

Digital Transformation: Perception Of The Personal Skills Of Accounting Professionals

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Abstract:

With the help of technologies from the digital transformation, accounting makes it possible to achieve more agile and assertive decision-making, as it is able to provide instant information that makes it easier to carry out calculations and analyze data. In order to improve the performance of the demands made by accountants, the digital transformation automates and facilitates the process of these activities, promoting positive changes in the essence of how these professionals provide their services. The aim of this study was to analyze the personal digital transformation competencies perceived by accounting professionals in Bento Gonçalves/Rio Grande do Sul-Brazil. To this end, the methodology was descriptive, with a quantitative approach. A total of 52 valid responses were obtained, demonstrating the current scenario of accountants in the face of technology. According to the data collected, more than 80% of professionals use ERP systems, and 75% claim to use mobile technologies as tools for providing their services. However, it was noted that adaptation to the use of more complex tools, such as big data, for example, is still evolving, as only six (6) of the professionals interviewed said they had complete knowledge of this technology.

Key Word: Accounting. Digital Transformation. Skills. Technology.

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I. Introduction

Just as any other area has to undergo changes over the years and adapt to them, accounting is no different. Over time there have been several modernizations in the accounting profession, and today these professionals need to adapt to the digital age. The aim of the digital transformation is to improve the performance of the activities that need to be carried out, streamlining processes and enabling professionals to deliver a service with greater quality and precision. According to Azevedo (2022), companies that adopt the digital accounting model are able to offer more efficient, complete services and strategic solutions to their clients.

It is known that many conservative professionals disbelieve that technology can open up new paths and even offer new services to their clients. According to Ozdogan (2017), there are benefits brought about by TD in accounting that can make it possible to increase revenue due to better identification of the client niche, allowing time to get involved and learn about their business. In order to leverage the expansive function of interactive data, companies need data-generating networks that can generate business value and positively impact their profitability (Carvalho et al., 2021).

Given that the subject of the study is of interest to accounting professionals in the sense of greater agility and opportunity in business processes, as they are experiencing DT, the research question is: What are the difficulties in developing personal digital transformation skills perceived by accounting professionals in Bento Gonçalves/RS-Brazil? To answer this research question, the following general objective was drawn up: to analyze the personal digital transformation competencies perceived by accounting professionals in Bento Gonçalves/RS-Brazil.

DT has been contributing to the routine of accounting professionals in order to bring benefits and greater satisfaction in the delivery of services. However, it is clear that some accountants are still resistant to its implementation, due to insecurities such as important data included in the cloud and the possibility of hackers. This study is justified by the relevance and topicality of the subject, given that DT is increasingly present in the daily lives of these professionals and creates greater competition for those who decide not to adopt it.

Digital transformation through intelligent systems and technologies connected to data is rapidly evolving as a facilitator of accurate, quality information. Technologies are being introduced in such a way as to rethink the processes, knowledge, skills and attitudes of accounting professionals in the face of the perception of digital transformation (Fredo et al., 2023)

The evolution of ERP software and Cloud Computing means that the technological resources made available to accountants are infinite and offer facilities for the day-to-day work of these professionals. Many of these technological resources are geared towards handling and allocating data, whether from clients or from accounting itself (Nyland, 2023).

In addition to the first introductory part, this article contains four more sections. The second presents concepts about digital transformation, digital transformation in accounting, and accountants' personal skills. The third section presents the methodological procedures used to carry out this research. The fourth section presents the discussion and analysis and finally, the fifth section contains the study's final considerations.

II. Theoretical Reference

Digital Transformation

Digital Transformation aims to improve the performance of the activities that need to be carried out. It consists of using systems that automate and facilitate the process of these activities, promoting positive changes in the essence of how the company provides its services or produces its products (Salles, 2021).

In this sense, DT is a systemic change brought about by digital technology and its main task is the reconstruction and innovation of value systems. DT is made up of technology, people and their skills and strategies appropriate to the stage of the business. Therefore, to have an effective DT system, companies need a clear strategy, the right methods and the right talent. Having a clear and solid strategy is essential if successful DT is to be achieved. A DT strategy can add great value to business transformation, since formulating and implementing a strategy has become a fundamental and recurring concern for organizations prior to DT in many traditional sectors (Teng; Wu; Yang, 2022).

Digital technologies have evolved the traditional way of doing business through a comprehensive transformation. The new economy involves diverse and often complex interactions between markets, creating challenges for market fit and structure. The key question is how to manage the potential to increase productivity in line with the demand and supply of services. Technology plays a crucial role in integrating different aspects of the new operating system of service provision. (Zakharkina et al., 2022).

