a given company and enables the consistent analysis of AI potentials, thus providing guidance on future developments.

2 Core Theses of the Study

→ **Digitalization is a high-priority topic for tax professionals**
Tax experts consider digital technologies and skills in using them to be very important. More than 67% of the participants have recognized the need to deal with the topic of digitalization in the tax field and have been studying the subject in their professional context for at least one year.

→ **Tax workflows are often not yet digitalized end-to-end**
The majority of the tax experts surveyed describe the degree of digitalization of their own work as low or moderate. Only about a quarter of the participants describe it as being strongly or very strongly digitalized.

→ **Strategic orientation is a major factor for the digitalization success of the tax department**
Just 29% of the experts stated that their clients have a clearly defined digitalization strategy for the tax department. Furthermore, the results indicate that companies that align their tax digitalization strategy with the overall corporate strategy are more advanced in terms of integrating processes and procedures as well.

→ **Dedicated budgets are a key success factor for successful digitalization**
A total of 31 percent of the surveyed experts stated that dedicated budgets are available for the implementation of the digitalization strategy of the tax function. The results indicate that, in those cases, the tax digitalization strategy is also more often aligned with the company's overall strategy.

→ **High level of process standardization with low end-to-end IT support**
A large share of the experts interviewed stated that tax-related processes at their clients are standardized (49%), while
18% of the participants have processes that are fully supported digitally and end-to-end by IT systems.

→ **Digital tax data is the basis for workflow integration**
Almost half of the participants state that tax-relevant data can be used in digital form and is accessible for automated processing (46%). In addition, the results indicate a strong correlation between the availability of digital data and the integration of the tax department with other company divisions.

→ **Tax departments are open to using digital technologies**
The vast majority of the participants surveyed (72%) stated that digital technologies are not perceived as a threat. The subjective perception of technologies as a danger plays a major role in the success of their introduction and the associated acceptance by employees.

→ **There is strong demand for further training in the use of digital technologies**
Digital technologies have the potential to fundamentally improve clients' tax-related activities, but the application represents a new challenge for many companies. Of the experts surveyed, 67% confirm that there is demand for training in the general concepts and the use of basic technologies, as well as in the specific application of individual technologies.

→ **Artificial Intelligence for tax is still in its infancy**
Methods from the field of Artificial Intelligence are not yet widely used in the field of taxation; merely 5% of the experts state that they are already being used by their clients. For most applications, the use of AI is very limited and restricted to only a few specific use cases.

→ **AI is changing tax consultancy**
Most of the participants are experienced in using computers and IT systems and have a common understanding of the term "Artificial Intelligence" and "machine learning". Most of them can imagine a concrete application for AI in the respective work area. Fully 64% hold the opinion that the work of tax consultancy in general will be changed through the use of AI, for example through the automation of routine activities and the subsequent focus on higher-value activities.

Core Theses

Based on expert opinions on success factors and obstacles to digitalization in the tax field, the following core topics were identified in this study

Top opportunities	Top challenges
› **Increase in tax compliance** by clearly defining a digitalization strategy with measurable goals and by implementing measures for process automation and continuous monitoring at the operational level, which enables improved risk management.	› **Lack of professional qualification of personnel or specialized teams** and the resulting high demand for further training and the corresponding change management.
› **Tax data quality management** through the digitalization and standardization of tax-relevant information in integrated tax databases and the consistent implementation of both data import interfaces with operational systems and linking of related data.	› **Budget restrictions and high initial costs** for the implementation of digital projects and the ongoing operation of the necessary IT infrastructure or the allocation of personnel resources.
› **Realization of cost savings and optimization potentials** through the availability of end-to-end digital data streams that open up new possibilities for evaluation by advanced analytics methods and enable better decision support and the identification of opportunities for tax savings.	› **Organizational issues, country-specific peculiarities and local regulatory requirements** present challenges for the consistent definition of digitalization concepts and the concrete implementation of technologies, which in turn makes it difficult to use standard procedures throughout an enterprise.

Current status of digitalization

There is a large variety between the maturity and readiness of companies.

There are some that are really leading it. We should partner with them, we should co-create with them, we should co-design with them and co-lead the transformations.

On the other end of the spectrum, there are tax departments that really haven't even thought about what it could mean to bring the tax process in their tax organizations into that new territory. We should help those who are currently followers to become leaders in the transformation.

Wim Wuyts,
CEO of WTS Global

Objectives

The overall objective of this study is to identify the current status of digitalization – the "digital maturity" – of companies with regard to their tax function. To this end, a uniform evaluation grid based on four dimensions is presented in this section to ensure objective comparability in the areas of *Strategy, Process, Data and Technology*. Thus, different development stages should be made comparable and evaluated as a basis for the assessment potentials for future development.

Overall, the study takes an explorative approach to identifying goals that are to be achieved through digitalization, as well as success factors and obstacles to their implementation. In addition, a global perspective on the topic of digitalization in the tax sector is taken by the broad survey population with participants from 34 countries in order to identify country-specific peculiarities and to combine the worldwide expertise and knowledge of different experts to draw a multifaceted picture of the current status of digitalization.

The objective investigation and evaluation of existing structures and the subsequent identification of fields of action provide companies with orientation and practical recommendations for shaping digital transformation in the tax sector.

Scope of the Study

For the empirical survey, WTS Global members were defined as the data basis. WTS Global is an international association of partner companies that provide tax-related services in more than 100 countries (see Infobox 1). The focus of individual members is on local market expertise and expertise in country-specific tax issues. Altogether, 2,500 individuals are entrusted with responsibility for tax-related questions at the participating partner companies and make up the survey population. The spectrum of members ranges from tax lawyers to tax consultants with different professional focuses.

In the context of this study, a total of 78 countries were invited to participate in the survey, as depicted in Figure 3.

Raising Awareness on AI potentials

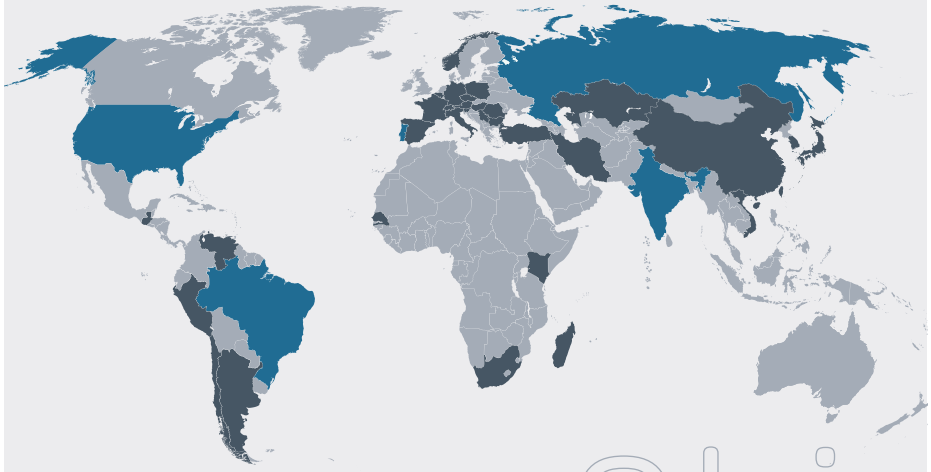
We have to create more awareness of what is possible. And instead of working away from it, embrace it.

It is really important to bring tax professionals into the learning loop or a learning cycle through training or studies to get them familiar with AI and digitalization.

Also universities and business schools need to jump in the transformation, e.g. like the planned master's in digitalization in taxation through WTS. I think that is one of the crucial building blocks for the future.

Wim Wuyts,
CEO of WTS Global

Figure 3. WTS Global countries selected to participate in the study



Objectives

As the aim of the overall study is to make statements on the status of digitalization in tax departments in different countries and to identify perceived opportunities and challenges, participants were asked to take the perspective of one of their clients when answering the questions. They thus act as proxies for the respective clients and reflect the (subjective) interpretation of their situation.

Subpopulation – "AI Working Group"
A subpopulation of six selected members was formed for various preliminary steps in preparation for the study. This included one representative from each of the following countries: Brazil, India, Indonesia, Portugal, Russia, USA. These members were brought together in a task force called the "AI Working Group" and were selected for their interest in actively participating in and contributing ideas for the overall study (highlighted in blue color in Figure 3). The selection process for the working group considered not only country-specific perspectives but also various specialist focuses of the participants. For instance, members advise clients from different sectors and sizes. At this point, the spectrum ranges from local small and medium-sized companies to globally active multinationals.

Infobox 1
WTS Global – German roots – global reach

With representation in over 100 countries, WTS Global has already grown to a leadership position as a global tax practice offering the full range of tax services and aspires to become the preeminent non-audit tax practice worldwide. WTS Global deliberately refrains from conducting annual audits in order to avoid any conflicts of interest and to be the long-term trusted advisor for its international clients. Clients of WTS Global include multinational companies and international mid-size companies as well as private clients and family offices.

The member firms of WTS Global are carefully selected through stringent quality reviews. They are strong local players in their home markets and are united by the ambition to build a truly global practice that develops the tax leaders of the future and anticipates the new digital tax world.

WTS Global effectively combines senior tax expertise from different cultures and backgrounds and offers world-class skills in advisory, in-house, regulatory and digital, coupled with the ability to think like experienced business people in a constantly changing world.

For more information please see: wts.com

Tax departments in the driver's seat for AI?

It is rare to see the tax functions really taking the lead on it.

Probably in the bigger multinationals they might but not in the smaller ones.

Wim Wuyts,
CEO of WTS Global

and Study Design

Maturity Dimensions

The term "digital maturity" comprises several different aspects that describe the status of a company's digital transformation. In order to obtain a comprehensive overview of individual design fields for the end-to-end implementation of a digital transformation within the tax function, a differentiated approach is necessary.

To this end, the evaluation of the level of development achieved in the context of this study is structured based on different design fields or dimensions. The investigation of these individual dimensions makes it possible to jointly investigate thematically related subject areas and to condense findings on the basis of this structure. In view of the objectives of the present study, central opportunities and obstacles to successful digitalization can thus be identified and concrete recommendations for action can subsequently be formulated more specifically. The following four dimensions were used for the investigation and are described in greater detail below.

As an alternative classification grid and in addition to the division into dimensions, a classification according to individual tax types can be specified. For reasons of simplicity and clarity, a multi-level classification according to dimensions and tax types has been dispensed with in the present study. Instead, the peculiarities of individual tax types are examined separately from the perspective of the experts surveyed and are discussed in Section 4.

Strategy Dimension

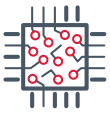
This dimension investigates strategic aspects of digitalization within a company's tax department. This includes the fundamental goals that are pursued within the framework of the digitalization of tax-related processes, as well as their relation to the goals of the entire company. As the strategic orientation can also have implications for the implementation of digital technologies or the use of digital data, it is important to understand the objectives and motivation behind a tax department's digitalization strategy as well as how it is operationalized and controlled.

Data Dimension

The *Data Dimension* investigates aspects concerning the management and use of data within a company's tax department. The technical systematization of tax-relevant data is of fundamental importance with respect to assessing digital data maturity. For this reason, the way data is managed in terms of storage, structuring and data formats is explored together with basic aspects relating to the quality of the data and capabilities for data exchange with internal and external parties.

*Process Di*mension

The *Process Di*mension explores the design and management of tax-relevant business processes. For example, the study examines which concepts of business process management are used to enable the execution of processes as well as their analysis. In addition, aspects of process standardization and integration play a major role, for example by using interfaces between processes within and outside the tax department. Against the background of increasing integration of internal company processes, these factors are becoming increasingly important.



Technology Dimension

Digital technologies such as information and communication technologies are driving innovations in the field of taxation. Nevertheless, it can be assumed that not all technologies will be used, but that selected technologies are suitable for certain problems. In order to exploit the full potential of such technologies, two aspects are relevant: the necessary knowledge regarding the application and its technical integration into operations. The investigation of these points is therefore the focus of this dimension.

Overview

This section presents the results of the explorative survey within the WTS Global. The aim of the investigation is to identify the current status of digitalization in tax departments of different companies. In particular, country-specific features, as well as opportunities and challenges, are considered from the participants' point of view. The survey was based on an empirical survey using a questionnaire with open and closed questions. Details on the methodological approach can be found in the appendix to this document.

Participant demographics

A total of 78 countries were invited to participate in the survey. Of these, 39 responded, which corresponds to a response rate of 49%. The group of participants is made up of representatives of different seniority levels and professional specializations. The average age of the respondents is just under 46 years, while the participants have on average more than 19 years of professional experience in the tax field. The participants also cover a broad spectrum in terms of the number of clients they serve.

How long have you been dealing with the topic of digitalization in your professional context?

Asked about their previous experience with the topic of digitalization in the professional context, the survey clearly revealed that the majority of participants have been involved in the complex for at least one year (67%). The largest number of participants have been dealing with the topic for 1 – 2 years (see Figure 5). However, 15% have no experience at all with the topic in their professional environment.

How would you rate the degree of digitalization of your own work?

The participants were asked to rate the perceived degree of digitalization of their own work on a scale from 1=very low to 5=very high. The participants assess the degree of digitalization of their work very differently, with most of the respondents generally indicating a medium to low degree of digitalization (see Figure 6). While this question was rated with medium agreement in general, the degree of digitalization of their own work seems to be considerably higher for people who are more experienced in the topic.

Figure 5. Participants' professional experience with the topic of digitalization (n = 39)

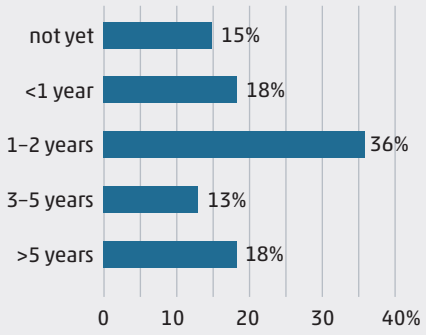
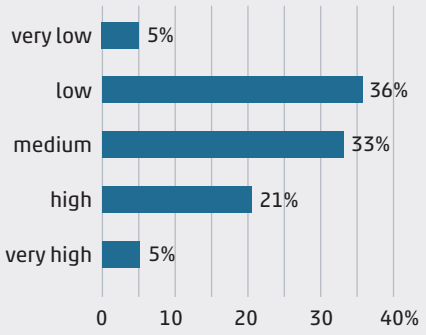


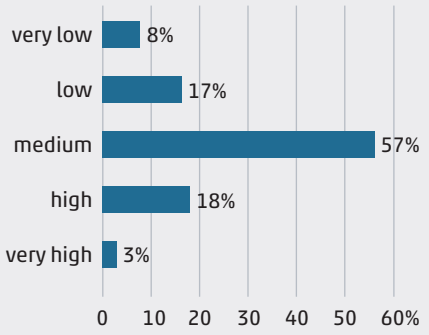
Figure 6. Participants' perceived degree of digitalization of their own work (n = 39)



Results

How do you rate the general degree of digitalization in your working country?
Participants were asked to rate the perceived degree of digitalization in their working country. This question was deliberately not limited to the professional context of the participants. Rather, its aim was to obtain an assessment of the general status of digitalization within the country concerned, for example in everyday digitalization or in communication with public institutions (see Figure 7).

Figure 7. Participants' perceived degree of digitalization in their working country (n = 39)



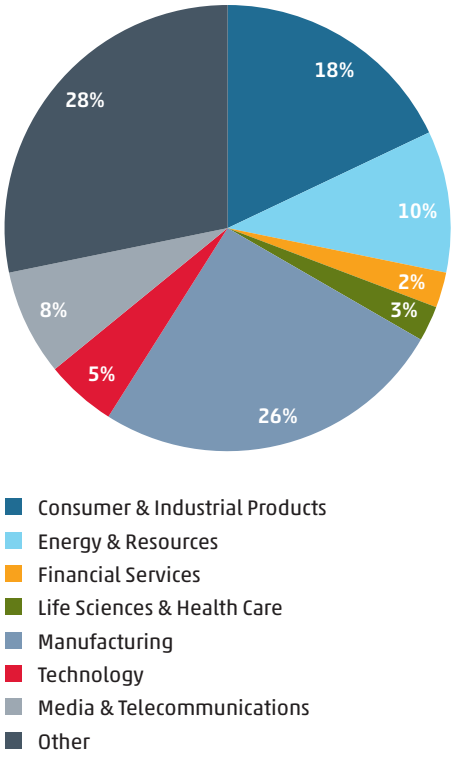
Due to the relatively small number of participants, no generally applicable country-specific statements can be derived here. However, the results of the survey do not indicate any connection between the perceived general status of digitalization within a country and the total digital maturity scores. Countries where the general level of digitalization has been rated as high or very high include Argentina, Brazil, Chile, Korea, Norway, Poland and Turkey.

Infobox 2

The companies surveyed are divided into the following 7 dedicated sectors: Consumer & Industrial Products, Energy & Resources, Financial Services, Life Sciences & Health Care, Manufacturing, Media & Telecommunications and Technology. Another category groups together the other industries that cannot be assigned to one of the previous categories ("Other").

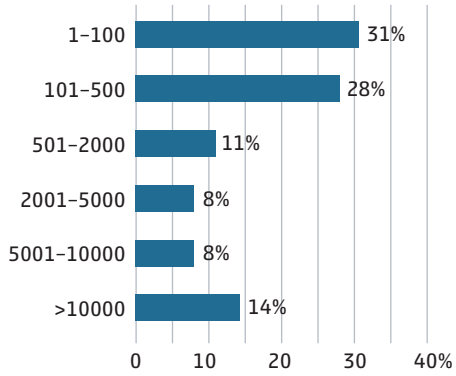
Manufacturing companies make up the largest share, followed by companies from the consumer and industrial products sector.

