Digital Transformation of Tax and Accounting Processes

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Abstract: The world today is changing rapidly in many ways. Fundamental changes that differ country by country are visible also in the area of taxes and accounting. New activities whose adoption is enabled due to the great development of technologies in fact exert pressure on individual economic subjects' actions in many areas. This is visible also in supporting activities like tax and accounting processing. Setting of business processes has to be therefore changed quite often as a reaction to the frequent changes in legislation regulating these areas. Legislation in these two areas, taken from the Czech accounting units' point of view, changes so often. Even if these changes of the legislative framework can be described as more frequent in the area of taxation (great change at least twice a year, often in the area of income taxes), this year the great change happened also in the area of accounting. In association with the adoption of the New accounting act started to be influenced set accounting processes of accounting units concerned. New accounting act should come into force since January 1, 2025. The aim of this contribution is to identify and, through the analysis of the development of digitalization tools, assess the possibilities of selected accounting units in the area of digital transformation of tax and accounting processes. This contribution uses, with the intention to describe and assess the situation in above specified areas, information focused on related significant legislative changes and relevant research methods to which belong literature research of professional publications, analysis of information and methodical support in specified area (provided mainly by the state authorities). The intention of the authors is to assess the degree of use of digitalization by selected, in the contribution further specified, accounting units. Therefore, in the final part of the contribution, obtained results are summarized using the method of synthesis.

Keywords: Accounting, Digitalization, Supporting processes, Taxation

1. Introduction

The origin of digitalization dates back to the early 1970s (3rd industrial revolution). That was the moment when electronization, information technologies (IT) and automation of production were used for the first time. Then, during the 4th industrial revolution, fast internet, integrated and flexible information and communication technologies (ICT) and data storage (Cloud), are introduced (Veber et. al, 2018).

Schallmo and Williams (2018) define digitalization as "the use of digital technologies and of data (digitized and natively digital) in order to create revenue, improve business, replace/transform business processes (not simply digitizing them) and create an environment for digital business, whereby digital information is at the core." Digitization is then seen as a tool used when trying to develop digitalization of the businesses, funded organizations, public administration, etc. It is usually introduced as "the process of using digital information technologies to convert analog data into its digital counterpart." (Samoilenko, 2023).

Digitalization and its development is present on many levels of human-made networks, society, industry or organization (Samoilenko, 2023). Schallmo and Williams (2018) state that digital transformation affects different areas of society and the economy by opening up new opportunities for networking and enabling collaboration between different actors. As stated by Leitner-Hanetseder et. al (2021), digitalization is taken by the current society as one of the biggest and most permanent changes influencing many areas of people's lives. Digitalization is widely used also in business entities. These subjects are focused on digitalization of all relevant areas of business activities. To them belong also areas of accounting, taxes, document work, online communication with the customer, etc. (Veber et. al, 2018). The reason is obvious, among other things, from the statement by Anton (2023), who confirms that digitalization is a process that accounting firms are also subject to if they want to remain competitive and meet the needs of communication with customers. Losbichler and Lehner (2021) say that digitalization in accounting manifests itself both on the side of automating routine activities and on the side of supporting or automating demanding analytical activities (machine forecasts and involvement of artificial intelligence).

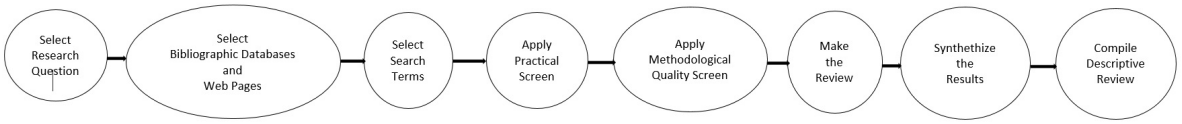
Tendencies leading to support of digitalization are present everywhere. Compiled contribution deals with an interesting and up to date issue, digitalization of tax and accounting processes and tries to emphasize importance of process management and its tools in this area. The aim of this contribution is to identify and, through the analysis of the development of digitalization tools, assess the possibilities of selected accounting units in the area of digital transformation of tax and accounting processes. Literature review and analysis mentioned in the following part of this article will focus on these areas. The authors will assess the situation

from the perspective of Czech companies that focus on accounting and tax processing. Authors try to consider positive impact of digitalization, even if there can be also negative impacts identified. This type of digitalization impact was assessed in other works of the authors and is not the subject of this article. This article will focus on tools used by business entities for the development of digitalization in taxation and accounting. The authors will also add information relating to measurement of the rate of digitalization.