Moreover, the changes that digital technologies are bringing to the modern economy in all sectors of activity are evident. Their spread is transforming business models and processes. Therefore, in order to leverage the expansive role of interactive data, companies need data-generating networks that can generate business value and have a positive impact on their profitability (Carvalho et al., 2021).

Moreover, the changes that digital technologies are bringing to the modern economy in all sectors of activity are obvious. Their spread is transforming business models and processes. Therefore, in order to leverage the expansive role of interactive data, companies need data-generating networks that can generate business value and have a positive impact on their profitability (Carvalho et al., 2021).

In the meantime, a dilemma often faced in order to achieve DT is the organizational changes needed to adapt to digital changes, especially in relation to the organizational structure, which needs to be flexible so that this new scenario can be successfully developed and achieved (Eggers; Park, 2018). In this sense, digital strategy is only valuable if it drives the allocation of resources and capital investments. Many business leaders are reluctant to commit to a digital strategy because they believe that digital success encompasses customer engagement and digitized solutions (Sebastian et al., 2017).

Since companies that are already established in the market are more likely to face difficulties and barriers when trying to implement TD innovation in their business model, due to the fact that they are subjected to dealing with conflicts and choosing one option over the other. When the TD process is carried out correctly, it has the ability to make companies flexible in the face of change and generate constant growth in existing businesses. In addition, some companies overcome other management problems that resulted in unsuccessful businesses (Christensen; Bartman; Bever, 2016).

It should also be noted that due to digital technologies, some companies that were established in the pre-digital economy are the result of both revolutionary opportunities, such as the repositioning of digital leaders, and existential threats, generating doubts about how they will compete in the digital economy due to facing a new economic scenario for their business, requiring them to adapt to the digital environment. Most companies are still in the early stages of DT, as they start from revenues derived from traditional products and services (Sebastian et al., 2017).

In addition to this factor, it is possible to identify three stages that make up DT: digitalization, digitization and digital transformation, stages that require specific and well-developed organizational structures that can bring results for the metrics used in performance measurement (Verhoef et al., 2021).

Namely, digitization is the shift from physical data to digital media, moving manual processes to automated ones, replacing hand-filled forms with online versions and cloud storage to gain more efficiency in corporate document management (Li et al., 2016). Digitization, on the other hand, refers to the use of digital technology and digitized information to create and add value to the process in new ways. It can be thought of as a shift from manual to digital tasks with the incorporation of Information Technology (IT) into existing tasks (Sebastian et al., 2017).

In addition, digitization is the use of technologies to create new online communication channels that enable uncomplicated connection between customers and their suppliers, changing the traditional communication between company and customer (Sebastian et al., 2017). Digitization therefore not only focuses on cost savings, but also includes process improvements that can enhance the customer experience (Verhoef et al., 2021).

It is also possible to identify four transformational dimensions integrated into DT that need to be balanced: the use of technologies, in terms of their availability; changes in value creation, since DT allows monetization in new segments and markets; structural changes, which are the variations in a company's organizational configuration; and financial aspects, with the three previous dimensions only coming to fruition through the analysis of the latter (Matt; Hess; Benlian, 2015).

With new technologies and digital advances, the main problem for companies is how to adapt and invest in order to stay in the market and bring these means to the enterprise. In addition, there is the competition factor, which often makes extremely high investments in these new digital transformations, and in order to remain in the market they must create strategies to avoid losing out and bring new customers to the business. Businesses need to reinvent their processes, strategies and business models in order to face obstacles and gain a foothold in a very competitive market (Silva, 2022).

Digital technologies make us think differently about how we understand and create value for customers. Customer needs can change very quickly and the competition is always discovering new opportunities. In view of this, DT reformulates five fundamental domains of strategy: customers (exploit the customer network), competition (build platforms and not just products), data (convert it into assets), innovation (innovate through experimentation and strategies) and value (adapt your value proposition). These five domains describe the DT landscape for companies. Across these five domains, digital technologies are redefining many of the basic principles of strategy and changing the rules of how companies must operate in the market to be successful (Rogers, 2017).

Managers still have some insecurities about the reliability of storing information digitally, so there are solutions to avoid security incidents with the storage of digital information, such as access management, implementing preventive controls, monitoring access to data and choosing an ideal infrastructure. Furthermore, in the case of using big data, data analysis and cloud technologies, one solution to avoid data leakage or exposure is to look for the most appropriate type of encryption (Rindasu, 2017).

In short, TD is a broad process in which technological resources take centre stage in the organization, which may involve digitization and/or digitalization, requiring organizational changes to adapt to the changes brought about by digital technology (Bloomberg, 2018). DT is about recreating traditional methods to meet the expectations of an ever-changing market and not just the pursuit of employing digital technologies. It is an idealization that involves training people and conversation between employees and suppliers (Silva, 2022).