Figure 8. Distribution of client companies by sector (n = 39)



Most of the companies surveyed belong to the category of small (1-100 employees, 31%) and medium-sized companies (101-500 employees, 28%). Large companies are divided into the categories 501-2000 employees (11%), 2001-5000 employees (8%) and 5001-10,000 employees (8%). Companies with more than 10,000 employees are grouped in a separate category (14%).

Figure 9. Number of employees in client companies in their country (n = 39)



Expectations regarding the use of AI

I think there will be a big shortage in the years to come, of people who understand tax and do understand AI and digitalization concepts.

So finding the right people in the right locations will be a challenge, and if you can centralize it in a shared service center where everybody attends the advanced training workshop together, it could be a win-win situation.

The role of AI in the future in tax

We have to develop the tax leader of the future, someone who embraces the change that is coming through AI and digitalization.

We have to create a strong awareness of what a tsunami of change is coming through Artificial Intelligence and digitalization.

Tax leaders have to be aware that they have to lead the process and the transformation, rather than undergo it as part of the bigger transformation.

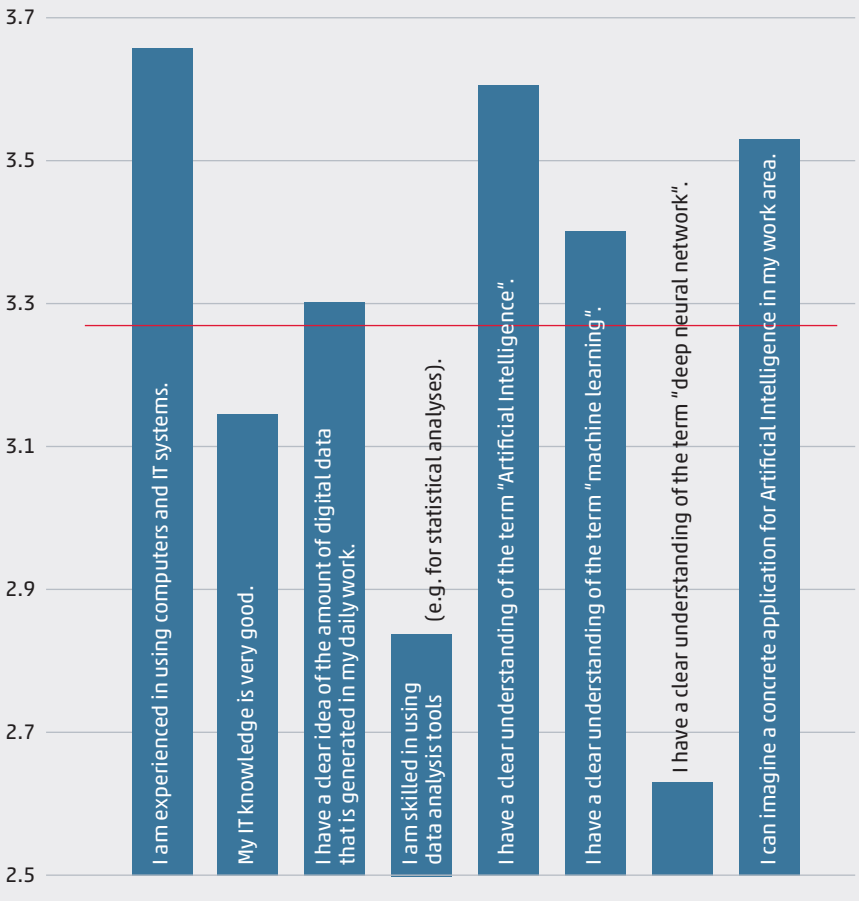
Wim Wuyts,
CEO of WTS Global

Previous AI Experience

In order to get an impression of the participants' experience with computer systems and their previous knowledge on the subject of Artificial intelligence, they were asked to rate themselves on a scale from 1=very low to 5=very high. The averages from each question are visualized in Figure 10, with Table 1 providing an overview of the respective questions. The participants assessed their knowledge very differently, but mostly with a tendency toward high scores. Especially among those who are experienced in using computers, understanding of the term "Artificial Intelligence" and concrete applications for AI in the working area are rated very high, while the average over the whole question category is about medium. In contrast to this, skill in using analytical tools and understanding of the term "deep neural network" are rated very low.

As a result, it can be said that many participants have a basic understanding of computer systems and AI, but a deeper understanding of and experience in dealing with analytical tools is missing for most of the participants.

Figure 10. Participants' self-assessment of previous knowledge on the topics of computer systems and AI



Results

The following sections present the results of the survey on the status of digitalization and its challenges and opportunities from the perspective of the WTS Global members. The results are shown in the following structure:

- First, descriptive results from the survey to give a first impression of the general agreement or disagreement of participants with the statements that have been identified as important.
- Second, the results of the evaluation of open statements by the participants on the challenges and opportunities of digitalizationare reported. The feedback is grouped into thematic clusters to identify related topics.
- Finally, intra-dimensional correlations between aspects from different dimensions are also reported to identify connections and dependencies that help to better understand challenges and important factors for achieving high maturity.

Strategy

Investigating the goals and how they are implemented and measured is important to understand the strategic orientation of a company's tax department with regard to digitalization. To this end, the reports in the following sections will address more precisely the aspects of the *Strategy* Dimension.

The target of AI is to reduce labor costs, create faster processes and improve quality and efficiency.

Individual Responses

The following section presents the results of the evaluation of the statements in the Strategy Dimension. Participants were asked to assess the extent of their client's digitalization strategy and how it is being pursued. Answers were given on a scale covering the following five levels:

(1) strongly disagree,
(2) disagree,
(3) neither agree nor disagree,
(4) agree,
(5) strongly agree.

A clearly defined digitalization strategy exists for the client's tax function

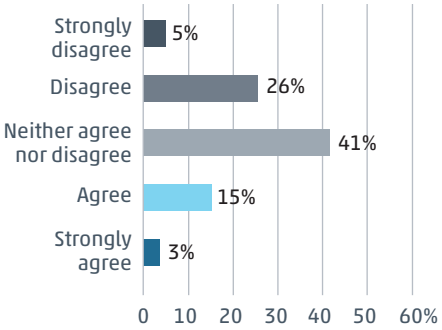


Figure 11. n = 39

- In total, 29% of the participants believe that there exists a clearly defined digitalization strategy for their client's tax function, while the majority of participants disagree (31%)
- Only 3% of the participants strongly agree that their client is pursuing a clear defined digitalization strategy for the tax function

Key findings. The definition of a clear strategy for digitalization projects in the tax department does not seem to be a top priority for many companies. The results of our research suggest that companies with a clearly defined strategy achieve greater maturity both within the Strategy Dimension and in terms of overall digitalization maturity. Starting with a defined strategy can provide the basis for a focused and structured approach to digitalization of the tax function. These findings are independent of the client details and do not indicate a correlation between the size of a client and the existence of a digitalization strategy.

Clear and measurable goals are linked to the digitalization strategy

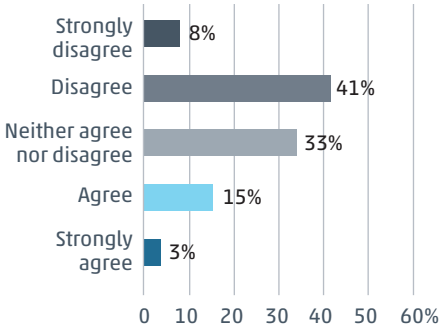


Figure 12. n = 39

- 18% of the participants agree that clear and measurable goals are linked to their client's digitalization strategy
- Most participants (49%) either disagree or strongly disagree that such goals are linked to the strategy

Key findings. Clear and measurable goals of a digitalization strategy seem to exist for only a small part of the investigated client companies of the participants. For the systematic implementation of digitalization measures, however, the existence of such objectives appears to be of great importance in tracking implementation progress. The results suggest a connection between the availability of dedicated budgets and the existence of clear goals as well as the ability to track the implementation status: while respondents do not agree that there are goals linked to the digitalization strategy when no budgets are available, the availability of budgets clearly determines the existence of goals.

The status of implementation of the digitalization strategy is systematically measured, e.g. by milestones or indicators

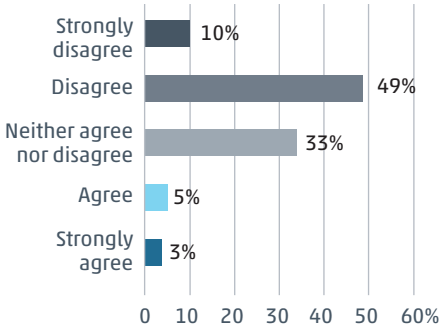


Figure 13. n = 39

- Only 8% of the participants agree that the implementation status of their client's digitalization strategy is systematically tracked and measured
- For the vast majority of participants (59%) there are no such measures implemented at their client's sites

Key findings. Systematic measurement of the implementation progress of the digitalization strategy requires the existence of clear and measurable goals. Among the examined participants there is a medium-strong connection between the existence of such measures and the existence of techniques for detecting deviations from planned process behavior. Strategic monitoring of objectives often seems to go hand in hand with appropriate measures at the operational process level.

Collaboration between the IT, tax and accounting teams is needed.

Dedicated budgets are available for the implementation of the digitalization strategy

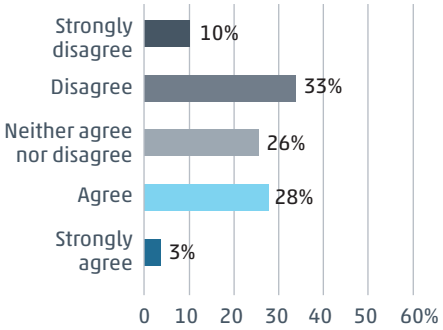


Figure 14. n = 39

- For 31% of the participants, dedicated budgets are available for the implementation of their client's digitalization strategy
- The largest share (43%) disagrees that such budgets exist

Key findings. The results clearly indicate that when dedicated budgets are available, the tax digitalization strategy is more likely to be embedded in the overall corporate strategy. Similar, moderate correlations can also be identified for the recording of key process-related figures and the integration of tax processes with other parts of the company. Thus, the availability of dedicated budgets seems to be a strong indicator for the maturity level within the Strategy Dimension.

Organization of AI

Jump on it and invest in tax knowledge for sure, but also invest in the global field of digitalization and AI, because that's the future!

You need the combination of very senior tax professional and "new kid on the block", who is more digital and AI-aware. It's a co-leading between senior, old school and youngster, new school. That combination will bring success.

Wim Wuyts,
CEO of WTS Global

The digitalization strategy is clearly embedded in the client's overall strategy

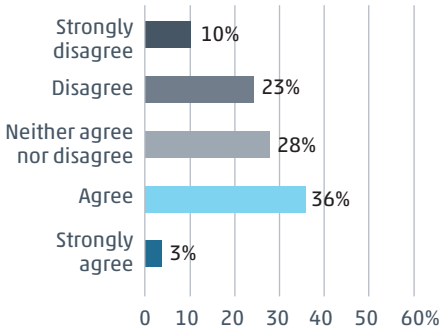


Figure 15. n = 39

- 39% of the participants agree that their client's tax digitalization strategy is embedded in the overall strategy
- Another 33% do not see a clear alignment of the two strategies
- The results indicate a moderate correlation with the integration of processes from other company divisions. Companies that think in terms of integrating their strategies for individual divisions also seem to do so for the integration of processes and procedures

Key findings. In this question, participants were asked to report on their impression of how the client's digitalization strategy for the tax function is embedded in the overall corporate strategy. The results indicate that companies that think in terms of integrating their strategies for individual company divisions also seem to do so for the integration of processes and procedures. In addition, answers to this question show by far the highest correlation with the total score of the Strategy Dimension as a whole. The hypothesis that a strong embedding is highly likely to indicate high maturity thus seems to be valid.

In order to understand the motivation and goals behind the strategic orientation of activities in the field of digitalization within the tax function, the participants were asked for their evaluation of three central objectives. These include increasing **process compliance**, realizing **cost savings** and freeing up **time resources**, for example by standardizing repetitive activities, AI-driven scaling effects or the intelligent automation of processes.

The focus is on organizational set-up, not yet on technology.

Deploying AI enables tax managers to spend more time on those adjustments that cannot be automated.

The digitalization strategy pursues the goal of increasing the quality of processes

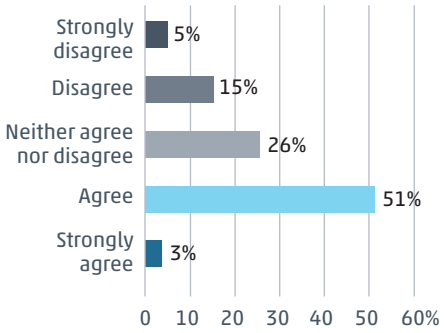


Figure 16. n = 39

- 54% of the participants agree that the digitalization strategy pursues the goal of increasing the quality of processes
- Only 20% feel that increasing process quality is not a major goal of their client's digitalization strategy

The digitalization strategy pursues the goal of saving time (e.g. by standardizing routine activities)

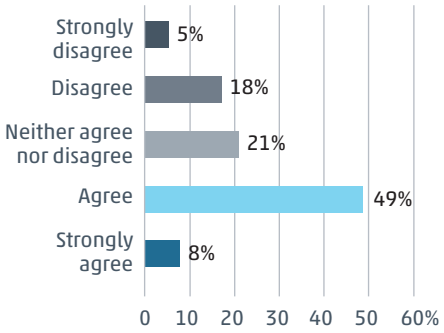


Figure 18. n = 39

- 57% of the participants agree that the goal of saving time is explicitly pursued in their client's digitalization strategy
- Only 23% of the participants disagree that saving time is a central goal of their client's digitalization strategy

Key findings. Clearly defined goals that are pursued with digitalization within the tax function seem to be an important indicator of digitalization readiness. These results are in line with the finding from the WTS 2017 study on the potential of using Artificial Intelligence for the tax function ("Artificial Intelligence in the Taxation World"). In that report, increasing compliance and quality by expanding activities can make it possible to shift the content of activities and point out general optimization options. Cost savings result primarily from the better use of existing resources and the bundling of systems, and time savings relieve the strain on employees by giving them the freedom to provide advice on complex issues, especially when performing support activities that are not a direct focus of tax consulting.

The digitalization strategy pursues the goal of reducing costs

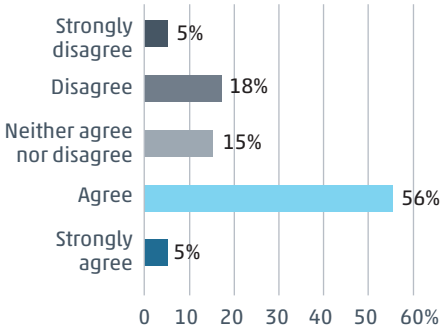


Figure 17. n = 39

- For 61% of the participants, cost reduction is identified as a goal for their client's digitalization strategy
- 23% disagree that the goal of cost reduction is part of their client's digitalization strategy
- 49% of the surveyed participants stated that all three of these goals play an important role within their client's digitalization strategy
- Another 10% of the participants see greater differentiation in the objective of the digitalization strategy and identify two of the three alternatives mentioned as important objectives for their client
- None of the participants state that their client has an exclusive focus on one of the three objectives mentioned. Rather, either at least two of the objectives mentioned are important or none of the objectives are considered important by 59% in total
- Participants who rate all three of the objectives mentioned above as being of great importance for their client's digitization strategy confirm that their mandates have a much higher average maturity within the Strategy Dimension than the overall average of all participants

There are three main goals: cost reduction, faster processes and fewer mistakes.

The main goals for the application of AI are cost reduction, time reduction and minimization of human errors.

Voices from the Countries
In addition to the answer options given in the questionnaire, respondents had the possibility to identify opportunities, challenges and obstacles to defining and implementing their client's digitalization strategy. Participants were able to give their answers in the form of freely formulated statements. In this way it was ensured that the broadest possible spectrum of relevant topics could be addressed. Furthermore, country-specific peculiarities were taken into account.

What opportunities do you see in the definition and implementation of the client's digitalization strategy?

Topic 1: Compliance
The topic of tax compliance was addressed with a total of seven mentions from different perspectives. The participants see great opportunities in the **introduction of an internal control system** and generally in the area **of tax reporting and tax monitoring.**

On the tax consulting side, some of those surveyed see potential for a **different range of services and an evolving service offering.** For example, the support of an EU-based client in setting up a shared service center as part of its digitalization strategy with the aim of increasing tax compliance in Poland is mentioned.

According to another comment, another opportunity lies in the implementation of a country-specific, **standardized tax audit file,** whose approval is currently being examined by the responsible local authorities. Another example cited by a participant is consistent data processing within the BEPS project. Minimizing errors through the systematic and automatic generation of data is an essential strategic goal of the digitalization project.

Topic 2: Automation and process support
A second set of topics on opportunities in relation to the definition and implementation of the digitalization strategy concerns the aspects of automation and process support. Seven comments from participants mention various opportunities and objectives. In general, the participants see a great opportunity in the **simplification of processes,** for example in supporting clients in their dealings with local tax authorities. One participant cited the recent establishment of a virtual private space for communication with the tax authorities in Romania as a special country-specific feature. The requirement to submit tax returns exclusively electronically is seen as an opportunity to implement a digitalization strategy in the client's company.

Furthermore, the **focus on more challenging aspects of taxation** is mentioned as an opportunity that is made possible by a systematic treatment of routine tasks.

The cross-divisional support of non-tax-related areas, such as human resources, is also seen as an opportunity to integrate processes more closely. Finally, one participant mentions the preparation of consistent transfer pricing documentation based on the supporting financial data documents as a concrete example of automation.

Once most of the adjustments are automated, the tax manager is able to spend his time on more sophisticated tasks.