2. Methods

To be able to make this assessment, authors of the article conducted the qualitative research. Undertaken method was document and text analysis. With the intention to identify the relevant literary sources were also used systematic literature review (see Figure 1) and traditional literature review (Moahmmed, 2021).

Authors expectations were that there are online sources in the form of information provided by web pages of public and private subjects dealing with this issue and also databases administered by the state authorities and other organizations (Czech Statistical Office, European Commission or OECD).



Source: Own processing according to Fink (2014), 2024

Figure 1: Steps of systematic literary review

To sum up, to be able to compile this article, its authors used most often these methods:

- Literary research of the current state in analysed area (systematic literature review, traditional literature review, document and text analysis).
- Analysis of the current state of digitalization of taxes and accounting processes set by the Czech legislative (Act No. 365/2000 Coll., Act on Public Administration Information Systems and on Amendments to Certain Other Acts, Act No. 12/2020 Coll., Act on the Right to Digital Services and on Amendments to Certain Acts, etc.).
- Analysis of the data provided by European Commission (EC).
- Synthesis of information that enables the authors to identify and describe the possibilities of selected accounting units in the area of digital transformation of tax and accounting processes.

3. Results and Discussion

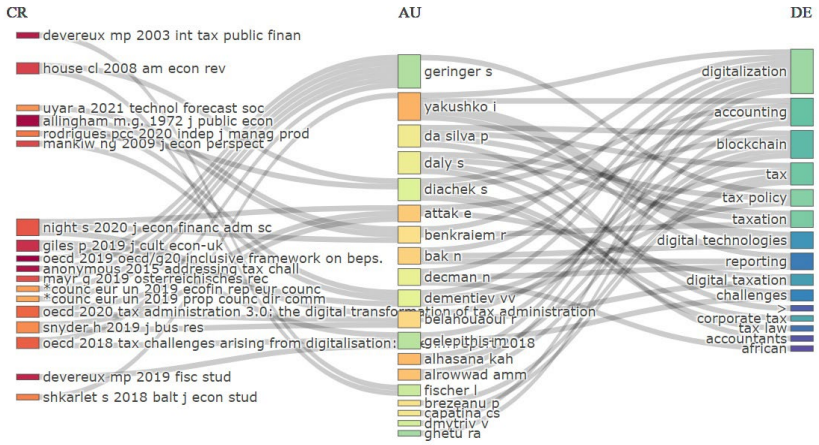
3.1 Systematic Literary Review

The first step leading to compilation of related parts of this article was a systematic literary review. This review was focused on searching the literary sources dealing with influence of digitalization on tax and accounting processes issue.

Research question was set as: “Are there any articles dealing with our issue published in Web of Science database?” The intention was to find and assess the findings of various authors in the analysed area. Authors tried to search for articles dealing with all three terms, digitalization, taxation and accounting. 32 articles were found. The results included 24 articles in journals, 7 articles in proceeding papers, 1 early access article and 1 review. Therefore, there was no necessity to narrow the selection by searching just in the titles. There was also no necessity to limit the search by years of publication. Articles in analysed area have been published since 2018 till 2024. Results of this review are visible in the following figures 2 and 3. Figure 2 shows the main data (number of sources, number of documents, etc.). Figure 3 is a three-field plot showing the connection between selected sources (CR), authors (AU) and key words (DE).

Source: Own processing, 2024

Figure 2: Results of systematic literary review



Source: Own processing, 2024

Figure 3: Results of systematic literary review (three-field plot)

Selected articles were further analysed. 4 articles of the highest relevancy were then selected as the starting point helping the authors compile the introductory parts of this article. These were articles written by Rakovský (2021), Belahouaoui and Attak (2024), Vishnevsky (2022) and Ponomareva (2022).

The authors decided to use also other sources (web pages, databases) focused on this issue. Therefore, the traditional literature review was also done.