In short, there are factors driving the need for DT and its worldwide adoption. After the growing number of technologies associated with broadband internet, smartphones, Web 2.0, Search Engine Optimization (SEO), cloud computing, voice recognition and online payment systems and cryptocurrencies, which have increased and strengthened the development of e-commerce, it can now also be observed that the accounting services area is experiencing the changes brought about by DT (Fredo, 2021).

Digital Transformation in Accounting

As digital transformation progresses, strategies and processes allow valuable information to be obtained from the products and services sold, and there is more and more talk of digital business strategy. This means a fusion between strategic business planning and digital strategy. Being both dependent on and benefiting from technology, accounting could not be left out of the technological evolution (Zilli; Witt; Bandeira, 2021).

It is clear that for a long time the accounting sector was seen as a sector where the activities carried out were extremely bureaucratic and even manual. With the evolution of technology, various tools have been created to make the sector more practical and more agile with its demands. After undergoing a parameterization process, these technologies bring greater reliability and security to the information presented (Nyland, 2023).

The main objective of technology in any business environment is to streamline processes so that services and products are delivered quickly and accurately. In accounting, this is no exception, as technology makes communication with various sectors instantaneous, as well as systems that facilitate processes for making

calculations and analyzing data. With these facilities, technology promotes democratization, making both communication services and those directly related to the product or manufacture less bureaucratic (Perez, 2021).

In Brazil, TD in accounting is associated with the culture of an underdeveloped country, unlike other countries, generating negative points such as complex legislation, bureaucratic processes, limited access to technology and flaws in education, which can lead to a lack of attitude and competence when it comes to accounting and technological advances (Fredo, 2021).

In this way, companies that adopt the digital accounting model are able to offer more efficient, complete services and strategic solutions to clients (Azevedo, 2022). There are benefits brought about by DT in accounting that can make it possible to increase revenue due to better identification of the client niche, allowing time to get involved and learn about their business. Digital accounting should add value instantly for the client, with the absence of time-consuming tasks such as banking and tax transactions (Ozdogan, 2017).

At the same time, accounting is undergoing changes and making great strides in adapting to technology. Among the changes is the evolution of cloud accounting, which is changing client expectations and accountants are reconsidering the way they operate to meet demands. With cloud computing, it is possible for companies to obtain information about their business in a few minutes and still be accessible and managed by their accountant (Khanom, 2017).

To understand the value created by cloud accounting, it is important to consider the potential of cloud computing in the business landscape. Cloud computing is no longer a paradigm and generally refers to business conducted over the Internet, without the need to use computer hardware or a software license. At some point, it has also reached the accounting field, because a company's accounting must be an integral component, with an essential role in the dynamics of the business. To achieve this, the accounting model must be co-developed, adding value to both the financial aspects and the business itself (Dimitriu; Matei, 2014).

The innovation and opportunities offered by TD, combined with the activities carried out by accounting software companies, have led to the emergence of cloud accounting. This concept, also called online accounting, involves the same functionalities as accounting software installed on the client's computer, but providing accounting services through online computing solutions (Dimitriu; Matei, 2014).

For Khanom (2017), the cloud accounting mechanism is transforming the way accounting applications are used and is modernizing the entire business environment, because instead of buying traditional accounting software and installing it on each user's machine, cloud accounting makes accounting data available via the internet, facilitating access to information. According to studies carried out in Bangladesh on cloud accounting systems, it was suggested that a framework be developed for its implementation, warning that when adopting cloud accounting, four measures should be considered: feasibility, study, planning, implementation and renewal (Islam et al., 2015).

A study carried out in India analyzed the impact of cloud accounting from the perspective of accounting professionals. It found that although most of the survey participants were aware of the cloud accounting trend, a large proportion had not implemented the system in their businesses (Rao; Jyotsna; Sivani, 2017).

In line with this scenario, big data operations aim to improve decision-making. Its value for business lies in its ability to transform data into useful knowledge for business purposes. In order to achieve the transformation of data into information and knowledge, there is an intense involvement of human tasks, which mainly requires the accounting professional to carry out these tasks. In view of this, the emergence of big data has changed the daily tasks of accounting. A company that uses big data and invests significant resources in collecting data, processing it and analyzing it, expects to obtain more efficient knowledge and results from high-quality information, aiding decision-making (Tien, 2013).

It is relevant that achieving high-quality data requires it to be complete, accurate, valid, relevant, consistent and timely. High-quality data is an important asset and has a major impact on an organization's performance (Gorla; Somers; Wong, 2010). Conversely, poor quality data, of any type and from any source, can negatively affect the work of accounting, you can't be analytical without data and you can't be good at analysis without really good data (Davenport, 2014).