Topic 3: Accompaniment of digital change
The third thematic block brings together opportunities that participants see in terms of shaping digital change from a strategic perspective.

In addition to increasing compliance, the reduction of costs is often mentioned as a digitalization goal. Using Korea as an example, one participant explains **that increased labor costs** together with a simultaneous reduction of the legally permitted working hours beginning in mid-2018 will become a challenge. Digitalization is seen as a strategic way of dealing with this challenge.

Some participants report on the current lack of awareness of the importance of a clear digitalization strategy. A great opportunity from the point of view of tax consulting is therefore the **comprehensive support of the client in the design, implementation and periodic review of the tax digitalization strategy.** Building on this, **new tax advisory opportunities** based on quality of global data can also be realized, creating value for both the consulting and the client's business. Ultimately, early consideration of the subject of digitalization within the tax function represents a competitive advantage over competitors. A clear digitalization strategy can help to secure strategic advantages for the future and define a clear differentiation from competitors.

What challenges and obstacles do you see in the definition and implementation of the client's digitalization strategy?

Topic 1: Qualification and learning
This first group of challenges and obstacles to the successful implementation of digitalization strategies with a total of seven responses concerns the aspects of employee qualification and training, according to feedback from participants.

On the one hand, this concerns **resistance to change** and a lack of willingness to deal with the subject of digitalization. The **lack of acceptance** by employees can massively hinder the successful establishment and implementation of a digitalization strategy if it is not supported on a broad basis. On the other hand, the **professional qualification of personnel and specialized teams** represents a great challenge. Lack of or insufficient knowledge about technical aspects, for example in dealing with digital data or software systems, is perceived by the participants as a bottleneck in the implementation of digitalization strategies. In that regard, further training and education illustrated by concrete examples were also identified as key requirements in order to meet the challenges mentioned.

Topic 2: Organizational challenges
Most of the feedback on the obstacles to the implementation of the digitalization strategy concerns organizational challenges, with twelve mentions by the participants.

Within the client companies under consideration, the imprecise definition of a digitalization strategy, together with an unclear allocation of budgets, often represents a major challenge. Furthermore, the **lack of project owners and low prioritization** of the topic at the local management level make it difficult to successfully implement undefined responsibilities.

One participant explicitly mentions the lack of centralization of digitalization initiatives from different branches and the associated increased administrative effort as an obstacle.

This problem is also reflected in further feedback: in many digitalization initiatives, many different countries are involved that are often at very different stages of development in terms of digitalization. In this heterogeneous environment, **adapting a uniform tax approach** to the regulations of specific countries presents a particular challenge. Such differences due to organizational issues become apparent in the example of one respondent: While most administration work can be done paperlessly in the US, paper-based correspondence is the standard form of communication with the Japanese administration for the very same company. But also for the US, communication with financial institutions is strongly dependent on paper; for instance, the physical presence of seals on papers is often still necessary and very widespread in practice. So, the US company's digitalization strategy does not work effectively in practice.

In a statement from Brazil, the **quantity of data and the statute of limitation period** are seen as another challenge, while other participants also see the unpredictability of tax legislation as well as a continuously amended fiscal legislation as external uncertainties that hinder the implementation of their client's digitalization strategy.

Topic 3: Budget and implementation costs
The third topic the participants discuss is the availability of budgets and costs.

In cases where the digitalization strategy is not clearly defined, **budget issues** are often not exactly clarified and are thus an obstacle. Other reasons cited as challenges are **high initial investments in digitalization** and **high burdens** from ongoing IT and implementation costs.

Tax research is a fairly cumbersome and time-consuming exercise. AI would be very helpful for finding the answer to very specific tax aspects.

Obstacles and limitations to the use of AI

A lot of tax professionals don't like to jump into everything that is digital, IT or AI. That's not our biotope.

It will be a challenge to bring the people who have worked in the tax function for many years to make that change.

Finding the talent that can work at the crossroads of tax knowledge and digital / AI process knowledge could also be a challenge.

Wim Wuyts,
CEO of WTS Global

Process

The following sections report on aspects concerning the management of business processes in a company's tax department. Therefore, structuring aspects defined in the Process Dimension are used as a framework.

Individual Responses

The following section presents the results of the evaluation of the statements in the Process Dimension. Participants were asked to assess the extent to which the business processes within the client's tax department are standardized and supported by IT systems. Answers were given on a scale covering the following five levels: (1) strongly disagree, (2) disagree, (3) neither agree nor disagree, (4) agree, (5) strongly agree.

Even if companies share the same international standards, applying them in practice is a different matter entirely. For example, it is very difficult to standardize how companies deal with their local tax authorities, as local tax provisions still result in widely differing outcomes.

Business processes within the client's tax department are standardized

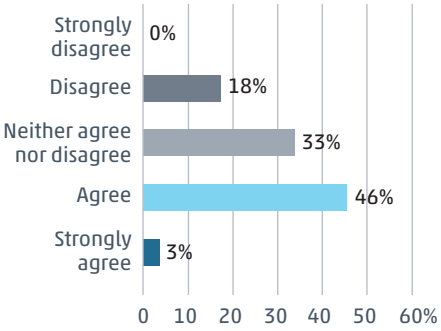


Figure 19. n = 39

- 49% of the participants agree that business processes within the client's tax department are standardized
- Only 18% of the participants disagree that the processes are standardized, while no participants strongly disagree with this statement

Key findings. Most of the business processes in the clients' tax departments seem to follow a certain degree of standardization. For participants who agree that dedicated budgets are available for the digitalization of the tax function, the average score for this statement is significantly higher. This supports the impression that standardization of processes depends on the available budget. Although low levels of standardization were found mostly in small companies in the sample, the results indicate no significant correlation between the level of standardization of business processes and the size of a client company.

The execution of business processes in the client's tax department is systematically monitored

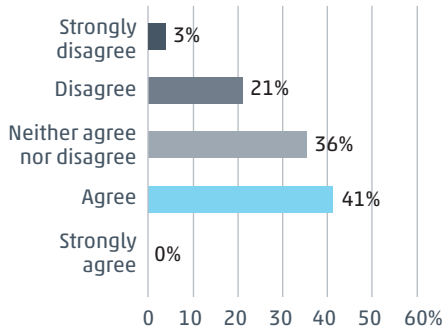


Figure 20. n = 39

- 41% of the participants agree that the business processes in their client's tax department are systematically monitored
- No participants strongly agree with this statement
- Only 24% of the participants disagree that the business processes in their client's tax department are systematically monitored, with only one participant strongly disagreeing

Key findings. The participants who disagree represent mainly smaller companies. This could be an indicator that standardized process structures and systematic process monitoring on average are not yet well established in small companies. On the one hand, this is understandable in view of the generally more rigid structure of large companies compared to small companies; on the other hand, small companies in particular can also gain a competitive advantage through systematic process management. The results show correlations with data-related statements such as the availability of data in digital form, the consistent and continuous use of data formats and the standardized import of data from previous systems. This relates to the fact that a sufficient data basis must be established for the implementation of systematic process monitoring.

Key process-related figures are systematically recorded

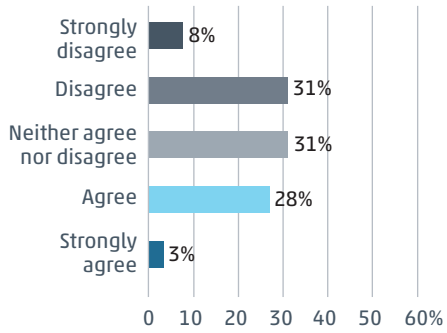


Figure 21. n = 39

- Only 31% of the participants agree that their client systematically records key process-related figures
- For 39% of the participants, no systematic recording of key process figures is implemented in their client's tax department

Key findings. The results indicate a strong connection between the recording of key process figures and the systematic import of tax-relevant data from previous systems. It becomes apparent once again at this point that the quality of the recording of key figures within the tax department is essentially determined by the quality and consistency when importing data from previous systems. Furthermore, the results indicate that the availability and consistency of digital data has an influence on the recording of key figures.

AI could help with monitoring procedures and ensuring that deadlines are complied with.

Processes in tax-accounting systems are integrated into ERP systems without manual interfaces

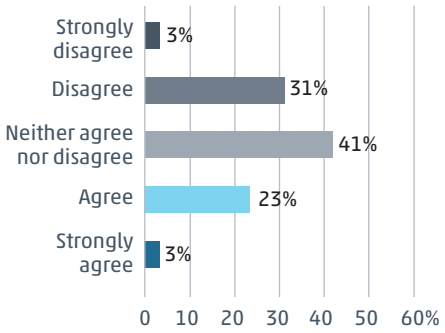


Figure 22. n = 39

- Only 26% of the participants agree that the processes in tax-accounting systems are integrated into ERP systems without manual interfaces
- 34% disagree and indicate that processes in tax-accounting systems are not integrated into ERP systems without manual interfaces
- However, a large share of participants neither agrees nor disagrees with this statement

Key findings. Many participants do not make a clear statement as to whether processes in tax-accounting systems are integrated into ERP systems without manual interfaces. Again, this question correlates with the availability of standardized interfaces for the import of tax-relevant data.

The execution of business processes in the client's tax department is completely supported by IT systems

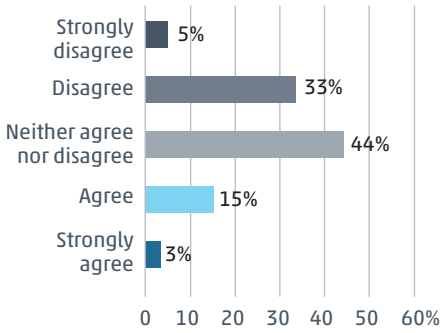


Figure 23. n = 39

- Only 18% of the participants agree that the execution of business processes in their client's tax department is completely supported by IT systems
- 38% disagree that the execution is supported accordingly

Key findings. For most participants, the IT-supported execution of business processes within the tax department is closely related to the availability of standardized interfaces for data import. This circumstance is intuitively comprehensible, but at the same time, it shows the interdependence of digitally supported processes and the presence of digital data, which in this case often has to be obtained from source systems that carry tax-relevant data. Furthermore, the statement correlates with the availability of the necessary employee knowledge s for the use of digital technologies for the tax function.

Deviations from planned process behavior (e.g. possible delays) can be detected at an early stage

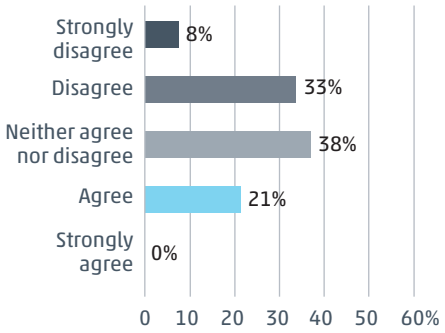


Figure 24. n = 39

- Only 21% of the participants agree that deviations from planned process behavior (e.g. possible delays) can be detected at an early stage
- 41% disagree that their client is able to detect such deviations early on

Key findings. The results indicate that general IT support for business processes determines the ability to detect deviations from planned process behavior: for companies that do not have IT system support for business processes, the average score for this question is 2.2, while this score increases to 3.6 for companies that do support their processes with appropriate systems. Furthermore, the results suggest that strategic considerations have a recognizable connection with the prediction of process deviations. A clearly defined digitalization strategy for the tax department and close coordination with the overall corporate strategy are good indicators for the establishment of process prediction mechanisms. This question also correlates to the availability of data in structured form and leads to the hypothesis that the importance of data storage also becomes clear with a view to predicting unplanned deviations from process flows. Participants who use consistent and structured data storage, e.g. in the form of table structures and databases, are able to make process predictions. This clearly underlines the importance of data readiness as the basis for a uniform data base.

Business processes within the client's tax department are integrated with processes in other company divisions

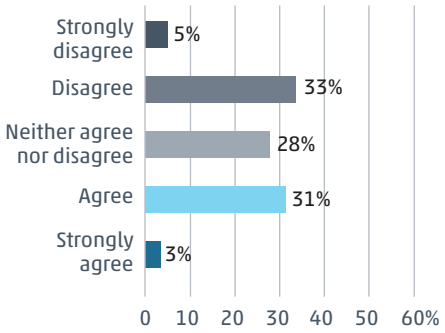


Figure 25. n = 39

- 34% of the participants agree that processes within the client's tax department are integrated with processes in other company divisions
- 38% disagree with this statement

Key findings. An interesting aspect becomes clear when considering the integration possibilities for business processes within the tax department with processes of other company divisions: good data quality is a determining factor and a mandatory prerequisite for the cross-departmental integration of processes. This includes, for example, the use of uniform data formats and structures and access to a common data basis without the need for manual data exchange.

International companies are struggling to integrate all teams under the same common bases, as countries have completely different tax standards.

Results from data analyses are used to improve processes

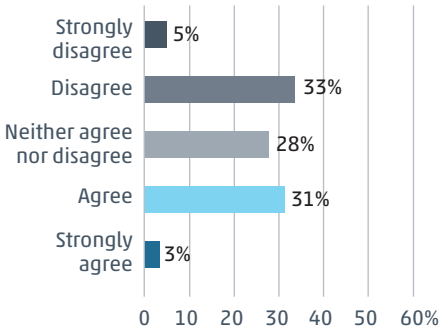


Figure 26. n = 39

- 31% of the participants agree that results from data analyses are used to improve processes
- 31% participants disagree with this statement

Key findings. Participants that reach high maturity for this statement also tend to reach a higher average for the overall Data Dimension.

This supports the hypothesis that a high level of data maturity is necessary to be able to run data analyses that are aimed at improving business processes. Therefore, providing a proper data basis is an issue of high importance. Although quite a few participants reach high levels of data maturity, the use of data for the improvement of business processes is still limited. This is particularly evident when looking at data quality: high data quality and consistent use of data formats are correlated to the ability to analyze data and the associated opportunity for continuous process optimization.

So far AI is used in back-office operations, but not in the tax strategy.

Voices from the Countries

What opportunities do you see in the field of process digitalization?

Topic 1: Technology-enhanced processes
From the participants' point of view, an important topic with regard to the opportunities of process digitalization is the increasing process support through technology. In five statements, participants elaborated on the **potential of technologies for process digitalization.** The use of Robotic Process Automation (RPA) is seen as an essential opportunity to realize efficiency gains in the processing of routine procedures. Furthermore, techniques for automated digitization of data sets and image recognition are considered to have great potential to **better integrate process flows and avoid media breaks during processing.** To **facilitate access to process-supporting systems,** the participants also see specific use cases for speech-processing software, for example in accounting systems. From the perspective of tax consulting, several participants will demonstrate the possibilities of testing experience in the selection and implementation of digital tool solutions together with the client. The result is a mutual exchange of experience through the testing of practical results and the joint development of solutions.

Topic 2: Process compliance
A second major part of the feedback on the opportunities in the field of process digitalization concerns the compliant execution of processes. In order to meet the increased demands for responsiveness and accuracy, many participants consider **better control of business processes** to be essential. This will enable a reduction of tax litigation and non-compliance with ancillary tax obligations as well as the avoidance of increasingly higher tax penalties due to failures of tax compliance, and is thus seen as a tremendous opportunity. One example points out that correct tax return filing being required due to significant difficulty in applying for a tax refund in Korea is considered a key opportunity for continuous process digitalization.

The filing of tax returns via standardized web interfaces of the Ministry of Finance is established in many countries as a measure for **digital process integration.** A legally prescribed digital invoicing between taxable companies above a certain size is presented using Turkey as an example.

Topic 3: Process monitoring and automation
In close conjunction with the adherence to process compliance objectives and the integration of the technologies mentioned above, respondents see opportunities for the systematic monitoring of processes and the implementation of checks. The objective of **continuous process monitoring** is seen in a more **up-to-date overview of the current status of tax burdens** (e.g. in the VAT area). **Improved risk management** based on current process information is also considered relevant. Continuous, transparent process monitoring can then serve as a prerequisite for a largely automated environment.

What challenges and obstacles do you see in the field of process digitalization?

Topic 1: Personnel and learning
Most of the feedback on the obstacles and challenges in the field of process digitalization concerns the way in which real-life processes are organized in practice. A **lack of IT knowledge** on the part of accountants and tax experts can lead to processes not being carried out efficiently, although appropriate solutions are available. One participant reports on an example of invoice posting: although transactions are available for the aggregated posting of invoices, in practice, a single posting of invoices is carried out due to the complexity of the respective processes. In this context, **"fear of technology"** and **insufficient knowledge** at the intersection of IT and taxation lead to inefficient procedures and prevent effective process digitalization. On the tax consulting side, another obstacle is seen in the **operative use of various IT systems** by clients. Due to the great **heterogeneity of process landscapes,** continuous further qualification is regarded as essential to overcome these obstacles. Another challenge in this area is the need for **close cooperation** between the tax team and the finance team. Without a **strong interlocking** of the respective processes and the willingness on both sides, successful digitalization cannot succeed at this point.

Topic 2: Costs and limited resources
Again, access to the necessary budgets and resources is a major challenge in the area of process digitalization. **Budget restrictions** and **high initial costs** for the implementation of digital processes and the ongoing operation of the necessary IT infrastructure are cited as the main obstacles. Furthermore, the **allocation of appropriate personnel resources** for the realization of digitalization projects plays an important role.

Topic 3: Organizational issues
The last group of feedback concerns strategic and organizational aspects of process digitalization. A low prioritization of digitalization projects and a **lack of focus on process digitalization** indicate that the topic is not yet treated as a priority by all companies. Another statement **mentions underlying legal frameworks** as a restriction for an integrative design of digital processes. Using the example of the Republic of Madagascar, the fact that printed original documents must, as in many other countries, be kept as proof is discussed. Although digital copies are available, they are not sufficient in themselves and are not generally legitimate. Consequently they are used only for documentary purposes parallel to the archived original documents. The obligation to use printed originals prevents the digital execution of processes in that regard. Another participant addresses the potential risk of **reduced flexibility in the execution of digitalized processes.** Strict requirements and the definition of target processes are seen as an important obstacle to implementation. In this context, the complex search for errors in the execution of digitalized processes is also discussed. Both the detection of such errors and their correction are important framework parameters that can potentially limit flexibility in process execution.