3.2 Current State of Taxes and Accounting Processes Digitalization in the Czech Republic

In this part of the article, information about the current situation of the Czech accounting units in the area of taxation and accounting are given.

In the field of taxation and accounting, digitalization is primarily focused on digitization associated with the transcription of data in paper form into electronic form. The storage of data and any other processes associated with working with data are also addressed here. In connection with digitization, the Czech Republic has adopted a document called "Digital Czech Republic, the path to a digital economy". This document should serve to build a digital marketplace. The process of digitalization of public administration and improvement of citizens' access to public digital services is solved by the Act No. 12/2020 Coll., Act on the Right to Digital Services and on Amendments to Certain Acts.

Digitalization in taxes (the Czech Republic)

Entrepreneurs and companies keep tax records in selected accounting software. The accounting software is able to create various tax declarations. All the data is created and stored in the storage, the software overwrites the data and creates the tax declaration that the user needs.

Tax administration is provided by the Financial Administration. Financial Administration maintains a website where it is easy to find various forms or information related to taxes. Digitalization of tax administration is ensured by the Digital Information Agency, who sets the new standards, introduce comprehensive methodology and supervision of the process of digitalization. Governance of public affairs is currently ensured using the tools shown in table 1.

Table 1: Tools used for public affairs governance

Tool	Area of use
eGovernment	*Communication with state and public administration institutions in electronic form.*
Czech POINT	*Contact points solving requests for extracts from public and non-public registers and submissions to the state administration.*
"Data box"	*Communication with state authorities (Czech Social Security Administration, health insurance companies).*
"My Taxes"	*An application that allows filling out electronic forms, save them and send them through the EPO application or through the Online Tax Office (DIS+).*
Electronic submissions for financial administration (EPO)	*Electronic filing office. (Electronic submission of tax declarations.)*
Online Tax Office (DIS+)	*Online Tax Office. (Electronic submission of tax declarations.)*

Source: own processing, 2024

Digitalization in accounting (the Czech Republic)

Nowadays, accounting is mainly carried out using information and communication technologies (ICT). This may be called computerised accounting. Manually processed recording of information about the economic transactions of the company was moved to a digital form. The same way as many other activities, accounting has become much faster and simpler, because of the use of ICT. Electronic accounting also provides easier archiving of all data.

Among the digital tools currently used by the Czech accounting units belong:

- Data mining. (Tool used to ensure extraction of data from documents and its transformation to usable information.)
- Electronic signature. ("Data in electronic form that is attached to or logically connected to a data message, and which serves as a method to unambiguously verify the identity of the signed person in relation to the data message". (Act No. 227/2000 Coll., Electronic Signature Act and Amendment of Certain Other Acts))
- Time stamp. (Service that enables to clearly demonstrate time of document creation – related to legal consequences).
- Artificial intelligence. (So far, the transcription of received receipts and invoices with the help of artificial intelligence.)

The same way as in other countries, accounting in the Czech Republic is regulated by legislation. As the main legislative document is taken Act No. 563/1991 Coll., Accounting Act. This document was revised and its new version came into force on January, 1, 2024. Its validity was postponed to 2025. In this document are currently included issues related to artificial intelligence, digitalization, international accounting standards or functional currency.

Economic entities providing their goods or services in the Czech Republic (with the obligation to keep accounts or those keeping accounting records on a voluntary basis) can keep accounting records using:

- Internal accounting (ensured by own employee of the company).
- Outsourcing (ensured by an external firm/experts specialized in provision of accounting services).
- Cloud (software on which the accounting is operated).

Digitalization in the area of taxes and accounting is closely related to the purchases and use of facilities enabling to secure network connections and the ability to share and work with data. Information focused on

this issue are provided by variant organizations (Czech Statistical Office (CZSO), European Commission (EC) or Organisation for Economic Co-operation and Development (OECD)).

The intention of the authors was to assess, on the basis of statistical data, the level of use of digitalization by selected accounting units operating in the Czech Republic. Next part of the article will therefore describe and explain the indicators used most often for evaluation of the rate of digitalization in individual countries of the European Union (EU). The authors will try to focus on the rate of digitalization reached by business units in the Czech Republic.