The responsibility of accounting is evolving from merely reporting historical value added to also include measuring organizational performance and providing management with decision-related information. With big data extracting information from internal and external data, it is possible that accounting can use analytical techniques, such as BSC (Balanced Scorecard) and BI (Business Intelligence), to answer what has happened and what will happen (Appelbaum et al., 2017).

In the work carried out by Rao, Jyotsna and Sivani (2017), which aimed to "Analyze the impact of cloud accounting from the perspective of accounting professionals", it was found that digital transformation has brought several advantages to accountants, such as: accessibility, security, cost reduction, ease of use, data storage capacity and availability of information.

Finally, the process of change in the accounting professional's DT context depends on their personal skills. Better adaptation to technologies and the exchange of information between professionals in the field are now essential. In addition, accountants must improve their intellectual knowledge of the digital environment, as the professional of the future will not be an expert in technology, but will have to relate to it by adapting and possessing digital knowledge and skills (Fredo, 2021).

Accountants' personal skills

Accountants are experiencing changes in the way they work, requiring retraining and the entry of new professionals with different skills. From the perspective of human resource management, DT requires people with digital skills who can replace the existing workforce, and this makes it challenging to compete for talent with these skills, as these are young digital and analytical talents who tend to prefer tech giants (Yugue, 2022).

In this way, technologies are being inserted in such a way as to rethink the processes, knowledge, skills and attitudes of accounting professionals in the face of the perception of DT. Digital practice is gaining competitive advantage and organizations are taking steps to acquire employees with digital skills and encourage a culture of sharing knowledge in the workplace (Fredo, 2021). The digital competencies of accounting professionals include digital literacy, digital skills, e-skills, internet skills and media literacy. These components are responsible for determining a professional's work with technology (Laar et al., 2019).

For accountants in the digital and globalized economy, the enabling competence is made up of professional and ethical behavior, problem solving and decision making, communication, self-management, teamwork and leadership. And for the development of these competencies, criteria such as technological changes, systems, AI, cryptocurrencies and blockchain, cloud computing and data analysis must be considered (Borgonovo; Friedrich; Wells, 2019).

According to studies carried out by Bowles, Ghosh and Thomas (2020) in Australia and New Zealand on the future competencies for accounting professionals, ethical capacity and integrity were identified as the most relevant, followed by critical thinking and judgment, adaptive mentality, self-management and learning (Bowles; Ghosh; Thomas, 2020). Therefore, competence is an effective intervention to express a value judgment, through related knowledge, developed skills and attitudes applied to real daily life (Zabala; Arnau, 2015).

Technical knowledge and ethics remain vital, but some types of technical knowledge and some skills will increase in value and others will decrease, and new knowledge and skills will be needed, and these ideal competences may vary according to the area of application and functions in organizations, industries and geography within countries and between countries (Lyon, 2019).

Finally, there is still a conservative tradition among some accountants and this may be associated with the very conservatism emanating from the essence of the profession. In contrast, TD means that accountants need to act with the attitude of putting into practice the adaptations required by TD, as they are aware of the benefits related to a process of adaptation and change (Fredo, 2021).

Attitude

A leader needs to be confident in an environment where there is constant change and transform according to the demands of the moment. This skill is particularly relevant to the protagonist leader, as they already have this competence developed and companies in the new economy need these professionals, whether they are managers or not. This attitude is the way to take corporations to the next level, as it is these professionals who transform the business world, promoting digital and cultural transformation (Andrade, 2022).

No matter how developed the company's culture is, from the very start of implementing DT, it takes time for all the projects developed and proposed to be aligned with DT. After all, it is necessary to take into account the pace of updating and adaptation of management, employees and investment in Information Technology (Randon, 2021).

It's important for professionals to be flexible and agile in their learning, to have solid foundations and to get out of inertia and take action, always being visionary, with faith and purpose. There is only agility and transformation in a collaborative environment, and this depends on the attitudes of each individual. When this attitude exists, a support network is formed and solutions emerge from unity, a focus on people and interaction between them (Andrade, 2022).

Accountants are aware of the challenges that TD presents in the dimensions of business modeling, requiring constant changes and adaptations to be able to apply their knowledge, develop skills and attitudes, and continue to evolve in line with technology (Fredo, 2021).

Knowledge

Knowledge can be referred to as the sum of skills, attitudes and behaviors that will be effective when interrelated with each other and with the tasks applied on a daily basis. Knowledge represents superficial

characteristics that are visible and easier to develop, i.e. it corresponds to knowing because it is likely that someone only knows how to do something (Zabala; Arnau, 2015).