Data

Investigating the management and use of tax-related data within a company's tax department is important for assessing digital data maturity. To this end, the reports in the following sections will address the aspects of the Data Dimension in greater detail.

AI tools can support help in getting data from the financial system into the tax system and adjusting it automatically.

Individual Responses

The following section presents the results of the evaluation of the statements in the Data Dimension. Participants were asked to assess how data is organized and exchanged within their client's tax department. Answers were given on a scale covering the following five levels: (1) strongly disagree, (2) disagree, (3) neither agree nor disagree, (4) agree, (5) strongly agree.

All tax-relevant data is available in digital and editable form

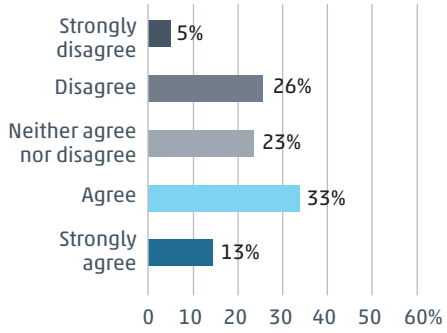


Figure 27. n = 39

- 46% of the participants agree that tax-relevant data is available in digital and editable form in their client's tax department
- For 31% of the participants, tax-relevant data is not consistently available in digital and editable form

Key findings. Almost half of the participants state that tax-relevant data can be used in digital form. The addition "editable" takes into account the fact that, although data is often available in digital form, the information contained therein is not accessible for automated processing. For example, scanned invoices cannot be used as such without the use of OCR and information extraction techniques, as the information they contain is not labelled. Furthermore, the results indicate a strong correlation between the availability of digitally usable tax-relevant data and strong integration of the tax department with other company divisions (.63).

Tax-relevant data is managed in files within a folder structure

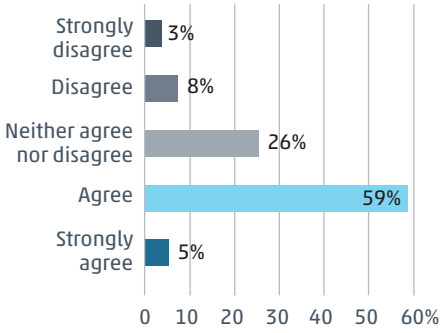


Figure 28. n = 39

- At 64%, the majority of the surveyed participants agree that tax-relevant data is managed in a file repository and that certain folder structures are used
- Only a small share (11%) disagrees with this statement

Key findings. File-based administration of tax-relevant data still seems to be very widespread within tax departments. While, in general, this form of data management is neither good nor bad, file-based data storage commonly implies some limitations in terms of data evaluation and the search for information.

Tax-relevant data is available in structured form

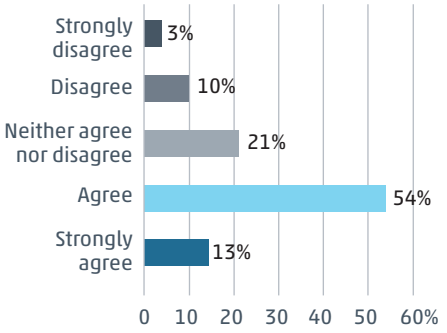


Figure 29. n = 39

- The vast majority of participants (67%) agree that their clients hold tax-relevant data in a structured form
- 13% disagree that tax-relevant data is available in structured form in their client's tax department

Key findings. The availability of tax-relevant data in structured form shows correlations with different measures for monitoring business processes and thus seems to be an indicator of systematic process management. The availability of tax-relevant data in digital form is a necessary prerequisite for the monitoring and evaluation of process key figures (.53). Information that can be processed directly by IT systems enables processes to be supported digitally and deviations from planned process behavior to be detected at an early stage (.56).

Tax-relevant data formats are used consistently and uniformly

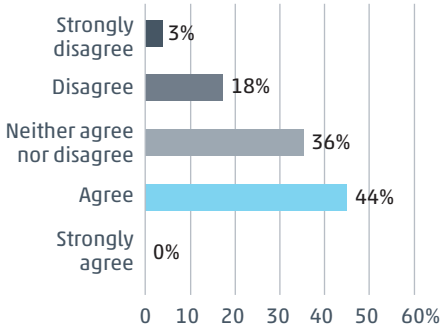


Figure 30. n = 39

- 44% of the participants agree that data formats are used consistently and uniformly in their client's tax department, although no participant strongly agrees with the statement
- 21% of the participants disagree that data formats are used consistently and uniformly

Key findings. The consistent usage of data formats for tax-relevant data is an important precondition for the establishment of a solid tax database. Interestingly, there seems to be a connection between employees' knowledge of digital technologies and the uniform use of data formats for tax-relevant data (.65). This connection illustrates the high importance of basic IT know-how for tax experts.

The data quality can be described as very good

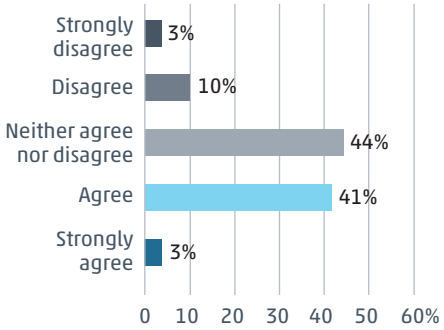


Figure 31. n = 39

- 44% of the participants describe their client's data quality as very good
- Only 13% disagree with the statement that their client's data quality can be described as very good

Key findings. For those participants who attest their client's high data quality, the average score for the Data Dimension is significantly higher than the average for all respondents (4 vs. 3.4). High data quality is a fundamental prerequisite and determines digital maturity. Good data quality with regard to uniformly structured data and consistently maintained master data facilitates integration across different company divisions. Again, the fundamental importance of a well-maintained digital database becomes apparent.

Tax-relevant data is managed consistently in IT systems

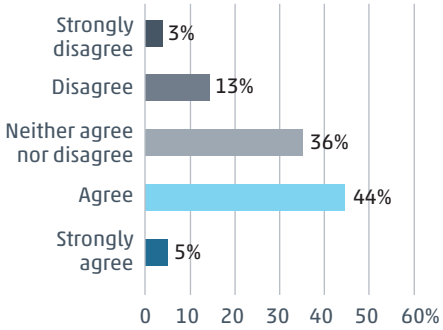


Figure 32. n = 39

- Almost half of the participants (49%) indicate that their client manages tax-relevant data consistently in IT systems
- Only 16% disagree that tax data is consistently managed in IT systems

Key findings. Participants who express a high level of agreement with this statement also achieve above-average data quality: out of 17 participants with high data quality, 14 state that data is managed consistently in IT systems. As system-based data storage requires uniform, consistent structuring and maintenance of data stocks, it is a good indicator of a high degree of maturity with regard to data digitalization.

AI could take all available data in a financial system to prepare tax returns and tax forecasts with minimal intervention.

Data exchange with external parties (e.g. tax authorities) is done via standardized interfaces

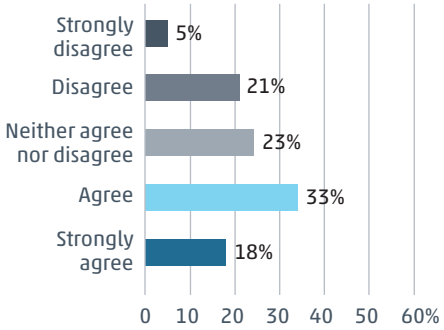


Figure 33. n = 39

- 51% of the participants agree that data exchange with external parties is done via standardized interfaces while 18% even strongly agree with this statement
- 26% disagree that data exchange with external parties is standardized

Key findings. For the majority of participants, data exchange with external parties seems to have already been implemented via standardized interfaces. Participants who agree with this statement on average reach higher maturity in terms of data digitalization compared to participants who disagree (3.9 vs. 2.5).

Import of tax-relevant data (e.g. from accounting systems) is done via standardized interfaces

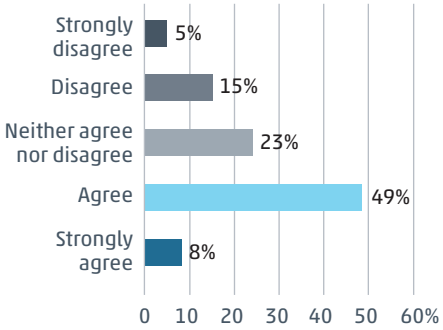


Figure 34. n = 39

- With a share of 57%, the majority of the participants agree that the import of tax-relevant data is done via standardized interfaces
- 20% disagree that their client uses standardized interfaces for data import

Key findings. There seems to be a connection between the exchange of data with internal and external parties. Only a few participants report an established and functioning exchange in one direction (only externally or only internally), while rather high values occur in combination. As soon as the internal prerequisites for the provision or acquisition of data have been created, an exchange can be initiated in both directions. Furthermore, the import of tax-relevant data from previous systems via standardized procedures automatically contributes to an integration of the tax function with other company divisions and is of great importance.

Voices from the Countries

What opportunities do you see in the field of process digitalization?

Topic 1: Data quality management and standardization
The participants still see great potential in the conversion of all tax-relevant data into digital form. This concerns both aspects of the **digitalization of data** that are currently available, for example in paper form, and the conversion of the data into usable information, for example by extracting relevant information from scanned documents. In this context, the **standardization of data** plays an important role. The participants name standardized data import via defined interfaces as an opportunity to obtain data in a consistent form and of the same quality. Furthermore, there is an opportunity **to clean up, supplement and standardize existing databases** that have been created, for example, by merging different data sets. Questions of **data quality management and data access** play an important role in this context. Using Turkey as an example, it is illustrated that many declaration-relevant data can already be obtained directly from the tax authorities via the Internet via a standardized interface. The expansion of these databases and the release of this information is seen as an opportunity to further simplify the submission of tax returns by the participants.

A barrier for AI in taxation is that not all needed information is available in the systems.

Topic 2: Data interfaces
The digital filing of tax returns via **standardized web interfaces** of local tax authorities is becoming mandatory in more and more countries. The participants report, however, that the **preparation of the necessary data from operational systems** requires great effort and they therefore see great potential in automatic extraction. For example, the implementation of **data connectors** between ERP systems and the interfaces of the tax authorities is recognized as an opportunity to reduce the effort and costs involved in manually preparing data for submission of tax returns in separate systems and to automate this process to a greater extent. In addition, the communication with external parties, and **import of tax-relevant data** from previous systems within a company (e.g. from accounting systems) can also be significantly enhanced by using standardized interfaces. The participants see opportunities for data simplification in the course of data digitalization mainly in the avoidance of manual steps during data transmission and in the consistent transfer of data. At the same time, imports can be made faster so that the tax department can work with more up-to-date data and thus be more closely connected to daily business.

Topic 3: Advanced analytics and decision support
In addition to the optimization of data import and exchange processes, the availability of continuous digital data sets also opens up **new possibilities for evaluation.** Advanced analytics methods and the use of specific tax tools make it possible to derive decision-relevant information from data and thus contribute to **better decision support.** This enables transparent monitoring of various key figures on the basis of the latest data records. Based on this, the participants see the identification of **opportunities for tax savings** as potential.

What challenges and obstacles do you see in the field of digital data?

Topic 1: Data safety
Participants see the great danger of **data leaks and cyber attacks** as a challenge with regard to the digitalization of data and the exchange of digital information. The implementation of **measures to protect confidential information,** especially for transmission to external parties such as tax authorities, is therefore considered essential by respondents. Potential risks of data breaches include the publication of information, which can become accessible to competitors and lead to serious competitive disadvantages and loss of trust, as well as to legal consequences for the company concerned. Resulting high costs for the **maintenance of data safety** are seen as a severe obstacle to successful digitalization of data by the participants.

Topic 2: Change management and qualification
In the second group of feedback, aspects of change management and the necessary further qualification of employees in handling digital data are discussed. In order to exploit the potential of the data and use it sensibly, a lot of **expert knowledge** is required for interpretation and evaluation. The interviewees therefore regard **continuous further training** of technical experts as an important challenge. According to the feedback, a lack of **change management processes** can also pose an obstacle to successful data digitalization. One participant notes that the involvement of the client's employees in tax consulting is important to the success of a project. In this context, the feedback of the participants once again shows the importance of sufficient further training and qualification of the employees for the success of digitalization.

Topic 3: Organizational challenges
The third topic comprises statements on the challenges and obstacles in relation to organizational aspects of data digitalization. One participant addresses possible **reservations of companies** regarding total data transparency as an obstacle. There might be some companies that do not want to share all relevant data through the interfaces of the tax authority. The reasons for these reservations might be diverse. Some companies might rather prefer to control the disclosure of information more specifically themselves – for example in the case of a tax audit – instead of permanently transmitting all information to the responsible authorities. The respondents see a further obstacle in the **different regulations of different jurisdictions.** Fulfilling various requirements for data storage, management, disclosure and protection is accompanied by a high organizational effort. Furthermore, participants add that often only **standard data** is available in company-wide IT systems, whereas country-specific data is distributed in other systems. A uniform approach can also serve as a solution to another challenge from the participants' point of view, which consists in **high maintenance costs** for ensuring data security and protection from cyber attacks.

Technology

In order to investigate the application and usage of technologies within a company's tax department, the following sections report on aspects defined as a structure in the Technology Dimension.

Individual Responses

The following section presents the results of the evaluation of the statements in the Technology Dimension. Participants were asked to assess which digital technologies are used in their client's tax department and for what purpose. Furthermore, questions regarding user adoption and employees' training needs were investigated. Answers were given on a scale covering the following five levels: (1) strongly disagree, (2) disagree, (3) neither agree nor disagree, (4) agree, (5) strongly agree.

AI tools can support getting the data from the financial system into the tax system and adjusting it automatically.

Digital technologies have the potential to fundamentally improve the client's tax-related activities

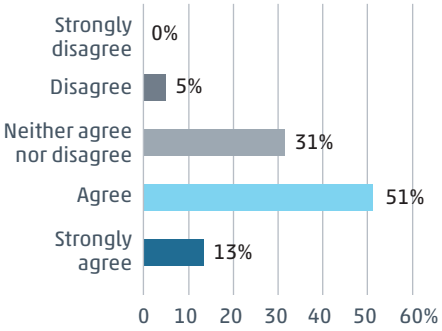


Figure 35. n = 39

- There seems to be consensus on the great importance and the transformative force of new technologies; only 5% of the participants disagree and no participant strongly disagrees
- 64% of the participants agree that digital technologies have the potential to permanently change their client's tax-related activities. 13% of these participants strongly agree with the statement

Key findings. For the tax function, the general importance and the transformative influence of digital technologies seems to be widely recognized. There is widespread agreement among respondents that digital technologies have great potential to fundamentally change tax-related activities.

The client sees digital technologies as a threat

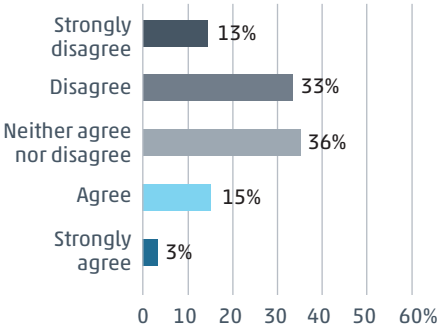


Figure 36. n = 39

- 18% of the participants agree that their clients see digital technologies as a threat
- 46% disagree with this statement

Key findings. With regard to success in introducing new technologies and the associated acceptance by employees, the subjective perception of a technology as a danger plays a major role. Fortunately, the majority of respondents do not seem to perceive digital technologies as a threat. Some of the reservations may also be due to a lack of knowledge about technology: for participants who agree with this statement, the average values for perceived training needs are higher than the overall average.

The client considers digital technologies and skills in dealing with them very important

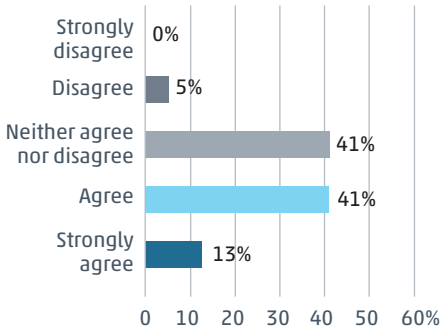


Figure 37. n = 39

- At 54% of the participants, the vast majority agree that their client considers digital technologies and skills in dealing with them very important
- Only 5% disagree with this statement, while nobody strongly disagrees

Key findings. The results indicate correlations between the strategic orientation of digitalization projects and the prioritization of and skills in dealing with digital technologies. Participants who express clear agreement with specific goals of the digitalization strategy or who indicate that it is clearly embedded in the overall corporate strategy generally consider digital technologies more important.

The client's employees have the necessary knowledge and skills to use digital technologies in the tax function

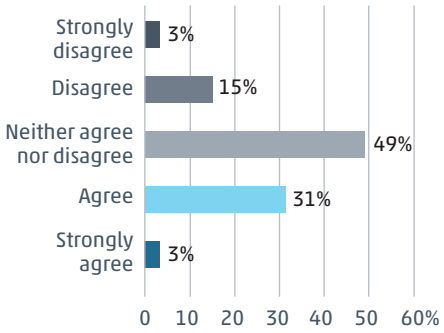


Figure 38. n = 39

- 34% of the participants agree that their client's employees have the necessary knowledge and skills to use digital technologies in the tax function
- 18% assume their client's employees do not yet have the necessary knowledge and skills

Key findings. In general, the results indicate that clients whose employees already have the necessary skills in handling digital technologies, on average, more frequently implement process monitoring, collect key process data, and more often use IT systems to support their processes. Thus, their tax department is more closely linked to processes in other company divisions, and mechanisms for early detection of process deviations are more often in place.