3.3 Data Provided by EC and OECD

European Commission and OECD gather and store the data on EU countries level of digitalization. There are several indicators used for evaluating rate of digitalization in individual countries. Some of them are described in the following table 2.

Table 2: Selected indicators of the rate of digitalization

Abbreviation	Indicator	Principle
DAI	Digital Adoption Index	*It focuses on measuring the extent of digital technology diffusion within and between countries.*
DDI	Digital Density Index	*It serves government leaders and businesses to understand, measure and manage digital technologies more easily, as well as to create strategies to support competitiveness and growth.*
DESI	Digital Economy and Society Index	*It monitors the development of digital competitiveness of the EU member states.*
DFI	Digital Futures Index	*It explores who is leading the global race to adopt new innovations and technologies and create the world's digital future.*
DGI	Digital Government Index	*Assesses digital government in different countries according to how the environment is set to enable the use of technology and data leading to the digital transformation of the public sector.*
DMI	Digital Maturity Index	*It is used to identify and document proven practices in the use of information processes and technologies for tax collection.*

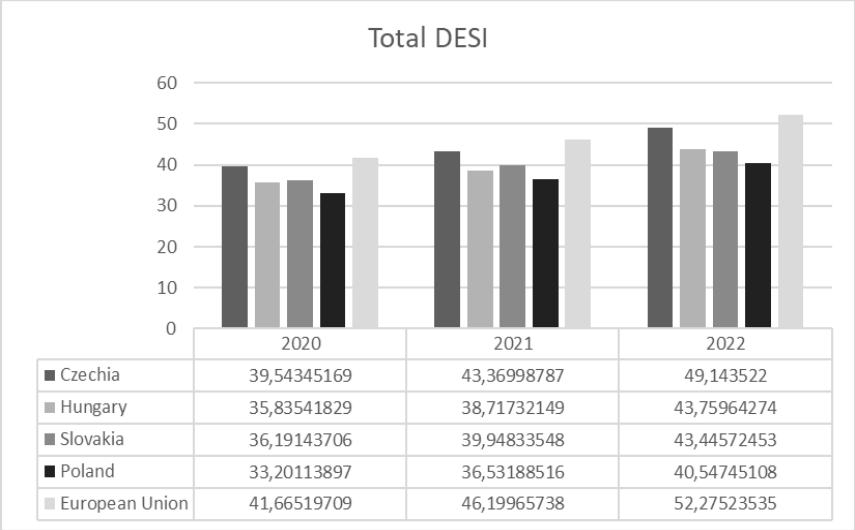
Source: Own processing in accordance to Kepková (2024), 2024

Even if these indicators monitor activities in many areas, it is possible to use them as the starting point for measuring the level of digitalization in the area of taxation and accounting at least in the Czech Republic. Considering the fact that the interaction in the field of taxation and accounting takes place between business and public administration entities, it is possible to assume that all parties involved have appropriate tools for this. These tools are thus implemented and used by both businesses and the public sector.

Situation and development of the EU countries in the area of digitalization is evaluated mainly using the Digital economy and society index (DESI). That is the reason why authors also started with analysis based on data provided by DESI. The DESI index is a composite index that consists of four basic measured areas: Human capital, Connectivity, Integration of digital technology and Digital public services.

Use of DESI was different till 2022, when this indicator was taken as the tool for comparison of individual EU countries. Since 2023 is its setting a little bit different. EC compile this index with different purpose which is defined as emphasizing “the need to accelerate and deepen the collective efforts, including through policy measures and investment in digital technologies, skills and infrastructures.” (EC, 2023) Next figure (4) presents the position of the Czech Republic since 2020 (year when Covid-19 started) till 2022 (change of DESI setting).

For the comparison with the Czech Republic were used other V4 countries, EU average was also added. Authors focused on the adoption of digitalization at the side of businesses. Figure 5 shows V4 countries position from the point of view of Integration of digital technology which is one of the DESI dimensions. Integration of digital technology dimension can be further divided to sub-dimensions, digital intensity, digital technologies and e-Commerce. Figure 5 shows the total amount of these three sub-dimensions. Used evaluation scale is 0 – 100 for figures 4, 5 and 6.