The accounting professional's knowledge cannot be completely replaced by technology. Their digital experiences relate to the technical knowledge that the individual acquires from interacting with technology (Santonastaso; Macchioni, 2022). Accountants need to possess diverse technical, ethical and professional knowledge, such as retrieving data from large databases to be used in ethical decision-making, communicating, being a leader and defining the organization's strategies. The technical knowledge, ethics and professional skills of accountants cannot be replaced by technology (Riddell, 2016).

Skills

Skills express what can be done, i.e. specific abilities that people need to do a good job. Accountants' digital skills are directly related to their functions, which are determined by their job title (Santonastaso; Macchioni, 2022). When employees have high creative digital skills at work, they are more likely to generate new and useful ideas for new services and processes using the Internet. The digital environment supports employees' creativity in collecting, integrating and generating knowledge (Karakaya; Demirkan, 2015).

In DT, skills start from digital information management, integrated with critical thinking, creativity and cooperation to solve problems. Accountants need to be willing to develop their skills in order to use technology effectively (Fredo, 2021).

Perception of the Digital Transformation (DT) Reality

Companies are becoming increasingly submissive to the use of innovation due to the information age and the application of new technologies, making them dependent on the skills of the employees who visualize, develop and implement these technologies, and, at the same time, these people are obliged to keep their knowledge and skills up to date (Soudane; Moujtahid, 2021).

Jobs and tasks that require critical thinking, a high level of creativity and training, as well as human contact, will not be automated any time soon. However, routine tasks that do not require a high level of education and training and that require a little more human communication can be easily automated (Oschinski; Wyonch, 2017).

Digital Transformation (DT) is already present in accounting. Many accounting tasks are already automated in accounting companies, such as invoicing, payroll and accounting entries, and their automation has been implemented because it consists of routine work, with repeated, stable and structured actions (Fredo, 2021). Accountants still need to develop important technological skills, such as the application of software to analyze, interpret and present financial and non-financial data more quickly and effectively, these skills facilitate and streamline the day-to-day life of the accounting professional, making them more productive (Lawson; White, 2018).

Technologies such as big data, data analytics and cloud platforms, combined with the accountant's intellectual knowledge, support the construction of new personal skills; the quality of information using these tools can favor decision-making. On the other hand, not all accounting professionals in Brazil are familiar with these analytical technologies in their daily lives, in the context of applicability and skill (Fredo, 2021).

III. Methodological Aspects

Research design

Typology in terms of technical procedures

The data collection method seeks to analyze social, economic and demographic data, most often by applying questionnaires. It is possible to carry out probabilistic or even census sampling; an example of this type of study is the polls on voting intention on the eve of elections (Almeida, 2014). In this sense, as for the technical procedures, data was collected by applying a questionnaire to the accountants and bookkeepers of Bento Gonçalves/RS-Brazil, in order to ascertain the practical reality of these professionals and the theoretical concepts raised through bibliographical research.

Typology in relation to objectives

Descriptive research aims to describe the characteristics of a given population or phenomenon, or to establish relationships between variables. It involves the use of standardized data collection techniques: questionnaires and systematic observation. It generally takes the form of a survey (Matias; Pereira, 2019). We chose to use descriptive research, as data was collected using a questionnaire.

Typology in relation to how the problem is approached

Quantitative research means that everything can be measured numerically, i.e. it can be translated into numbers, opinions and information in order to classify and analyze them. It requires the use of statistical

resources and techniques (Matias; Pereira, 2019). As for how the problem was approached, this study used quantitative research with the use of statistical techniques.

Data collection and analysis procedures

Initially, a literature review was carried out on digital transformation and digital transformation in accounting, adapting the research by Fredo et al. (2023). A questionnaire was then developed, with the target audience being accountants and bookkeepers from Bento Gonçalves/RS-Brazil. The results of the survey were adjusted in Microsoft Excel and analyzed using IBM's SPSS statistical analysis software. These data include the technologies that accountants use to carry out their activities, as well as the level of importance, in the opinion of these professionals, of the use of technology in their area of work.

III. Results

Profile of respondents

In order to better identify the Accounting Professionals in the municipality of Bento Gonçalves/RS-Brazil, information was sought through an online questionnaire, collecting 52 responses. It is worth noting that this research consists of presenting and analyzing the profile of these professionals, their level of knowledge about the main technologies and their application on a daily basis, as well as the level of importance that these technologies express for these accountants.

According to the responses obtained, it can be seen in Table 01, where some aspects that characterize the profile of the respondents are gathered, that in relation to gender, the female public is more active in the accounting profession when compared to the male gender, resulting in a difference of 27%. In this sense, according to the Higher Education Census, there are 524,500 active accounting professionals, 224,000 of whom are women, representing almost 43% of the class in full activity (Pasetto, 2018).

