

## **Accounting in the Fourth Industrial Revolution: from the perspective of accounting professionals from Abaeté and from the students of the accounting sciences course at UEMG, Abaeté unit**

**A Contabilidade na Quarta Revolução Industrial: sob a ótica dos profissionais contábeis de Abaeté e dos alunos do curso de ciências contábeis da UEMG unidade Abaeté**

**La Contabilidad en la Cuarta Revolución Industrial: en la perspectiva de los profesionales contables de Abaeté y de los estudiantes del curso de ciencias contables de la UEMG, unidad Abaeté**

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### **Abstract**

The article will address the effects of the Fourth Industrial Revolution and the future of the accounting profession, referring to technological evolution. It is intended to answer what are the perspectives of accounting professionals and students of the Accounting Sciences Course at UEMG/Abaeté on the future of the accounting profession, after the advances provided by the Fourth Industrial Revolution. The methodology used will be qualitative research, through data collection and presentation in graphs and tables. The nature of the research is applied and exploratory, as it is a new subject, but one that inhabits professional and academic environments. It will be descriptive, therefore, a questionnaire will be applied to office owners and students from UEMG - Abaeté, it will be a field research being the target audience, Accountants from the municipality of Abaeté, Minas Gerais and students from the University of the State of Minas Gerais - UEMG Abaeté Unit. Intentional probabilistic sampling will be used, implying that everyone has knowledge about the subject, even if at a different level. According to the authors, there are risks for some professions, but having the adequate knowledge for the various aspects of Industry 4.0, it will be possible to remain in the market. The results pointed to a certain knowledge about the challenges to be faced with the new technologies arising from the Fourth Industrial Revolution.

**Keywords:** Accounting; Evolution; Fourth Industrial Revolution; Innovation.

### **Resumo**

O Artigo abordará os efeitos da Quarta Revolução Industrial e o futuro da profissão contábil, referente à evolução tecnológica. Pretende-se responder quais as perspectivas dos profissionais contábeis e os alunos do Curso de Ciências Contábeis da UEMG/Abaeté sobre o futuro da profissão contábil, após os avanços proporcionados pela Quarta Revolução Industrial. A metodologia utilizada será pesquisa qualitativa, através de coleta de dados e apresentação em gráficos e tabelas. A natureza da pesquisa é aplicada e exploratória, pois trata-se de assunto novo, mas que habita ambientes profissionais e acadêmicos. Será descritiva, pois, será aplicado um questionário aos proprietários de escritórios e aos alunos da UEMG – Abaeté, será uma pesquisa de campo sendo o público alvo, Contadores do município de Abaeté, Minas Gerais e alunos da Universidade do Estado de Minas Gerais - UEMG Unidade Abaeté. Serão usadas amostragens probabilísticas intencionais, subentendendo-se que todos têm conhecimento sobre o

assunto, mesmo que, em nível diferente. Conforme os autores, existem riscos para algumas profissões, mas tendo o conhecimento adequado para as várias vertentes da Indústria 4.0, será possível se manter no mercado. Os resultados apontaram para um certo conhecimento sobre os desafios a serem enfrentados com as novas tecnologias advindas da Quarta Revolução Industrial.

**Palavras-chave:** Contabilidade; Evolução; Quarta Revolução Industrial; Inovação.

### Resumen

El artículo abordará los efectos de la Cuarta Revolución Industrial y el futuro de la profesión contable, haciendo referencia a la evolución tecnológica. Se pretende responder cuáles son las perspectivas de los profesionales de la contabilidad y de los estudiantes del Curso de Ciencias Contables de la UEMG/Abaeté sobre el futuro de la profesión contable, tras los avances proporcionados por la Cuarta Revolución Industrial. La metodología utilizada será la investigación cualitativa, a través de la recolección de datos y presentación en gráficos y tablas. La naturaleza de la investigación es aplicada y exploratoria, por tratarse de un tema nuevo, pero que habita ambientes profesionales y académicos. Será descriptivo, por lo tanto, se aplicará un cuestionario a los propietarios de oficinas y estudiantes de la UEMG - Abaeté, será una investigación de campo siendo el público objetivo, Contadores del municipio de Abaeté, Minas Gerais y estudiantes de la Universidad del Estado de Minas Gerais - UEMG Unidad Abaeté. Se utilizará un muestreo probabilístico intencional, lo que implica que todos tienen conocimiento sobre el tema, aunque sea en un nivel diferente. Según los autores, existen riesgos para algunas profesiones, pero teniendo los conocimientos adecuados para los diversos aspectos de la Industria 4.0, será posible mantenerse en el mercado. Los resultados apuntaron a un cierto conocimiento sobre los desafíos a enfrentar con las nuevas tecnologías derivadas de la Cuarta Revolución Industrial.