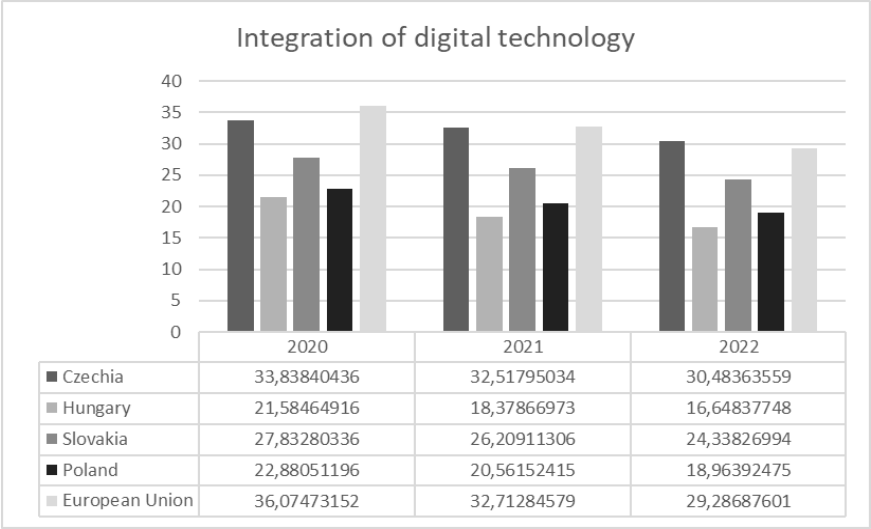


	2020	2021	2022
Czechia	39,54345169	43,36998787	49,143522
Hungary	35,83541829	38,71732149	43,75964274
Slovakia	36,19143706	39,94833548	43,44572453
Poland	33,20113897	36,53188516	40,54745108
European Union	41,66519709	46,19965738	52,27523535

Source: Own processing according to EC, 2024

Figure 4: DESI values for V4 countries (2020 – 2022)

As shown in Figure 4, position of the Czech Republic is quite good in all three analysed years. The values are below the EU average, but above the values reached by other three analysed countries in analysed three years. This enables to see the situation in the Czech Republic in this area as satisfying, but it is necessary to go deeper to individual dimensions and sub-dimensions the DESI index consists of.

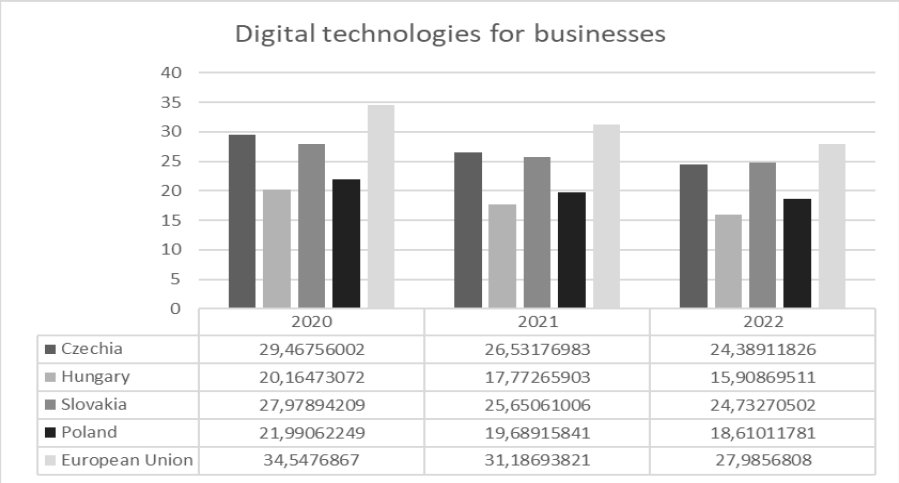


	2020	2021	2022
Czechia	33,83840436	32,51795034	30,48363559
Hungary	21,58464916	18,37866973	16,64837748
Slovakia	27,83280336	26,20911306	24,33826994
Poland	22,88051196	20,56152415	18,96392475
European Union	36,07473152	32,71284579	29,28687601

Source: Own processing according to EC, 2024

Figure 5: DESI - Integration of digital technology - values for V4 countries (2020 – 2022)

For example, when focusing on the Integration of digital technology dimension of DESI, position of the Czech Republic is in all three years better than position of the next three analysed countries, but the Czech Republic is still below the EU average in 2020 and 2021. The situation goes better in 2022. If the authors went to greater detail of information provided by EC, there were the possibility to extract individual components of DESI. Next figure (6) presents the position of V4 countries from the point of view of component called Digital technologies for businesses. Used score is again 0 – 100.