Furthermore, distinctive skills in dealing with digital technologies again show a correlation with the use of consistent data formats and the import of tax-relevant data via standardized interfaces.

The client's employees are trained in the use of digital technologies in the tax function

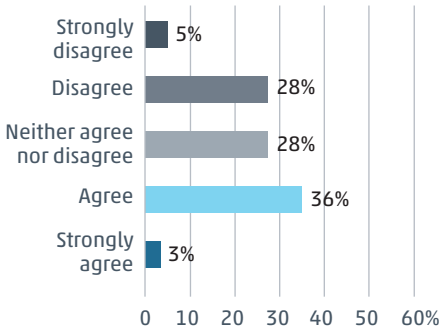


Figure 39. n = 39

- 39% of the participants agree that the client's employees are already trained in using digital technologies in the tax function, e.g. through workshops or further training
- 33% of the participants disagree that their client's employees are trained in using digital technologies

Key findings. More than two thirds of the respondents stated that employees in their client's tax function already had training in the use of digital technologies within the tax department. On the other hand, for the majority of respondents there seems to be a great general need for further training in this area. Only through sufficient knowledge in handling and using technologies can companies actively influence digitalization in the tax function. The encouragingly high share of participants who attest to at least basic knowledge in using digital technologies seems to confirm that companies have recognized this trend.

The client's employees need training in the use of digital technologies in the tax function

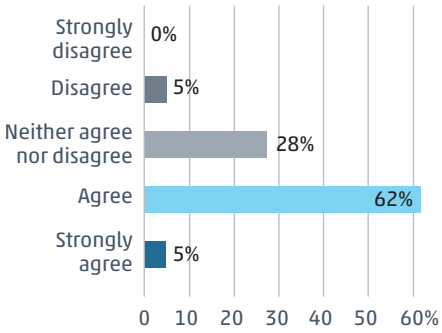


Figure 40. n = 39

- The vast majority of the participants (67%) agree or strongly agree that their client's employees need training in the use of digital technologies
- Only 5% disagree with this statement

Key findings. In general, there seems to be very high demand for training activities for the use of digital technologies within the tax function. The individual feedback from the participants shows that there seems to be a high need for training in the handling of basic technologies and in general concepts, as well as in the specific application of individual technologies. As the use of digital technologies in this area is still new, this applies to all industries and tax areas.

The client's employees are willing to use digital technologies within the tax function

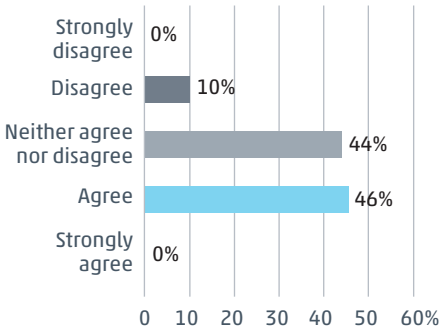


Figure 41. n = 39

- 46% of the participants state that their client's employees are willing to use digital technologies within the tax function
- Only 10% disagree with this statement

Key findings. The participants express overwhelming support for their client's willingness to use digital technologies in the tax function. Broad support for such decisions is an important prerequisite for the success of digitalization projects.

In Portugal, a significant portion of interactions with tax authorities is already online.

Technologies from the field of Artificial Intelligence are used by the client

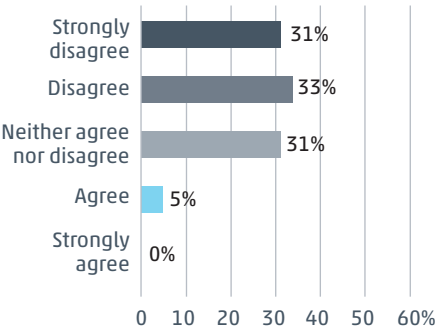


Figure 42. n = 39

- Only 5% of the participants agree that their client is already using technologies from the field of AI
- The vast majority (64%) disagree that AI technologies are already in use by their client

Key findings. The results confirm the impression that methods from the field of Artificial Intelligence are not yet widely used in the field of taxation. Regardless of the industry or company size, the use of AI is still very limited and is restricted to only a few specific use cases.

Voices from the Countries

What opportunities do you see for the use of digital technologies?

Topic 1: Standardized and timely access to information
The first topic on opportunities regarding the use of digital technologies concerns the aspects of speed of access and availability of information. In the participants' feedback, the ability to **monitor and control** information within tax processes is seen as a great opportunity. According to the participants, the use of digital technologies will allow further **standardization** of systems for the management of internal records and thus allow faster access. Finally, the use of **real-time information** is also seen as offering great potential.

Topic 2: Cost reduction and optimization
The topic of cost reduction and optimization was addressed from different perspectives. Participants see the achievement of savings through more efficient, technology-supported processes as a measure to **minimize costs.** Furthermore, the identification of possibilities for **tax optimization** offers the opportunity to achieve cost savings in the operative business. Based on digital technologies, the participants see potential for improved controls and measures for comprehensive risk management. This can **prevent manual errors** in tax and accounting in the future and thus have a positive influence on tax audits. As a concrete opportunity for AI technologies, one participant addresses the use of intelligent techniques for **information recognition** based on existing OCR solutions. The automatic recognition and interpretation of information within documents offers great potential for optimizing routine processes. As a second example, the possible future use of **language technologies** for the input and control of systems in the field of accounting is seen as an opportunity.

What challenges and obstacles do you see for the use of digital technologies?

Topic 1: Acceptance and technical expertise
Regarding the challenges and obstacles that participants see for the use of digital technologies, **lack of acceptance** by people who do not embrace technology is frequently mentioned. Some participants attribute this to unwillingness to use digital technologies, at least for some employees. Even if the general added value of using technologies to support current manual activities is generally recognized, there might still be employees who prefer to do their tasks manually due to the complexity that goes along with the use of technologies. Thus, reducing technical hurdles and training employees in the use of technologies are key to successful implementation. Other participants assume that a **lack of personnel with the necessary IT and tax knowledge** will lead to challenges in the course of the introduction of technologies. Finally, one participant argues for **reducing uncertainties regarding the potentials and areas of application of digital technologies.** Knowing which tasks people will continue to perform in the future and in which areas technology can provide adequate support can help to overcome general acceptance problems.

Topic 2: Country-specific aspects
Similar to the challenges addressed in the field of data digitalization, a comparable image is emerging with regard to the use of digital technologies. On the one hand, **country-specific peculiarities and regulatory requirements** play an important role. If the local tax authorities attach little importance to the consideration of digital documents and data, it is not attractive for companies to examine the potential of digital technologies in their daily work. Therefore, there is a clear mutual influence between these two circumstances.

There is great potential for deploying AI / RPA in the field of VAT.

On the other hand, practices varying from country to country influence the **concrete implementation of technologies** and make it more difficult, for example, to use standard procedures throughout the enterprise. According to another participant's feedback, the lack of proper **change management practices** is also a major obstacle that hinders the use of digital technologies. Finally, high **implementation costs** represent an additional challenge, according to the participants, especially against the background of the country-specific differences discussed.

Overall Evaluation

Cross-Dimensional Relationships

To investigate cross-dimensional relationships between individual aspects of digital maturity, the correlations of the individual questions within the four dimensions Strategy (S1 – S8), Process (P1 – P8), Data (D1 – D8) and Technology (T1 – T8) were calculated.

A high correlation indicates a statistical correlation between two or more characteristics and describes their common occurrence. With regard to the questions of the individual maturity dimensions, a high correlation means that high or low values in the answer to one question are accompanied by correspondingly high or low values of another question. When interpreting the results presented, it should be noted that correlations do not imply causal relationships and require precise interpretation in order to derive concrete recommendations. Nevertheless, they show statistically relevant connections between individual questions and aspects of digital maturity, which point to related topic complexes that, in turn, can help to address the identified challenges.

The following graphic shows the relationships between individual questions through colored connections of different strengths. The thickness of a connection is indicated by the width of the link line.

From Figure 43 it is evident that, within the dimensions, individual maturity items exist that bundle relationships with many other items. A first cluster evolves around the **strategy component** captured by item S1 *("A clearly defined digitalization strategy exists for the client's tax function"). It* shows a series of dependencies on aspects from the Data Dimension (among others D2, D3, D4, D5), which address the structured deposits of tax-relevant information, the consistent use of data formats and the standardized import of data from operational systems. The high importance of a clearly defined digitalization strategy for the tax function once again becomes apparent in this example and shows that companies that achieve high maturity with regard to the Data Dimension also have a corresponding anchoring of this priority in their strategy definition.

A further example exists for item D8, which addresses the **import of tax-relevant data** from operational systems *("Import of tax-relevant data is done via standardized interfaces").* It indicates that companies that have implemented standardized import of such data also achieve higher maturity with regard to process-related aspects such as the recording of process key figures, the support of tax-related processes by IT systems and the integration of internal processes with processes outside the tax department (P3, P4, P5). Furthermore, there are positive correlations to the existing knowledge on the application of digital technologies (T5): taken together, these dependencies show that fundamental knowledge in the handling of technologies is a basic prerequisite for a systematic approach to process-related subjects and the data-related integration of tax processes.

Aspects of **process integration** between accounting systems and ERP systems are addressed in item P5 *("Processes in tax-accounting systems are integrated into ERP systems without manual interfaces")* and correlate with data-related aspects, such as the general availability of tax-relevant data in digital form (D1). Furthermore, positive relationships are evident for the consistent use of data formats (D4) and for structured data storage (D3), as well as for consistent support of data management in IT systems (D6).

Special Characteristics of Selected Types of Taxes

In addition to the four dimensions defined to structure the survey on digital maturity, further features and characteristics were identified to draw a comprehensive picture of digitalization within the tax function. For this purpose, the experts were asked for their assessment of the significance of individual tax types in the course of digitalization.

Some participants assume that digitalization and the subsequent application of Artificial Intelligence will cover all types of taxes, while others clearly differentiate between various scenarios and attribute different potential to specific types of taxes. In general, there seems to be broad agreement on the fact that more data-sensitive taxes are also more likely to be directly affected by the aspects discussed in terms of the chosen dimensions.

According to the experts, indirect taxes are most likely to be handled through the use of AI in the future. However, some of the participants clearly state that it is still too early in the process to estimate which areas will profit most from digitalization in the tax function, as the effects of cross-relations are hard to foresee.

The following paragraphs report on participant feedback on their views on the special characteristics of any type of tax with regard to the dimensions discussed. In particular, implications for VAT, wage tax and transfer pricing were discussed.

Special characteristics of VAT

There is broad agreement among the experts that special conditions apply to VAT-related processes in the context of digitalization.

One special characteristic is that a **large part of the data for VAT is available in IT systems** and there is **extensive standardization and integration** in place. In the future, the experts see further automation potential in the VAT area, for example through **increasing digitalization of invoice information,** which will enable

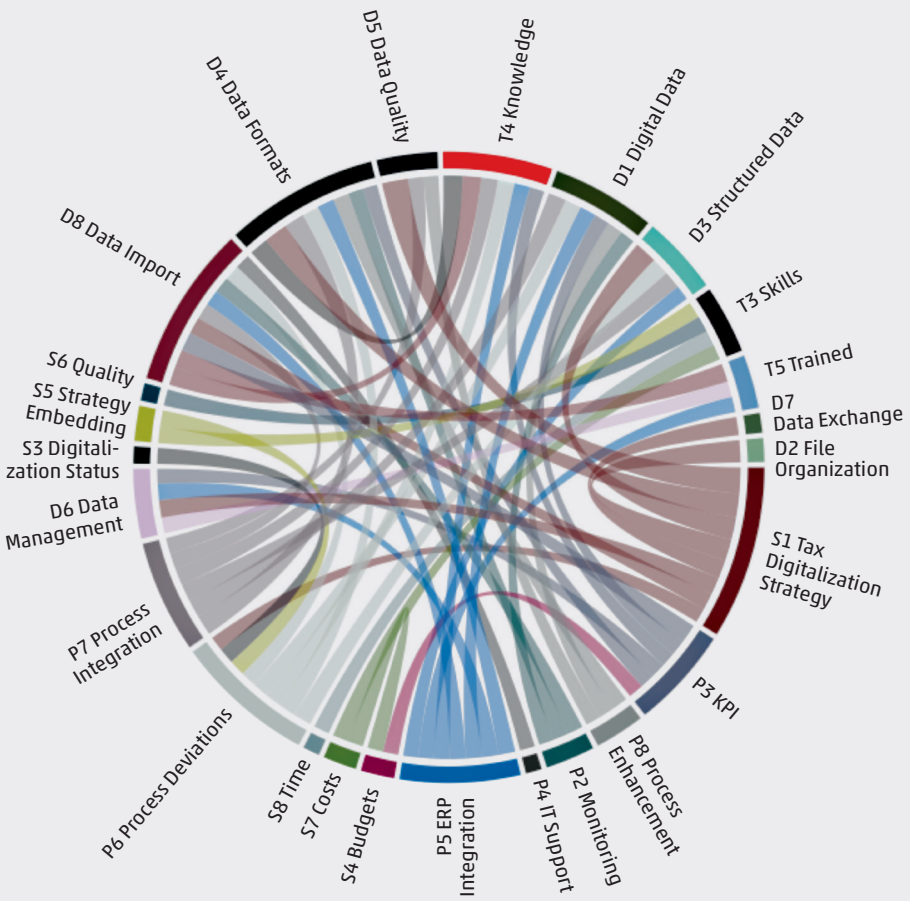
more efficient processing of tax refunds. Standardized interfaces have already led to approaches for **filing electronic tax returns,** for example in China and Korea, which greatly reduce the need for manual intervention by human experts.

With regard to country-specific requirements, the standardization of VAT processes can also lead to **increased expenditure for adaptation and harmonization,** as adjustments have to be made to the associated IT systems. Brazil is mentioned as an example where complexity arises due to an extraordinary amount of tax litigation between 27 different legislations.

According to the experts, **tax compliance for VAT processes** seems to be much easier to automate in comparison with other tax types due to the **very high level of standardization** already achieved and the comprehensive system support of relevant processes.

From a technical perspective, VAT offers a wide range of possibilities for the application of AI technologies due to the **availability of large amounts of data.** Some experts see great potential in the use of **fraud detection methods,** which can be trained on millions of existing data sets. A database of comparable size is generally not available for other tax types. However, compliance aspects and tax consulting are not seen as major areas of application in this context, but rather activities in relation to tax audit.

Figure 43. Correlations between maturity items (only correlations with a strength > 0.5 are shown)



Special characteristics of wage tax
Similar to the VAT area, the experts see great potential for efficiency increases and automation for wage tax in the context of digitalization.

These assessments are based mostly on the same arguments as for VAT: the related processes involve mass tax data and are already largely supported by IT systems, so they are subject to a relatively **high degree of standardization.** With regard to the application of AI methods, the available data basis offers a good starting point for the **training of machine learning methods** for the detection of wrong or fraudulent transactions. According to some experts, wage tax processes in the future might be **completely automated** without a need for any manual intervention. However, the participants are largely in agreement that the implementation of compliance requirements requires increased effort for wage tax processes as compared with VAT.

Special characteristics of transfer pricing
According to the experts, the digitalization potentials differ not only according to the type of tax but also according to the type of activities to be supported. In the area of transfer pricing, for example, there are no clearly defined rules, but the calculation demands the exercise of judgement by both the tax administration and taxpayer. In these scenarios, the experts assume, digital technologies and AI will mainly be used for **gathering and processing data,** while the **interpretation and utilization of insights** will then be done by human tax experts.

The same principle would apply to all tax cases in which exercise of judgement and the assessment of facts without corresponding examples from the past is crucial.

Table 2. Legend for correlations between maturity items

		Description			Description
S1	*Tax Digitalization Strategy*	*A clearly defined strategy exists for the client's tax function*	P1	*Standardization*	*Business processes within the client's tax department are standardized*
S2	*Digitalization Goals*	*Clear and measurable goals are linked to the digitalization strategy*	P2	*Monitoring*	*The execution of business processes in the client's tax department is systematically monitored*
S3	*Digitalization Status*	*The status of implementation of the digitalization strategy is systematically measured*	P3	*KPI*	*Process-related key figures are systematically recorded*
S4	*Budgets*	*Dedicated budgets are available for the implementation of the digitalization strategy*	P4	*IT Support*	*The execution of business processes in the client's tax department is completely supported by IT systems*
S5	*Strategy Embedding*	*The digitalization strategy is clearly embedded in the client's overall corporate strategy*	P5	*ERP Integration*	*Processes in tax-accounting systems are integrated into ERP systems without manual interfaces*
S6	*Quality*	*The digitalization strategy pursues the goal of increasing the quality of processes*	P6	*Process Deviations*	*Deviations from planned process behavior can be detected at an early stage*
S7	*Costs*	*The digitalization strategy pursues the goal of reducing costs*	P7	*Process Integration*	*Business processes within the client's tax department are integrated with processes in other company divisions*
S8	*Time*	*The digitalization strategy pursues the goal of saving time*	P8	*Process Enhancement*	*Results from data analyses are used to improve processes*
D1	*Digital Data*	*All tax-relevant data is available in digital and editable form*	T1	*Potential*	*Digital technologies have the potential to fundamentally improve the client's tax-related activities*
D2	*File Organization*	*Tax-relevant data is managed in files within a folder structure*	T2	*Threat*	*The client sees digital technologies as a threat*
D3	*Structured Data*	*Tax-relevant data is available in structured form*	T3	*Skills*	*The client considers digital technologies and skills in dealing with them very important*
D4	*Data Formats*	*Tax-relevant data formats are used consistently and uniformly*	T4	*Knowledge*	*The client's employees have the necessary knowledge and skills to use digital technologies in the tax function*
D5	*Data Quality*	*The data quality can be described as very good*	T5	*Trained*	*The client's employees are trained in the use of digital technologies in the tax function*
D6	*Data Management*	*Tax-relevant data is managed consistently in IT systems*	T6	*Training Needs*	*The client's employees need training in the use of digital technology in the tax function*
D7	*Data Exchange*	*Data exchange with external parties is done via standardized interfaces*	T7	*Willingness*	*The client's employees are willing to use digital technologies within the tax function*
D8	*Data Import*	*Import of tax-relevant data is done via standardized interfaces*	T8	*AI Usage*	*Technologies from the field of Artificial Intelligence are used by the client*

5 Vision for the Tax Function of the Future

The ongoing digitalization of the tax function will have a decisive influence on the design of processes within tax departments and lead to far-reaching changes that cannot yet be assessed in their entirety today. To draw up a first vision of the tax function of the future in the context of the study, impressions of the participants were collected taking into account the global perspective of different countries.