**Palabras clave:** Contabilidad; Evolución; Cuarta Revolución Industrial; Innovación.

## 1. Introduction

The Fourth Industrial Revolution and its effects, referring to the issues of technological evolution in several sectors of the world economy and also in the sectors of the Brazilian economy, that is, industry, services, finance, accounting, etc. The predictions, at first, seem catastrophic and frightening, seen, at the beginning of the work, when faced with a specific book “*The Fourth Industrial Revolution*” by the German Klaus Schwab.

According to Schwab (2016), unlike previous Revolutions that had a “matrix” technology that boosted the Industrial Revolution, such as the steam engine, the automobile industry and microelectronics, the technological wave spreads centrally. There are several technologies that will boost this new Industrial Revolution, based on digital connectivity.

The world is witnessing the beginning of the Fourth Industrial Revolution, followed with great advances in work techniques used by professionals in their fields. (Ferrari, 2019). According to Bryant (2019), in his report based on a survey carried out with three thousand accountants, in which ninety percent (90%) of this total, stated they believe that accounting has undergone a cultural change.

Aiming to follow the technological advances related to the Fourth Industrial Revolution, this paper presents as a problematization, the need to know how much the professionals of the accounting offices of Abaeté, State of Minas Gerais, as well as with the students of the Accounting Sciences Course at the Universidade do Estado de Minas Gerais [University of the State of Minas Gerais] - UEMG Abaeté Unit, are aware of the innovations that the Fourth Industrial Revolution promises, and how they position themselves, facing the new technologies available on the market and those that will emerge during the process, as technologies are renewed at every moment. Thus, the question to be answered by this article is: **what are the perspectives of accounting professionals and students of the Accounting Sciences Course at UEMG/Abaeté on the future of the accounting profession, after the advances provided by the Fourth Industrial Revolution?**

With the arrival of the Fourth Industrial Revolution, which will cause a transformation greater than the other three revolutions that took place in the past, as it has very specific characteristics, for example, the speed with which changes are happening and also the breadth and depth, which demonstrates new perspectives able to change organizational systems in a complex and simultaneous way. With such boosting factors, it is created expectations that technological innovations will

drastically influence the nature and characteristics of work, generating concern about the number of jobs that will be replaced or automated.

Faced with so many predictions about day-to-day technological advances in industries, companies, the job market, where experts from several areas of technology, economics and employment sectors guarantee extraordinary changes that will bring diverse and irreversible consequences from a technological economic and even financial perspective (SCHWAB, 2016).

Considering that Accounting and Accounting professionals need to be fully inserted in this context, it is necessary to **understand the expectations of students of the Accounting Sciences course and professionals from the accounting offices of the municipality of Abaeté, State of Minas Gerais have in relation to the innovations brought by the Fourth Industrial Revolution.**

Schwab (2016) highlights that the Digital Revolution, which is one of the themes of the Fourth Industrial Revolution, will be primarily responsible for changing concepts of professional relationships of involvement and collaboration between individuals and institutions. The author stresses the difficulties that may arise in areas directly or indirectly affected by the effects of this Industry 4.0. With technological developments, methods, processes in industries in general, the evolution of systems, new data analysis techniques and the production of increasingly efficient and effective results from these sophisticated data analyses, which will bring more speed and accuracy to the of managers' decisions.

Thus, preparing this paper is justified to society for its thematic relevance, to the academy for trying to understand if professionals and students in the accounting area are prepared for the innovations arising from the Fourth Industrial Revolution, and to the market, since the foreseen changes promise affect several sectors, even threatening the existence of some professions, including the accounting profession.

## 2. Methodology

From the concepts related to the methodology, the construction of this article is characterized as qualitative research, since bibliographic concepts were used to clarify about Accounting and the Fourth Industrial Revolution, as a way of answering the objectives, data collections were carried out together to accountants in the municipality of Abaeté and students of the accounting sciences course at UEMG - Abaeté Unit. The data obtained were transformed into numerical information for better use and understanding of what is sought to be achieved. For such, it was used statistical techniques to obtain answers from the collected data that are presented in charts and tables.