In terms of age, more than 40% of respondents are between 21 and 30 years old. It is also possible to observe in relation to the target audience's level of education that almost 60% have studied up to undergraduate level, i.e. a bachelor's degree in accounting sciences. With regard to the time since their last academic degree, 32% of respondents completed their studies more than five years ago and 25% in less than a year.

Table 1 - Respondents' profile

Gender	Amount	%	Age group (years)	Amount	%
Male	19	36,5	Between 21 and 30	23	44,1
			Between 31 and 40	11	21,2
Female	33	63,5	Between 41 and 50	11	21,2
			Over 51	7	13,5
			Education	Amount	%
Technical Level	3	5,9	Less than 1	13	25
Undergraduate	31	59,6	Between 1 and 3	14	26,9
Specialization or MBA	14	26,9			
Master's Degree	2	3,8	Between 3 and 5	8	15,4
Doctorate	1	1,9			
Post-doctorate	1	1,9	More than 5	17	32,7
Total	52	100	Total	52	100

Source: Research data (2023).

Area of activity

In order to identify the respondents' work in the accounting field, questions were asked about the area in which they work most of the time, the branch of activity and the length of time, in years, that they have worked in the areas answered. The data obtained complements the profile of the respondents, providing a better understanding of the accountants interviewed.

Table 2 - Area of Activity

Most of the Time	Amount	%	In accounting	Amount	%
Finance	6	11,5	Industry	11	21,2
Tax	18	34,6			
Accounting	17	32,7	Commerce	8	15,4
Corporate	3	5,8	Services	13	25
Audit	0	0	Accounting firms	36	69,2
Management	1	1,9			
Personnel Department	3	5,7			
Public Administration	1	1,9	Public sector	6	11,5
Management	2	4,0			

Banking	1	1,9	Banking	1	1,9
Total	52	100	Total	52	100
Relevant Practice Area	Amount	%	Time at work	Amount	%
Accountant in organization	8	15,4	1 to 3 years	15	28,8
Accounting entrepreneur	16	30,8			
Consultant	1	1,9	4 to 6 years	10	19,2
Professor	2	3,9	7 to 10 years	7	13,5
Collaborator in an organization	19	36,5	11 to 20 years	10	19,2
Public accountant	6	11,5	More than 20 years	10	19,2
Total	52	100	Total	52	100

Source: Research data (2023).

Table 02 shows the area in which the respondents work, their length of time in the job and the field of accounting in which they work. With regard to the relevant area of activity, 36.5% of the professionals are employees in an organization, and 30.8% are accounting entrepreneurs, which is compatible with the 36 professionals who answered that they work in an accounting office. With regard to the sector they work in most of the time, 34.6% of the respondents claimed to be in the Tax sector and 32.7% work in the Accounting sector.

Based on the data collected, it is possible to identify that the highest concentration of accounting professionals is in companies working as employees, representing 36.5%, followed by 30.8% of respondents who are entrepreneurs. It is possible to note that some areas such as auditing and forensic accounting are not mentioned by the respondents, causing concern about their scarcity. The accounting profession has a diversity of areas, but professionals need to constantly seek knowledge and adapt to the evolutions that the market demands (Purificação; Buesa, 2014).

Level of Knowledge of Technologies

In order to check the level of knowledge about the technologies, the questionnaire included questions in which the accounting professionals had to provide a kind of score, between 1 and 5, with 1 considered insignificant and 5 considered extremely significant, in relation to their knowledge about big data and data analytics, cloud platforms, mobile technologies and ERP systems.

Table 3 - Level of knowledge about technologies

Big data e data analytics	Amount	%	Cloud platform	Amount	%
1	12	23.1	1	1	1.9
2	9	17.3	2	2	3.8
3	13	25	3	6	11.6
4	12	23.1	4	16	30.8
5	6	11.5	5	27	51.9
Total	52	100	Total	52	100
Mobile technology	Amount	%	ERP systems	Amount	%
1	1	1.9	1	2	3.8
2	0	0	2	2	3.8
3	2	3.8	3	6	11.5
4	17	32.7	4	17	32.7
5	32	61.6	5	25	48.2
Total	52	100	Total	52	100

Source: Research data (2023).

Table 03 shows the respondents' level of knowledge of the technologies. With regard to big data and data analytics, 23.1% of the professionals have a significant level of knowledge. As for the cloud platform, 51.9% said they had an extremely significant level of knowledge about the platform.

Mobile technologies are the best known to accountants, as well as being a tool for personal use, with 32 respondents saying they had an extremely significant level of knowledge. Finally, ERP systems are also well known by accounting professionals, with 48.2% of respondents demonstrating an extremely significant level of knowledge of this technology.