For this purpose, the participants were first asked to reflect on the current situation of their client's tax department and then to describe the future changes that they believe will be significant as digitalization progresses. By focusing on the chosen client, participants will be able to make a realistic assessment of future changes more easily.

Subsequently, the participants were asked to describe their vision of tax consulting in the future. At this point, the focus on individual clients is expressly irrelevant.

From the feedback on both perspectives, trends were identified that are presented below as focus topics. In addition, the results of an interview with Fritz Esterer (Chairman of the Board, WTS Group AG) on "The Future of Tax Consulting" will be presented.

A Global Perspective on the Tax Department of the Future

The following focus topics were identified by asking the participants to imagine their client's tax department in 10 years and report their ideas, taking into account the aspects discussed within the dimensions. Furthermore, the participants were asked to formulate their ideas on how to change the tax consultancy of the future as a whole.

How do you think the client's tax department will look in 10 years?

Topic 1: Technology-enhanced processes
According to the majority of participants, the processes of the in-house tax departments will fundamentally change. It is **assumed that the key processes will be fully digitalized and optimized** by taking advantage of digitalization and AI. Thus, the tax processes will be **standardized and therefore harmonized** among the entire group. However, the feedback shows a belief that the tax departments will become more efficient and more productive and further lower costs. The feedback also shows that the experts expect a **better overview of all relevant data and less effort for low-level tasks.** In relation to that, the tax departments will be manned by a lower headcount and highly reliant on automated data compilation.

On the other hand, some respondents forecast no fundamental change in the tax departments, due to the sizes of companies as well as the low efficiency gains through digitalization for non-complex taxation. Further, the participants attest a **high dependency** of the degree of digitalization within the tax process on implementation by the authorities. For instance, Venezuela is considered to be an example of a slow catch-up process in digitalized taxation processes, because the tax departments are not expected to fundamentally change.

AI used by tax administrators and consequences.

Authorities will sit on real-time data and tools will facilitate data mining and real-time data reports.

They will find mistakes and you might be faced with situations where your tax administration is faster on the ball than your own organization if you are not optimally structured.

Eventually real-time audits will happen.

And they will be able to share information across borders.

If you are slower than your own tax administration, you will end up in trouble.

Companies might have a difficult time if they are not optimally prepared for this new trend. And it is coming and you'd better be prepared.

Wim Wuyts,
CEO of WTS Global

Vision

Topic 2: Personnel and organization
The respondents state that there are younger generations of tax experts upcoming in the future, which is why the challenges due to acceptance of digitalization by the staff will fall away. The feedback shows that **less personnel will be required for low-level tasks** and that it is **assumed that there will be a shift in the personnel structure** of the tax departments. Fewer employees will work on operational tasks but will shift more and more toward control and compliance duties. In contrast, one participant named Germany as an example of constant high aversion to digitalization in tax processes, which is why acceptance does not appear to be equally evident for all examined countries. The organizational structure is forecast to focus more on risk management tasks and supervision of automated processes, which in turn requires more IT-related staff. The tax department will be composed of tax and IT members due to the complexity of taxes and the electronic nature of ancillary tax obligations.

Topic 3: Data
Changes in data handling is another aspect the participants mention. One major challenge that tax departments will face is **data processing,** since the availability of digital tax-relevant data is expected to increase. On the one hand, data will be up-to-date through digitalization, IT systems can process data automatically and a better overview of tax data can be achieved. On the other hand, the expansion of data also leads to more irrelevant data, which needs to be isolated and selected carefully. Another key aspect of the tax vision is the **digital filing of the data with the authorities,** which participants assume will be simplified and more efficient in the future. Some participants assume that tax authorities will have direct access to tax-relevant company data in the future. Such **transparency** would eliminate the need for tax inspections in these scenarios.

What is your vision of the tax consultancy of the future? Where do you think there will be changes?

Topic 1: Data
According to the participants' opinions, data is one of the key changes of future tax consultancy. In contrast to current tax consultancy work, they assume that **data gathering and preparation** will be automated, eliminating a large number of manual tasks in this area. However, with the increasing amount of digital data, skills to interpret and analyze the data and use it in specific cases will be crucial. Along with the changes in data management, some participants see simplified data access and search engines as a key driver for saving time, since previous and similar cases can be retrieved more efficiently. On the other hand, some respondents either forecast **no significant changes** or also fear challenges generated by massive and complex data structures.

Topic 2: Intelligent automation
According to the interviewed experts, tax consulting in the future will be heavily reliant and interdependent on technology. **Automation in relation to AI** is one major aspect that will change the daily work of tax consultancies. Especially in the field of VAT, automation is considered a major opportunity to deal with mass transactions and to shift the focus of consulting to more complex tasks, such as tax planning. Solutions for low-level tax consulting are expected to be provided by **online platforms** that allow tax payers to communicate basic information without any intermediary. Professional tax consulting will thus shift toward non-standard and complex problems. **Compliance** is assumed to be another field that will be heavily automated and not require consultancy in its current form.

Topic 3: Shift in consulting focus
According to the interviewees, the focus of tax consulting will drastically change toward ***high-value consulting.*** This includes a shift toward international transaction consulting (for instance in the context of foreign direct investments) or complex tax problems regarding the application of heterogeneous tax practices in different countries. Presently, the participants see great effort being required to deal with different tax laws depending on the countries or specific regions selected. In this context, the efficiency gains that can be realized through digitalization and AI can enable a stronger focus on aspects of a **global tax strategy.**

Simplified access to clients' data and less preparatory work in data gathering might also allow tax consultants to focus more on **personal relations** with executives or stakeholders and thus on more strategic aspects of consulting, such as tax planning, analysis and minimization.

The Future of Tax Consulting

An Interview with Fritz Esterer, Chairman WTS Global

› **How much do you think the work of tax consultants will change using AI?**
Fritz Esterer: This question is not easy to answer as the work of tax advisors varies from country to country. For example, tax advisors in France and Italy are more like tax lawyers who resolve specific tax problems and answer legal queries.

Their work will change significantly because they will be able to use AI and legal tech to carry out automated research activities for decision preparation and thus focus mainly on consulting. In the case-law-based legal area of Australia, for example, a tax consultant developed an AI system called Ailira, which prepares statements and decisions by using an extensive case database.

In Germany, the tax consultant prepares tax returns for their clients and is the one who fulfils the reporting obligations. In addition, he also advises clients in tax law matters. On the other hand, the tax consultant in Brazil and all other Latin American countries is more of a tax accountant who mainly prepares tax returns.

› **In other words, the jobs are not eliminated, but the tax consultant can focus on other things and becomes more of a consultant?**
Definitely. This means, for example, that a German tax advisor will return to carrying out consultation services and be less involved in completing returns. In other countries, legal tech will certainly change the role of the tax advisor. I will even venture to predict that, in countries where there are very comprehensive tax laws and where a case law system is used (such as the USA, Australia and Canada), the need for tax lawyers for simple preparatory activities will be reduced.

› **What expectations do you have regarding the use of AI?**
The value of AI and the two main benefits are that, on the one hand, more compliance security is gained. This can significantly reduce liability risks for corporate management. This applies, in particular, to tax areas such as VAT, corporate customs and transfer pricing, where mass data is processed, and where AI even performs the most common duties, which could potentially carry a high risk. On the other hand, AI makes it possible to prepare business decisions much better as more data can be processed in a way that humans could simply not replicate.

Another important aspect is the ability to connect all reporting obligations to the financial authorities. Every year, companies have to report dozens of topics to the tax authorities. In some cases, this may include items that are related to one another because they are generated from the same data. Some examples are the construction withholding tax, Intrastat reporting, declarations of permanent establishments and wage tax. Connecting the various reporting requirements can save companies a considerable amount of money. On top of this, it is also possible to make declarations even more consistent.

› **Could it even be possible that tax authorities are granted permanent access to data?**
That completely depends on how willing various country tax authorities are to communicate with companies in a completely new way.

The desired aim would be for tax authorities and taxpayers to interact via an ongoing data exchange in real time, which in turn would give companies a certain degree of assurance. Undoubtedly, this means we would have transparent taxpayers, but in my opinion, this will come with the digitalization process. Every company needs to be aware of this.

› **In which tax areas do you see the greatest short-term potential in the use of AI technologies?**
There is definitely potential where vast quantities of data are involved, such as corporate customs, VAT and transfer pricing. Here, anomaly detection and Process Mining methods can be applied. AI can also be very effective with all types of tax deductions. On the one hand, I see less potential for income taxes, at least in the short term, because the amount of data available is too low. If this is the case, then it will only work with withholding taxes in selected cases.

In the short term, AI can help in terms of error analysis, compliance security and cost reduction. For example, in corporate customs, it is particularly important to analyze deviations from certain rules stipulated in free trade agreements or in corporate customs tariff databases. Regarding VAT, the main focus is on automatic checks of the monthly provisional returns. For these cases, appropriate AI solutions can be implemented very quickly in companies.

› **What are currently the biggest obstacles and practical limitations for the use of AI technologies in the tax area?**
On the one hand, there are objective topics, such as the lack of data availability. On the other hand, there are also subjec-

Fritz Esterer, Chairman WTS Global

tive aspects, such as a lack of willingness to deal with AI that plays a role. Since AI in taxation is still new territory for many companies and no extensive track records are available so far, there must also be a bit of pioneering spirit with the companies concerned. Not to forget the cost aspect, which is often a limiting factor. AI is not available "for free".

Companies have often made more progress with AI in other departments. One typical area of application is the supply chain, for example, where there has been much investment in AI. This also applies to theaccounting and controlling department. However, only a few companies have so far used AI resources on the topic of taxation. A corresponding necessity has not yet reached the awareness of the decision-makers, nor has the awareness of the fact that knowledge transfer in companies is necessary because what has already been developed for the supply chain can possibly even be used for the tax area.

› **This means that the tax function must not be viewed in isolation within a company to have the possibility of using AI?**

Tax functions must be increasingly integrated into general business processes. Once companies have achieved this step of consciousness, it will be much easier to deploy AI solutions in the tax area. For example, everyone should be aware that there is a closed-loop process in accounting for tax returns. The data is pulled from the accounting department, the provisions are calculated and finally, the tax return is prepared.

› **What are the preconditions that need to be met to implement AI in the tax area?**

In order for companies to become AI-ready, preparatory work is absolutely essential. This means that data must be prepared and structured, and processes must be standardized. Only then can the use of AI be successful. Above all, the tax functions themselves are required to create this precondition. However, this also requires resources and corresponding know-how.

Going forward, tax advisors need to think much more in terms of processes – but they are not generally trained to consider tax in this way. This is a major shortcoming and that is why there is a huge demand for tax advisors who are proficient in IT. As a result, there is high demand for relevant training opportunities and further study, or for training in AI, in general. A new type of job will, undoubtedly, be created – the digital tax advisor. This is, therefore, the fourth core activity at WTS that we are also focusing on.

› **If we now think about the implementation, what do you think a successful introduction of AI could look like?**

As already mentioned, the first task is to capture all global control processes and then standardize them. Here, companies that have already introduced an internal control system (ICS) for taxation have a clear advantage. Within this framework, they have already defined control processes and controls, as well as, if necessary, adapted the organization. Basically, it is very complex to create the necessary data availability for AI solutions. Companies should know exactly what data they need for which AI application. Once this requirement is met, the data must finally be collected in a so-called tax data lake and structured using data analytics and business intelligence so that it can then be used for AI analysis, so that the analyses can subsequently be interpreted into AI methods.

I think it is important to avoid making the mistake of just focusing on AI as it is an important component of digitalization. For the digitalization of tax functions, AI methods are used where it is appropriate.

Overview

Based on the results of the survey and the experts' insights into the opportunities and challenges of digitalization in the tax area, a holistic maturity model was developed. The aim of the model is to provide a structured framework for describing the as-is situation of a company's tax department with regard to its digital maturity level. The current maturity level of a company represents its specific capabilities in relation to different aspects of digitalization, which are reflected within the four dimensions *Strategy*, *Process*, *Data* and *Technology* that underlie this study. Against this background, on the one hand, the systematic classification on the basis of the maturity level allows a differentiated consideration of distinct components of a holistic digitalization initiative. On the other hand, it represents a benchmark for the future development and improvement of maturity.

In the following sections, the general model structure is explained, and the components of the model are presented subsequently. Then capabilities are described for each dimension and serve as criteria for the definition of individual maturity levels.

Description

The developed model supports a maturity-based approach and is generally composed of three components that act as structuring elements. Determining individual **levels of maturity** aims at defining different development stages for the digitalization of tax departments. These accompany the process from the establishment of initial basic requirements to the complete transformation and becoming a digital leader. The positioning within the individual levels is differentiated according to the four **dimensions** *Strategy*, *Process*, *Data* and *Technology* used as a general structure in the present study. They describe different design fields for the digitalization of tax departments and enable a comprehensive consideration of relevant digitalization aspects. At the detailed level, **capabilities** are defined for each dimension and serve as criteria for the investigation and evaluation of action-guiding principles.

Figure 44 depicts the relationships between the components of the maturity model in graphical form.

Building on this generic structure, individual components are described in the following paragraphs.

Maturity Levels

The maturity model presented comprises a total of five levels that describe a consecutive path in the development of capabilities to achieve digital maturity. The following description focuses on the basic concept of individual levels before the manifestation of the defined capabilities per level is subsequently illustrated.

- **Initial:** The starting point for the development path to the highest level of maturity and digital leadership describes digitalization capabilities within the tax department that are only rudimentarily pronounced from both a technical and a strategic perspective. Technical prerequisites are hardly given and are accompanied by a lack of organizational orientation.
- **Developed:** The second level of digitalization maturity comprises the fundamental requirement to use information technology as the basic enabler for digitalization within the tax department. However, IT is used at most only in isolated form and for individual processes; a comprehensive concept and strategic alignment for digitalization does not exist.

Tax Maturity Model

Figure 44. Tax Maturity Model structure comprising maturity levels, dimensions and capabilities

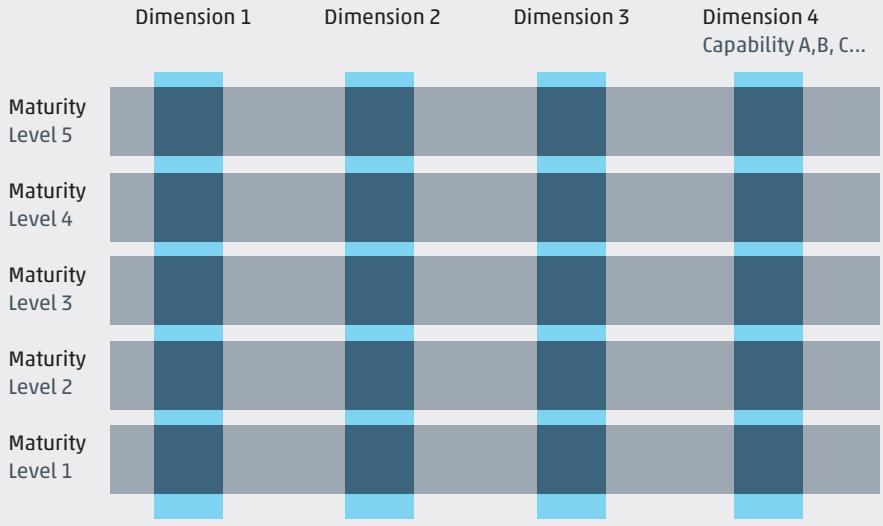
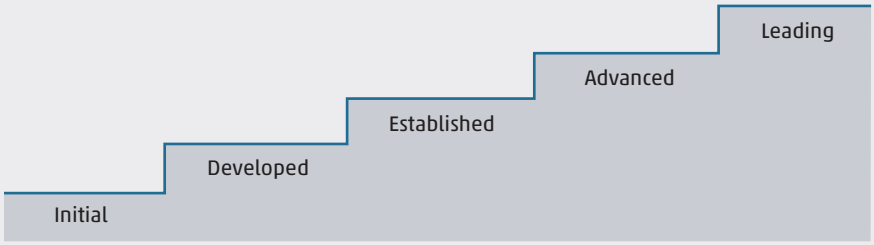


Figure 45. Digital maturity levels



- **Established:** At the third level of digitalization maturity, fundamental concepts for networking and integration with regard to processes and data exist. There are initial approaches to consider isolated IT solutions from a more comprehensive perspective, but such approaches are not yet well developed and are not institutionalized from a strategic perspective.

- **Advanced:** At this level, there are organizational prerequisites for the objective-oriented development of digitalization concepts. The use of technology and the organization of processes and data are embedded in general concepts to support a defined objective. The alignment of digitalization projects is accompanied by corresponding specifications and control mechanisms.