	2020	2021	2022
Czechia	29,46756002	26,53176983	24,38911826
Hungary	20,16473072	17,77265903	15,90869511
Slovakia	27,97894209	25,65061006	24,73270502
Poland	21,99062249	19,68915841	18,61011781
European Union	34,5476867	31,18693821	27,9856808

Source: Own processing according to EC, 2024

Figure 6: DESI - Digital technologies for businesses - values for V4 countries (2020 – 2022)

Digital technologies for businesses consists of values observed for Artificial intelligence, Big data, Cloud, e-Invoices, Electronic Information Sharing, ICT for environmental sustainability and Social media.

As visible in Figure 6, position of the Czech Republic is again quite good. The values are below the EU average and almost always above the values reached by the rest of V4 counties. There is just one exception relating to the values in 2022, when was the Czech Republic overtaken by Slovakia that achieved a better value.

When assessing the information provided to the authors by DESI, it is possible to say that the conditions for digitalization are in the Czech Republic good. This is visible from its position in Total DESI. It is also necessary to say that there is visible increasing tendency in Total DESI, but decreasing tendency in the Integration of digital technology indicator and also in Digital technologies for businesses indicator. From this, it is possible to conclude that development of activities associated with digitalization has decreasing tendency. It indicates that it will be necessary to improve this situation for example through the introduction of new user friendly ICT tools in this area. This also means that increase in Total DESI has to be caused by increases in other observed areas (dimensions).

To be able to make more detailed conclusions leading to recommendation for both sides, businesses and state administration, situation should be also assessed from the point of view of public sector, but this is going to be the subject of authors' further research.

4. In Conclusion

Compiled article focuses on digital transformation in tax administration and accounting management. The approach of article authors corresponds to the researches presented by other authors focusing on this area. The authors agree with the thoughts of Vishnevsky (2022) that it was also established that requirements for taxes and tax policy depend on the technologies' life cycle.

Authors introduced tools and methods used in the Czech Republic as a support for digitalization of tax and accounting processes. It is obvious that thanks to the process of digitalization of taxes and accounting adopted by accounting entities, time is saved in the processes taking place in the economic department of these entities. There is also a considerable saving of paper material and a reduction in the incidence of errors in data entry to the system. In addition, digital taxes and accounting make it easier for an entity to control outstanding receivables and payables. Today, it is commonplace to use software to generate value added tax (VAT) returns, VAT control reports and others in the prescribed format for submission to the relevant tax authority.

Last part of the article was focused on measuring the level of digitalization. It is done with respect to the original intention of the authors, which was to assess, on the basis of statistical data, the level of use of digitalization by accounting units operating in the Czech Republic. Therefore, they also presented the possibilities of measuring the level of digitalization. Most often used indicators of digitalization level were described and finally DESI was used as an example showing the current position of the Czech Republic among V4 countries and also in relation to EU average in the area of digitalization. Authors focused specifically on assessment of dimension called Integration of digital technology and also on DESI component called Digital

technologies for businesses. It was found that position of the Czech Republic among the countries selected as the sample for comparison is good. Development of the digitalization in the Czech Republic needs to be assessed in relation to individual measured DESI dimensions and components. Total DESI seems to have increasing tendency.

To sum up, it is possible to say that digitalization has positive impacts (these were described above), but also negative impacts (these were described by the authors in other research papers and will be surely studied by them also in the future) that appear very often in the social areas and relates to the availability of tools used in digitalization for the general public. This area is seen by the authors as possible field of their future research similarly as the assessment of the state of digitalization from the point of view of entities belonging to the public sector.

Acknowledgements

This paper was created within the project SGS-2023-007 “Current Challenges and Problems of Modern Society from the Perspective of Finances and Accounting” at the University of West Bohemia, Faculty of Economics.

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