With the data gathered, it is clear that the accounting professionals in Bento Gonçalves/RS-Brazil are making progress in their search for knowledge about technologies, taking into account how positive these tools can be for the development of their services, generating agility, precision and the opportunity to apply new services for their clients.

Level of importance of technologies

By applying the questionnaire, it was possible to collect data on the level of importance of the technologies, considering the respondents' opinions. The same scoring method was used, between 1 and 5, with 1 considered insignificant and 5 considered extremely significant, in relation to big data and data analytics, cloud platforms, mobile technologies and ERP systems.

Table 4 shows the level of importance, in the respondents' perception, of the main technologies. 32.7% of respondents considered big data and data analytics to be an extremely important technology. Cloud platform technologies and ERP systems resulted in 57.7% and 57.8%, respectively, having an extremely significant level of importance. Mobile technology, on the other hand, was considered the most significant technology according to the accounting professionals, resulting in an extremely significant level of 67.4%.

From the data obtained, it can be seen that the vast majority of accounting professionals consider it extremely important that technologies are present in the day-to-day work of accountants.

Table 4 - Level of importance of technologies

Big data and data analytics	Amount	%	Cloud platform	Amount	%
1	4	7.7	1	1	1.9
2	3	5.8	2	0	0
3	13	25	3	4	7.7
4	15	28.8	4	17	32.7
5	17	32.7	5	30	57.7
Total	52	100	Total	52	100
Mobile technologies	Amount	%	ERP systems	Amount	%
1	1	1.9	1	2	3.8
2	0	0	2	0	0
3	2	3.8	3	5	9.6
4	14	26.9	4	15	28.8
5	35	67.4	5	30	57.8
Total	52	100	Total	52	100

Source: Research data (2023).

Application of technologies

Table 5 shows the application of technologies and how fundamental they are to the accounting profession. The technologies most applied by professionals are cloud platforms, mobile technologies and ERP systems, in that order. Measuring the level of how fundamental the technologies are to the profession resulted in 78.8% being extremely significant.

Table 5 - Application of technologies and rationale for the profession

Technologies used in 2023	Amount	%	Level of how fundamental technologies are to the profession	Amount	%
Big data and data analytics	7	13.5	1	0	0
Cloud platforms	38	73.1	2	1	1.9
Mobile technologies	39	75	3	2	3.8
ERP systems	42	80.8	4	8	15.4
None	1	1.9	5	41	78.8
Total	127	244.3	Total	52	100

Source: Research data (2023).

Technological skills and multidisciplinary development of accountants

Regarding the age factor being a barrier to acquiring skills in the use of technology, it was possible to collect this data according to the scoring method, between 1 and 5, with 1 considered insignificant and 5 considered extremely significant. In addition, accounting professionals were asked what they consider to be harmful to the multidisciplinary development of accountants, with the option of choosing more than one opinion, and the results are shown in Table 6.

Table 6 - Technological skills and multidisciplinary development of accountants

Is age a barrier to acquiring the ability to use technology?	Amount	%	What do you consider to be detrimental to the development of multidisciplinary training for accountants?	Amount	%
1	3	5.8	Lack of personal skills	21	40.4
2	7	13.5	No network of colleagues with information	12	23.1
3	22	42.3	Lack of learning opportunities	24	46.2
			Lack of access to resources (time and	23	44.2

			money)		
4	14	26.9	Lack of encouragement from professional bodies	19	36.5
			No relevance to their activity	5	9.6
5	6	11.5	Tax code	1	1.9
			Personal choices	2	3.8
Total	52	100	Total	107	205.7

Source: Research data (2023).

Table 6 shows the technological skills of the respondents and their opinion on what they consider to be harmful to the development of multidisciplinary training for accountants. Measuring the level of the age factor being a barrier to acquiring skills in the use of technology, 42.3% considered it reasonably significant.

The question about the respondents' opinion on how harmful it is to the development of multidisciplinary training for accountants was applied with the free choice of more than one option, and suggestions could be made for other possible answers. As a result, 24 respondents believe that the lack of learning opportunities is detrimental, and 23 professionals agree that the lack of resources, such as time and money, is detrimental to the multidisciplinary development of accountants.

According to the results obtained, a considerable number of people believe that age is a barrier to acquiring skills in the use of technology. Also, when analyzing the answers to what these professionals consider to be detrimental to the multidisciplinary training of accountants, the lack of learning opportunities received the most votes, followed by the lack of resources. Today's accounting professionals still have a high level of compliance with obligations to government bodies, and end up not devoting enough time to ways of implementing technologies to streamline their processes.