- **Leading:** The highest level within the maturity levels corresponds to the role of a digital leader. At this level, technical capabilities are systematically and continuously developed in line with the strategic orientation of the tax department. The processes and communication channels of the tax department are integrated into other areas of the company.

Dimensions

Based on the structuring dimensions used in the WTS Global survey of participants, the maturity model also comprises a total of four dimensions. These summarize various criteria from the areas of *Strategy, Process, Data* and *Technology*. In the following, the contents of the respective dimensions are detailed.

Strategy

The *Strategy* dimension comprises strategic aspects of digitalization within a company's tax department. To assess the digital maturity of a tax department, it is important to understand the strategic orientation with regard to its digitalization. This includes aspects of strategy definition and its integration into the general strategic orientation of the tax department. In general, the fundamental digitalization goals must be harmonized with the objectives of the entire company. At the same time, these objectives must also be analyzed and examined in greater detail with the resulting implications for the tax department so that coordination on both sides can be achieved. In this context, the question arises, for example, of how individual national strategic initiatives are to be consolidated from a tax perspective. These strategic questions also have technical implications, e.g. regarding the integration of ERP systems of various operating units or the implementation of unified tax accounting. Other areas of design include organizational frameworks for the implementation of the tax digitalization strategy, as well as the definition and monitoring of specific strategic goals.

Process

Within the *Process Di*mension aspects concerning the management of business processes are addressed. In assessing the maturity of tax-related processes, the implementation of concepts for business process management is examined, as is the use of approaches for automating repetitive tasks and for the systematic monitoring of process execution. In order to track and trace the execution of processes, tax-relevant processes must be enabled and supported using appropriate tax information systems. Therefore, these processes must be defined, systematically planned and monitored by appropriate performance indicators. With regard to process integration and interfaces, two basic types of tax processes can be distinguished. First, processes that are executed primarily within the tax department and are processed by it, e.g. the tax declaration. Second, processes that are executed outside of the tax department but have tax-related implications for internal processes. Import or export transactions might, for example, have implications for VAT.

Data

The *Data* Dimension contains aspects concerning the management and use of tax-related data within a company's tax department. To assess digital data maturity, it is important to understand how data is managed in terms of storage, structuring and data formats.

Data on taxation is of fundamental importance and generally can be systematized in different technical and functional ways that determine further processing and usage. At the highest level, data can be distinguished according to its volume. On the one hand, transaction data can be available in large quantities, as they are relevant, for example, in the context of VAT and corporate customs processes. On the other hand, data can be considered on a small scale, such as in the context of income tax returns for employees in the company. Depending on the structure of the data, varying forms of unstructured information in texts and documents up to strongly structured information in databases can be distinguished. With regard to the exchange of data with external parties or the import of data from tax-related pre-processes, aspects of data quality are highly relevant in addition to appropriate interfaces for consistent data transfer (completeness, consistency, problems, master data issues).

Technology

The *Technology* Dimension covers the application and usage of technologies within the tax department. Digital technologies such as information and communication technologies, as well as techniques from the field of Artificial Intelligence, are driving innovations in the tax function. Nevertheless, it can be assumed that not all techniques are used, but selected techniques are suitable for specific problems. Based on relevant basic techniques, more complex application systems for tax-related tasks can be implemented. Commonly, such applications initially arise for selected subtasks as isolated stand-alone solutions. It must be considered that both an integration of the individual tools for tax-related tasks and an integration into existing standard operational applications are relevant. For this reason, aspects of knowledge availability and acceptance on the employee side within the tax function are also examined within this dimension. Only appropriately trained experts can fully exploit the potential of digital technologies, which is why these points are addressed in detail.

Capabilities

The last constituent element of the maturity model are capabilities for the digitalization of the tax function. Capabilities are assigned to the previously introduced maturity dimensions and describe those aspects and criteria that are used for the assessment of digital maturity and a positioning within the defined maturity levels. Table 3 shows an overview of the defined capabilities and their classification into the four selected dimensions.

Table 3. Overview of capabilities with the dimension of the Digital Tax Maturity Model

Dimension	Capability	Description
Strategy	Definition of a digitalization strategy	The digitalization strategy of the tax department is clearly defined and describes explicit objectives that are measurable and operationalized.
	Measurement of attainment of objectives	Measurable objectives are explicated and linked to the digitalization strategy. The attainment of objectives is systematically monitored.
	Availability of budgets	Dedicated budgets are available and sufficient to achieve the defined objectives.
	Embedding in corporate strategy	The digitalization strategy is embedded and coordinated with the overall objectives of the corporate strategy.
Process	Standardization	The execution of business processes is defined, repeatable and standardized according to clearly understood requirements.
	Monitoring of process execution	IT support allows the execution of business processes to be monitored and tracked based on recorded data.
	Integration of processes	Tax-relevant processes are integrated into upstream processes outside the tax department without manual interfaces.
	Detection of process deviations	Deviations from planned process behavior can be detected at an early stage by monitoring relevant key figures during the IT-supported execution.
Data	Availability of data	All tax-relevant data is available in the tax department in digital form and is accessible from IT systems through automated processing.
	Consistent use of data structures	Tax-relevant data is structurally well defined, resides in standardized formats and is consistently linked across all IT systems involved.
	Data quality	Data quality meets high standards in terms of completeness, consistency and up-to-date status.
	Data exchange	Exchange of tax-relevant data, such as data import and filing of tax returns, is done via standardized interfaces.
Technology	Knowledge and expertise	Necessary knowledge and skills in dealing with and implementing digital technologies within the tax department are available.
	Employee readiness	Employees of the tax department are open and willing to use digital technologies.
	AI capabilities	The necessary knowledge for the use of Artificial Intelligence technologies within the tax department is available and can be applied in operational processes.
	IT alignment	Digital technologies are integrated within the overall IT infrastructure and embodied in operational processes.

The digital maturity of a tax department is determined using the previously defined structural elements. For this purpose, the maturity within each dimension is determined on the basis of the respective capabilities and then combined within the overall analysis. The resulting maturity allows a classification according to a level of the defined maturity scale. Based on this, a systematic development of the maturity for digitalization can be realized on the basis of the objectives envisaged by the tax department.

Figure 46 summarizes the structure of the Digital Tax Maturity Model in graphical form.

Regarding the individual manifestation of individual skills per dimension, the following overview shows which requirements are defined by the maturity model to achieve the individual levels. For this purpose, exemplary characteristics are described per capability and level.

Figure 46. Graphical representation of the structure of the Digital Tax Maturity Model

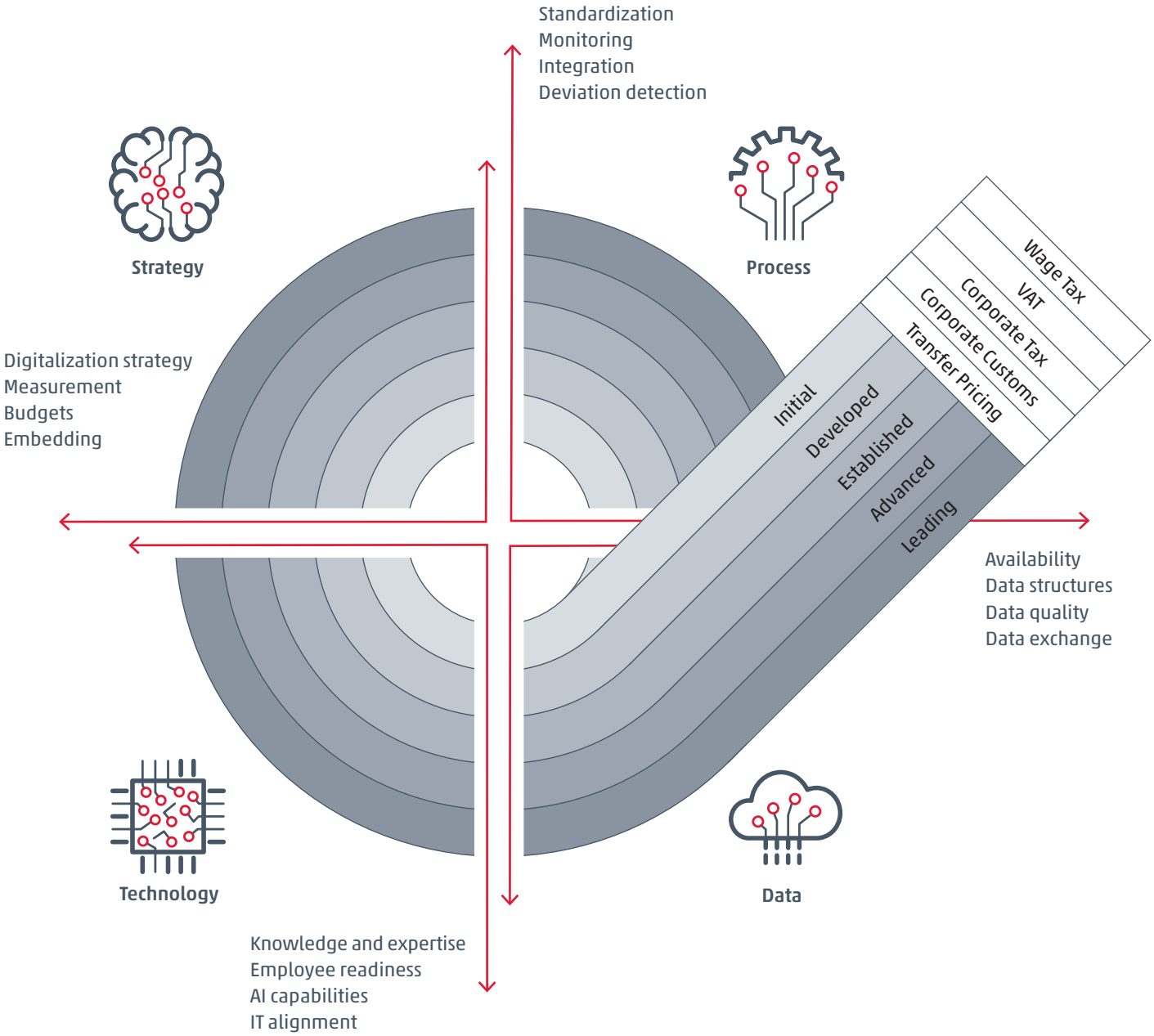


Table 4. Manifestation of capabilities and classification according to maturity levels

Phase	Dimension	Capabilities	Manifestation of capabilities
Initial	Strategy 	Definition of a digitalization strategy	There is no digitalization strategy defined for the tax function.
		Measurement of attainment of objectives	There is no systematic measurement of attainment of goals.
		Availability of budgets	Dedicated budgets are not available for the tax digitalization strategy.
		Embedding in corporate strategy	The tax digitalization strategy is not coordinated with the corporate strategy.
	Process 	Standardization	Tax processes are not defined, documented or standardized.
		Monitoring of process execution	There is no systematic monitoring for tax-relevant processes.
		Integration of processes	Tax-relevant processes are not integrated into processes outside of the tax department.
		Detection of process deviations	Deviations from planned process behavior cannot be detected; there is no systematic IT support to enable systematic recording of relevant process key figures.
	Data 	Availability of data	Not all tax-relevant data is available in digital form.
		Consistent use of data structures	Data structures for tax-relevant data are not used consistently and are scattered in various formats across different IT systems.
		Data quality	Standards for data quality are not defined and quality varies greatly among different data sources.
		Data exchange	There are no standardized interfaces for the exchange of tax-relevant data.
	Technology 	Knowledge and expertise	Necessary knowledge and skills in dealing with and implementing digital technologies within the tax department are not available.
		Employee readiness	Few employees of the tax department are open and willing to use digital technologies and in general there are major reservations.
		AI capabilities	Necessary knowledge for the use of Artificial Intelligence technologies and awareness of their potentials within the tax department is not available.
		IT alignment	Digital technologies are not integrated within the overall IT infrastructure and not embodied in operational processes but exist only as isolated solutions.

Phase	Dimension	Capabilities	Manifestation of capabilities
Developed	Strategy 	Definition of a digitalization strategy	A basic strategy for the tax function exists, but there are no clear objectives linked to it; systematic further development does not take place.
		Measurement of attainment of objectives	There are basic instruments to measure the achievement of objectives, but processes are not formalized.
		Availability of budgets	Dedicated budgets are available for isolated digitalization projects but are not sufficient for systematic strategic alignment.
		Embedding in corporate strategy	The tax digitalization strategy is partly coordinated and embedded in the corporate strategy, but there is no continuous coordination.
	Process 	Standardization	Informal documentation of tax-related processes exists; few processes are standardized at the department level.
		Monitoring of process execution	Basic approaches exist for monitoring the execution of selected tax-related processes.
		Integration of processes	Tax-relevant processes are partly integrated into processes outside of the tax department by manual interfaces.
		Detection of process deviations	Deviations from planned process behavior cannot be detected, but basic IT support enables a systematic recording of selected process key figures.
	Data 	Availability of data	Tax-relevant data is available in digital form but exists in different formats and is not consistently structured (e.g. images).
		Consistent use of data structures	There are initial approaches to using standardized data structures, but they are not uniformly implemented.
		Data quality	Standards for data quality are partly defined but quality varies greatly between different data sources.
		Data exchange	For individual tax processes, interactions with upstream and downstream processes outside the tax department are known but data interfaces are not documented, and data exchange is done manually without standardized interfaces.
	Technology 	Knowledge and expertise	Basic knowledge and skills in dealing with and implementing digital technologies within the tax department are available but are insufficient for daily operations.
		Employee readiness	Employees of the tax department are open and willing to use digital technologies, but some minor reservations remain.
		AI capabilities	Necessary knowledge for the use of Artificial Intelligence technologies within the tax department is not available, but a basic awareness of their potentials does exist to some extent.
		IT alignment	Digital technologies are not integrated within the overall IT infrastructure and are not embodied in operational processes; basic concepts for integration are available.

Phase	Dimension	Capabilities	Manifestation of capabilities
Established	Strategy	Definition of a digitalization strategy	A basic strategy exists for the tax function and is partly linked to objectives; further development takes place at irregular intervals.
		Measurement of attainment of objectives	Instruments to measure the achievement of objectives are largely formalized by standardized processes and are applied regularly.
		Availability of budgets	Dedicated budgets are available for isolated digitalization projects but are not sufficient for comprehensive approaches and systematic strategic development.
		Embedding in corporate strategy	The tax digitalization strategy is partly coordinated and embedded in the corporate strategy; basic concepts for continuous coordination have been implemented.
	Process	Standardization	All tax-relevant processes are documented, and a formal modeling convention is partially used; the majority of processes are standardized at the department level according to clearly understood requirements.
		Monitoring of process execution	Basic approaches exist for monitoring the execution of most tax-related processes; systematic evaluations of historical execution are not conducted.
		Integration of processes	Tax-relevant processes are for the most part integrated into processes outside of the tax department by standardized but mainly manual interfaces.
		Detection of process deviations	For predefined situations, deviations from planned process behavior can partly be detected; recording of selected process key figures is implemented for most processes.
	Data	Availability of data	Tax-relevant data is available in digital form and is maintained in uniform formats; further data integration does not exist.
		Consistent use of data structures	Data structures are mainly standardized and consistently implemented for selected data sources, but different sources have different structures.
		Data quality	Standards for data quality are consistently defined but quality varies between different data sources.
		Data exchange	Interactions with processes outside the tax department are documented and mostly standardized; data interfaces are known and inputs and outputs are standardized.
	Technology	Knowledge and expertise	Basic knowledge and skills in dealing with and implementing digital technologies within the tax department are available and largely sufficient for daily operations; systematic further qualification of employees is not carried out.
		Employee readiness	Employees of the tax department are open and willing to use digital technologies.
		AI capabilities	Basic awareness of the potential and initial knowledge in the use of Artificial Intelligence technologies within the tax department is partly available.
		IT alignment	Digital technologies are partially integrated within the overall IT infrastructure and embodied in operational processes; concepts for integration are available.

Phase	Dimension	Capabilities	Manifestation of capabilities
Advanced	Strategy 	Definition of a digitalization strategy	A digitalization strategy for the tax function is in place and linked to clear objectives; further development and adaptation take place at regular intervals.
		Measurement of attainment of objectives	The achievement of objectives is measured comprehensively and continuously using standardized processes; changes are anticipated if necessary.
		Availability of budgets	Dedicated budgets are available for digitalization projects and for basic approaches to systematic strategic development.
		Embedding in corporate strategy	The tax digitalization strategy is coordinated and embedded in the corporate strategy for the most part; continuous coordination is carried out on an informal basis.
	Process 	Standardization	All tax-relevant processes are documented and formally defined in a uniform modelling convention; standardization is established at the company level, but there is no continuous development of the process documentation.
		Monitoring of process execution	Approaches exist for monitoring the execution of all relevant tax-related processes; fundamental evaluations of historical execution are conducted based on recorded data.
		Integration of processes	Interfaces to integrate tax-relevant processes into processes outside of the tax department are standardized and in part automated.
		Detection of process deviations	Deviations from planned process behavior, such as unknown anomalies, can sometimes be detected; recording of selected process key figures is implemented for relevant processes.
	Data 	Availability of data	Data from different sources is partially integrated and is completely available in digital form; systematic data processing is not consistently possible.
		Consistent use of data structures	Data structures are standardized and consistently implemented for selected data sources; some harmonization of structures between different data sources exists.
		Data quality	Standards for data quality are consistently defined and quality is harmonized between different data sources.
		Data exchange	Data interfaces and interactions with upstream and downstream processes are documented and standardized; data exchange is documented but not automated.
	Technology 	Knowledge and expertise	Necessary knowledge and skills in dealing with and implementing digital technologies within the tax department are available and sufficient for daily operations; employees are systematically further qualified through training.
		Employee readiness	Employees of the tax department are open and willing to use digital technologies; the exchange of knowledge among each other is actively promoted.
		AI capabilities	Sound awareness of the potentials and basic knowledge in the use of Artificial Intelligence technologies within the tax department is available but is not applied in operational processes.
		IT alignment	Digital technologies are integrated within the overall IT infrastructure and embodied in operational processes.

6 The Digital Tax Maturity Model

Phase	Dimension	Capabilities	Manifestation of capabilities
Leading	Strategy	Definition of a digitalization strategy	A digitalization strategy for the tax function is defined and linked to clear objectives; the strategy is continuously being further developed and reviewed.
		Measurement of attainment of objectives	Comprehensive instruments exist to measure the achievement of objectives through standardized processes; changes are anticipated systematically and at regular intervals.
		Availability of budgets	Dedicated budgets are available for digitalization projects and are sufficient for comprehensive approaches and systematic strategic developments.
		Embedding in corporate strategy	The tax digitalization strategy is coordinated and embedded in the corporate strategy and continuous development is guided by standardized processes.
	Process	Standardization	All tax-relevant processes are consistently documented with a formal modeling convention and are standardized at the company level; continuous measures are defined for the development of the documentation.
		Monitoring of process execution	Approaches for monitoring process execution are implemented for all relevant tax-related processes; evaluations of historical execution are continuously conducted based on recorded data.
		Integration of processes	Interfaces to integrate tax-relevant processes into processes outside of the tax department are standardized and automated without manual intervention.
		Detection of process deviations	Deviations from planned process behavior, such as unknown anomalies, can be detected by automated means; recording of key process-related figures is implemented for all tax-relevant processes.
	Data	Availability of data	All tax-relevant data is available in digital form and can be used for systematic processing; different data sources are uniformly integrated and accessible.
		Consistent use of data structures	Data structures are standardized and consistently implemented for all relevant data sources; structures between different data sources are harmonized.
		Data quality	Data quality meets high standards in terms of completeness, consistency and up-to-date status and is harmonized between different data sources.
		Data exchange	Tax-related processes are digitally integrated end-to-end with processes in other company areas; data is automatically transferred via defined interfaces.
	Technology	Knowledge and expertise	Necessary knowledge and skills in dealing with and implementing digital technologies within the tax department are available and actively used in daily operations; employees are systematically further qualified through training and mutual exchanges of experience.
		Employee readiness	Employees of the tax department are open and willing to use digital technologies; the exchange of knowledge among each other is actively promoted and a corporate culture with an affinity for technology exists.
		AI capabilities	Profound awareness of the potentials and basic knowledge in the use of Artificial Intelligence technologies within the tax department is available and is applied in operational processes.
		IT alignment	Digital technologies are integrated within the overall IT infrastructure and embodied in operational processes in close coordination with the IT department to ensure proper operation.

Infobox 3

Outlook: Application and Operational Model (AI Readiness Check)

Based on the presented findings of the study within the WTS Global, the maturity model will be operationalized in the future. A software-supported solution is in development for this purpose that will help to screen tax processes and data in an initial assessment and thus evaluate the level of digitalization. Furthermore, development potentials and concrete recommendations for the use of AI in the respective tax function will be pointed out. The software-supported assessment will take place in the form of a half-day on-site workshop and will be run interactively with representatives of the company.

wts AI

Digital technologies provide answers to diverse challenges which tax departments are facing today. The analysis of the digital maturity of a tax function is an essential requirement for the identification of application potentials for Artificial Intelligence technologies. The just established joint venture WTS AI from the tax consulting firm, WTS, together with the business intelligence and data analytics specialist, QUNIS, develops solutions for the digitalization of tax functions using Artificial Intelligence as much as possible.

The consulting services offered by wts AI are divided into three groups: consulting, training and tax apps. With the consulting service, the joint venture helps companies determine their current digital degree of maturity and increases it for purposes of using AI technologies. In comparison, the AI training is aimed at raising awareness of this field among employees and preparing them to be able to handle future AI tasks.

Let us find out how digital your tax department is!

wts-ai.com

Contact

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We make you AI-ready

7 Summary

The first wave of digitalization of the tax function has already begun in many companies and has the potential to transform the work of tax departments sustainably. Digital technologies provide answers to various challenges that large and small tax departments are facing today.

Comprehensive data and process digitalization of important tax procedures can lead to massive cost savings and efficiency gains and at the same time enable intelligent, AI-supported automation of knowledge-intensive processes as part of the second wave of digitalization.

For the focused evaluation of the current status of digitalization and a systematic development and determination of recommendations of action for concrete implementation, the corresponding evaluation techniques are currently lacking.

For this reason, the present study takes the approach of systematically interviewing tax experts, taking into account the global perspective, in order to obtain a comprehensive overview of the digital maturity in the tax departments of various companies. In addition, important opportunities and challenges of digitalization were identified from the perspective of the experts.

Therefore, the WTS Global was selected as the study population, while the specific expertise of members of a selected sub-population – the AI Working Group, comprising five countries – complemented the results.

Based on the results, the present study presents a model for assessing the digital maturity of tax departments based on three structuring components. First, individual **levels of maturity** define different development stages for the digitalization of tax departments as a guidance on the path from establishing initial basic requirements for digitalization to complete transformation. Second, the positioning within the individual levels is differentiated according to the four **dimensions** *Strategy, Process, Data* and *Technology* used as a general structure within this study. The dimensions describe different design fields for the digitalization of tax departments and enable a comprehensive consideration of relevant digitalization aspects. Third, **capabilities** define criteria for the investigation and evaluation of action-guiding principles at the detailed level for each dimension.

In summary, the presented model serves as an instrument to systematically assess and describe the as-is situation of a tax department in regard to its current status of digitalization. Based on the assessment, it allows initiatives for improvement to be guided by providing a roadmap, and for the progress achieved to be measured.

The analysis of digital maturity is an essential prerequisite for the determination of application potentials for Artificial Intelligence methods. The maturity model presented here enables a detailed digital check-up and thus represents an **AI Readiness Check.** As a result, a focused investigation of potentials for the application of AI and the identification of technological gaps with regard to their successful implementation is enabled.

Summary

Glossary

Advanced Analytics → The term comprises various sophisticated analytical methods with a general focus on large data sets (big data), predictive analyses and unstructured data.

Artificial Intelligence → The term Artificial Intelligence (AI) denotes the attempt to model human intelligence, i.e. building a computer or programming it so that it can solve problems autonomously.

Artificial Neural Networks → A subset of Artificial Intelligence that attempts to model decision structures through emulating neural structures (similar to the human brain). They form the basis for deep learning approaches.

Big Data → Stands for bulk data and denotes volumes of data that are too large, too complex, too fast-moving, with a structure a too weak to allow them to be analyzed using manual and conventional data processing methods.

Blockchain → Blockchain describes a technology for sharing data by using a decentralized, distributed database. It allows the exchange of information between two parties within the framework of a transaction that is secured by cryptographic procedures.

Business Intelligence → Business Intelligence (BI) denotes a set of concepts and techniques for enterprise data analysis that aims to gain insights to support management decisions.

Business Process → A related, logically structured sequence of activities geared toward achieving a corporate objective.

Deep Learning → Method used for analyzing data and optimizing artificial neural networks. As a subset of machine learning, deep learning uses several hierarchical layers or a hierarchy of concepts to promote the learning process.

Digitalization → Digital transformation denotes change driven by information technologies.

Information Extraction → Automatic extraction of predefined types of information, such as entities or relationships, from machine readable documents in order to retrieve knowledge from unstructured information on a predefined domain.

Machine Learning → Machine learning is a generic term for the generating of knowledge from experience, i.e. information is extracted and abstracted from examples of application to other scenarios.

Process Mining → Denotes the reconstruction or discovery of business process workflows based on log files from operating information systems (e.g. ERP systems) with the aim of subsequent conformance anlysis and process enhancement.

RPA → Robotic Process Automation (RPA) is a technology for the automated processing of structured business processes by digital software robots. By using existing user interfaces, applications can be operated in the same way as they are used by humans.

Supervised Machine Learning → A method whereby an algorithm learns a function from a predefined volume of input and output pairs (e.g. classification).

Tax Data Lake → A central data repository for storing structured, semi-structured and unstructured data to support BI, Big Data and Advanced Analytical solutions in the tax function.

Tax Data Warehouse → A tax data warehouse is a warehouse that combines heterogeneous data from different operational systems and prepares it for structured reporting and data analysis for tax purposes.

Unsupervised Machine Learning → A method that uses an algorithm from a discrete input set to generate a model defining this input (e.g. clustering, predictions).

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Appendix: Study Design and Methodology in Detail

Method

In order to identify opportunities and challenges of digitalization and indicators for determining digital maturity of the tax function, the following methodological approach was chosen.

A **cross-sectional analysis approach** was chosen as the empirical research method. Cross-sectional analyses make it possible to examine a large number of variables of a large number of participants at a fixed point in time and to make comparative statements based on this data.

The investigation was carried out in the form of a quantitative investigation using a questionnaire and thus follows the approach of a primary survey. To measure the **construct of "digital maturity",** various items were developed per dimension as indicators of maturity and formulated in closed questions. The **items** are statements on activities and organizational circumstances within the tax department, which were evaluated by the participants in a **self-disclosure statement** on a **5-step rating scale** (Likert scale). The scale ranged from strong agreement with the statement ("strongly agree") to strong disagreement ("strongly disagree"). The individual questions were summarized in a questionnaire and supplemented by **control variables,** including demographics about the participants (e.g. seniority, age, previous AI experience) and information about the selected client's company (e. g. industry, size, number of employees).

A **convenience sample** consisting of representatives of WTS Global was selected as the study population. From a methodological point of view, the procedure has limitations that must be taken into account when interpreting the results. As a non-probability sampling method, convenience samples in general are not intended to be used to extrapolate from the sample to the general population in statistical terms. Instead, non-probability approaches are better suited for in-depth qualitative research, which involves understanding complex coherencies. However, against the background of the explorative study approach, this approach offers the opportunity to combine broad professional expertise with country-specific perspectives in order to draw the broadest possible picture of aspects of digitalization in the tax field. Drawing on our study sample, participants were asked to select one of their clients and to take on their perspective when answering the questions within the survey, acting as proxies for their clients. For more detailed information on the selection criteria for clients, refer to the next paragraph.

The following description summarizes the topic of research, the objectives of the investigation and the resulting research questions.

Table 5. Study design

Research topic	Digitalization in the tax department
Research problem	Tax departments have reached very different degrees of digitalization depending on various aspects. As a result, very different starting situations and prerequisites for the application of new technologies and AI methods exist. So far there are no systematic measuring instruments to determine the degree of digitalization of a tax department, which prevents a comparison and a specific identification of potentials.
Research objective	The aim is to investigate digitalization in tax departments through a systematic survey of representatives from tax consulting practices. The first step involves the identification of goals to be achieved through digitalization, as well as success factors and obstacles to their implementation. Subsequently, the current status of digitalization is examined from the perspective of the experts, focusing on the specific situation of one of their clients.
Research questions	The following research questions were derived from the objective: I. From the perspective of international tax consulting practice, what are the central goals to be achieved by digitalization within tax departments? II. Which success factors and obstacles exist in the implementation of these goals? III. How do respondents view the current status of digitalization for their respective clients?

Population

As described, members of WTS Global were defined as the data basis for the empirical survey. WTS Global is an international association of partner companies that provide tax-related services in more than 100 countries. The focus of individual members is on local market expertise and expertise in country-specific tax issues. Altogether, 2,500 individuals are entrusted with tax-related questions at the participating partner companies and represent the population. The spectrum of members ranges from tax lawyers to tax consultants with different professional focuses.

For the selection of clients, participants of the study were provided with the following selection criteria:

(1) the participants need to have good knowledge of the internal processes and organization of the client's tax department
(2) the client should be representative of the respective country of the network member, which is particularly relevant when selecting branches of multinationals

Phases of the Study

The methodological approach underlying the study is summarized in Figure 47 and is divided into five phases. For the first four phases, we drew extensively on the expertise of the AI Working Group; feedback and communication of intermediate statuses and results took place in the context of regular status telephone conferences.

Phase 1: Formation of AI Working Group

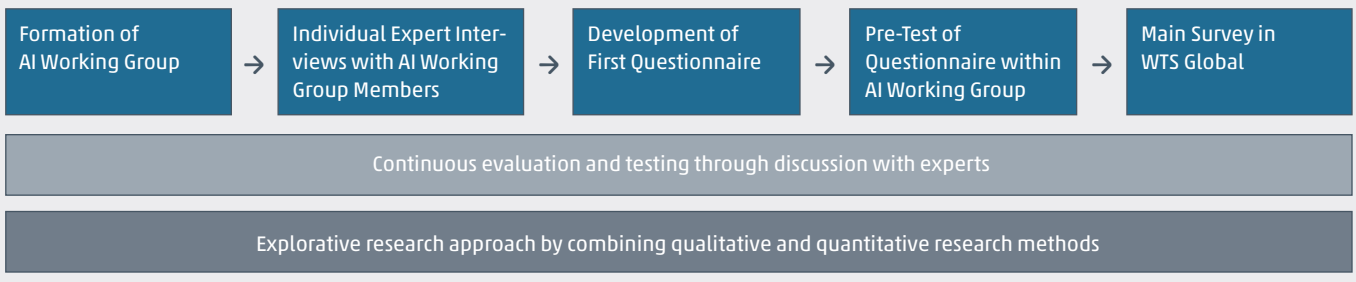
The basis for the work of the study was the combination of experts from WTS Global and AI experts from the DFKI. The cooperation within the AI Working Group enabled a close exchange between science and practice over the period of the study between December 2017 and June 2018. The group was made up of experts from Brazil, India, Indonesia, Portugal, Russia and the USA. Furthermore, two further representatives of WTS took part in the meetings together with the CEO of WTS Global under the direction of the DFKI.

Phase 2: Individual Expert Interviews with AI Working Group Members

In a first approach to the topic, a structured guideline interview was conducted with each expert of the AI Working Group. The talks took place in individual telephone conferences in English and were conducted by the DFKI. In addition, up to two representatives of WTS participated in each meeting.

- **Objective:** Identification of key aspects in the assessment of digitalization phases in tax departments; explorative approach to discuss important aspects of digitalization from a practical point of view; inclusion of country-specific perspectives
- **Organization:** Six one-hour structured guide interviews; sound recording of the interviews; interviews were structured into four discussion areas (strategy, process, data, technology); experts reported on the organization, goals, activities, success factors and obstacles of digitalization for a selected client
- **Evaluation:** Transcription of interviews; identification and collection of relevant statements; thematic grouping of statements across all interviews; derivation of research constructs from grouped statements
- **Result:** Set of grouped statements and derived study constructs

Figure 47. Procedure for carrying out the study



Appendix: Study Design and Methodology in Detail

Phase 3: Development of First Questionnaire

In the next steps, the identified study constructs were operationalized as Likert scale items and translated into individual statements. Most of the items were positively polarized, so that agreement with the statements can be seen as an indicator for a high maturity and disagreement, accordingly, for a low digital maturity.

- **Objective:** Operationalization of the identified research constructs from expert interviews; creation of a questionnaire for the survey on digitalization maturity in tax departments
- **Organization:** Formulation of questions that are free of overlap, atomic and easy to understand; depending on the dimension, 10 to 12 items were included
- **Evaluation:** /
- **Result:** Questionnaire with mostly closed questions; open questions on the identification of opportunities and obstacles in digitalization as well as specifics of individual tax types

Phase 4: Pre-Test of Questionnaire within AI Working Group

A pre-test was conducted within the AI Working Group in order to obtain feedback on the comprehensibility of the questionnaire's statements and to make methodological adjustments before the main inspection was carried out. To improve the quality of the survey instrument, the Likert scale was adapted by reducing the item pool. Item-total correlation – in the sense of the bivariate correlation of the item with the total score of the scale – was used as a measure for the exclusion of an item. The result was a final scale of 8 items per dimension.

- **Objective:** Collection of feedback on the questionnaire; identification of comprehension difficulties and access problems within the group of participants
- **Organization:** Provision of the developed questionnaire in digital form via an online survey tool
- **Evaluation:** Qualitative and quantitative research methods; individual feedback interviews with the participants in the pre-test
- **Result:** Revised questionnaire for the main survey; incorporation of the participants' feedback; methodological adjustments to the research instrument through a revised item pool

Phase 5: Main Survey in WTS Global

The main study was carried out in June 2018 with the adapted version of the questionnaire based on the feedback from the pre-test. The participants were invited to participate through a personal request and received background information regarding the purpose of the investigation. A reminder email was sent in the middle of the evaluation period.

- **Objective:** Execution of the main study; pursuit of research questions
- **Organization:** Provision of the developed questionnaire in digital form via an online survey tool
- **Evaluation:** Qualitative and quantitative research methods; evaluation of free text answers; preparation of the results for publication
- **Result:** Research results; complete data sets of 39 participants; assessment of the challenges and opportunities of digitizing the tax function

About WTS Global

With representation in over 100 countries, WTS Global has **already** grown to a leadership position as a global tax practice offering the full range of tax services **and aspires to become the preeminent non-audit tax practice worldwide**. WTS Global deliberately refrains from conducting annual audits in order to avoid any conflicts of interest and to be the long-term trusted advisor for its international clients. Clients of WTS Global include multinational companies, international mid-size companies as well as private clients and family offices.

The member firms of WTS Global are carefully selected through stringent quality reviews. They are strong local players in their home market who are united by the ambition of building a truly global practice that develops the tax leaders of the future and anticipates the new digital tax world.

WTS Global effectively combines senior tax expertise from different cultures and backgrounds and offers world-class skills in advisory, in-house, regulatory and digital, coupled with the ability to think like experienced business people in a constantly changing world.

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