Table 7 - Annual gross revenue of the organization in which you work

R\$	Amount	%
Up to 100.000,00	7	13.5
From 100,000.01 to 500,000.00	20	38.5
From 500,000.01 to 1,000,000.00	7	13.5
From 1,000,000.01 to 5,000,000.00	8	15.4
Above 5,000,000.01	10	19.1
Total	52	100

Source: Research data (2023).

The data in Table 7 shows that 38.5% of the respondents work in organizations with annual gross revenues of between R\$100,000.01 and R\$500,000.00, which are considered micro and small businesses, and which are widely established in the market. According to updated information from SEBRAE, micro and small-sized companies (MSEs) increased their share of the small business group and came to represent 21.2% in the first quarter of 2023, where in 2022 they corresponded to 19.2% (Sebrae, 2023).

Insertion of content in the accounting curriculum

According to Table 8, it is possible to identify the type of content that respondents believe should be included in the accounting curriculum in the face of technological advances. In this question, professionals had the opportunity to choose more than one option.

Table 8 - What type of content do you believe should be included in the accounting curriculum in the face of technological advances?

Type of content	Amount	%
Use of technology in the profession	14	41.1
Practical accounting activities	10	29.4
Mandatory digital declarations	7	20.6
Corporate department in practice	3	8.9
Total	34	100

Source: Research data (2023).

Regarding the type of content that respondents believe should be included in the accounting curriculum in the face of technological advances, 41.1% believe it should be about the use of technology in the profession, followed by practical accounting activities, corresponding to 29.4%. The computer is a powerful tool capable of bringing about important changes in teaching, such as replacing lectures with instruction based on practical cases, as well as providing new learning methods that motivate and bring about real student development (Ferreira, 2019).

Cross-tabulation

In order to improve the identification of the respondents' belief in the age factor as a possible barrier to the acquisition of skills in the use of technology, the information was cross-tabulated according to the accountants' age groups, as shown in Table 9.

Table 9 - Age factor x Age group

		Age range (years)				
		From 21 to 30	From 31 to 40	From 41 to 50	Above 51	Total
Do you believe that age is a barrier to acquiring the ability to use technology?	Insignificant	1	0	1	1	3
	Not significant	4	0	2	1	7
	Significant	13	3	5	1	22
	Very significant	5	4	2	3	14
	Extremely significant	0	4	1	1	6
Total		23	11	11	7	52

Source: Research data (2023).

A cross-tabulation was carried out between the respondents' age group and their opinion on whether age is a barrier to acquiring skills in the use of technology. Table 9 shows that the majority of professionals aged between 21 and 30 consider the age factor to be a significant barrier to acquiring technological skills.

Professionals aged between 31 and 40 agree very and extremely strongly that the age factor is a barrier to acquiring technological skills, and respondents aged over 51 believe this to be very significant. With the data collected, it is possible to ascertain that the age factor significantly implies the development of technological skills by accounting professionals, characterizing the more experienced public with greater difficulties in enhancing these skills.

IV. Final considerations

The theoretical background presented shows that accounting and the accounting professional are constantly evolving, especially in relation to the digital transformation, which creates the need for accountants to develop a series of technological skills to adapt and reinvent themselves, in order to deliver the best service, as well as enabling them to do so with greater agility.

According to the questionnaire, the majority of respondents are female and 31 professionals have up to undergraduate level education, as well as claiming to use ERP systems, mobile technologies and cloud platforms more frequently in 2023, in that order. This data shows how women occupy a significant space in the accounting industry, an environment that was more attractive to men until recently. It can also be seen that technologies challenge some accounting firms that are considered to be traditional, because DT provokes new perceptions of innovation to create opportunities and generates more competition, but the professionals interviewed showed interest and openness so that this adaptation can take place.

Taking into account the research problem, which was to answer which difficulties in developing personal digital transformation skills are perceived by accounting professionals in Bento Gonçalves/RS-Brazil, and analyzing the data collected through the questionnaire, the hypothesis raised was that the majority responded that the lack of learning opportunities is the biggest difficulty for these professionals, as educational institutions are still flawed when it comes to technology, when referring to accounting.

During the course of the research, there were limitations in relation to the lack of material in Portuguese, which led to the conclusion that there are few Brazilian authors publishing on DT. To sum up the general objective, the research describes and analyzes whether there is resistance on the part of the region's more conservative accountants to adapting to the digital age.

In addition, it was verified whether accounting professionals are already part of the digital age, their opinion on the subject and their level of preparation for dealing with technology. From an academic point of view, the aim was to show the importance of professional adaptation to market demands, as well as the search for knowledge that until then had not been demanded as much.

For future studies on DT in accounting, it would be interesting to carry out research into how professionals are seeking to adapt to TD in their daily lives. In addition, the implementation of more developed technologies in the public sector is also something to be studied, given that the methods used constantly present difficulties in obtaining information.

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