The nature of the research used in the creation of this article follows the applied type, for the reason that the study is based on the actions that are being sought or developed, to adapt to the changes to be implemented and those already carried out by the Fourth Industrial Revolution affecting the Sciences Accounting, that is, those involving students and accounting professionals.

For the field research, the owners of the accounting offices in the municipality of Abaeté and the university students of the Accounting Sciences course at UEMG/Abaeté were chosen. It was used intentional non-probabilistic sampling, as it is understood that office owners and students have knowledge on the subject, even if they cannot all be considered at the same level, due to some factors such as: time of experience and practice that office owners have in relation to university students. This proposal would be providing data collection through sources with a high level of confidence, in relation to the research issue.

Therefore, the article is based on bibliographic research, using means such as books, magazines, articles, documents from the scientific environment, in the construction of an adequate theoretical framework for the clarification, understanding and conclusion of the problem and also the reach of the desired purposes.

Aiming to contextualize the Fourth Industrial Revolution and what changes are expected for the Brazilian accounting sector, the research will be exploratory in the search to develop more clearly the doubts on the subject, which are unleashed in professional and academic environments. Especially for accountants and students of the Accounting Sciences course, the changes that are to come and directing actions to accounting professionals with the purpose of transforming these doubts into accessible concepts that are easy to understand for all.

Descriptive research was also used, for which a questionnaire was applied in the accounting offices of the city of Abaeté - MG and for the university students of the Accounting Sciences course at the Universidade do Estado de Minas Gerais [University of the State of Minas Gerais] – UEMG, academic unit Abaeté, State of Minas Gerais. The questionnaire was applied in person at the accounting offices and made available online for students of all school periods. Data analysis was performed without changes by the researchers.

The research proposes to identify the knowledge of proprietary accounting professionals, technicians or bachelors in accounting, of the offices of Abaeté - State of Minas Gerais and of the students of the Accounting Sciences Course at UEMG/Abaeté, about the Fourth Industrial Revolution and its effects on some professions, with a main focus on accounting, and human relations in the face of technology and new technologies proposed by Industry 4.0.

A field research was carried out with the application of a questionnaire to the owners of the offices installed in the city of Abaeté – State of Minas Gerais, with a total of 12 offices and to the students of the Universidade do Estado de Minas Gerais [Accounting Sciences course at the University of the State of Minas Gerais] – UEMG Abaeté – State of Minas Gerais, totaling 108 university students from different school periods working at the unit. Altogether, the sample was completed with the application of 120 (100%) questionnaires, obtaining a response from 46 (38.33%) subjects, and those who did not return totaled 74 (61.67%) subjects.

### 3. Results

Table 1 describes the population composing the sample, it can be seen that the young population represents the largest share of respondents 56.52% from 18 to 25 years old (men and women), it was also observed, the percentage expressive of 65.21% of respondents being female.

**Table 1:** Gender and Age.

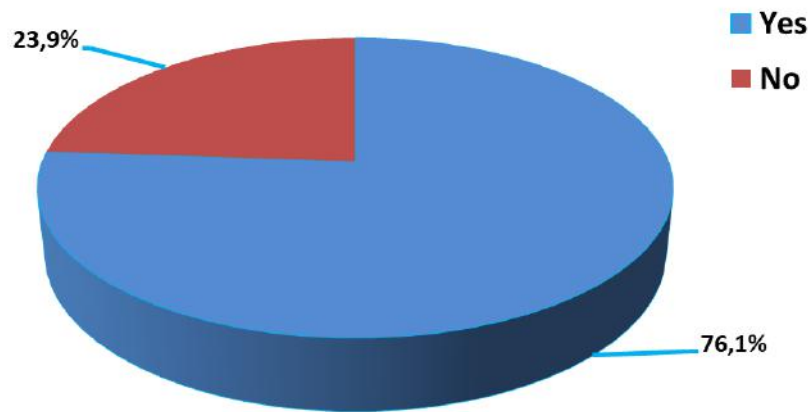
Age (years)	Men	%	Women	%	TOTAL (%)
18 to 25	7	15.22%	19	41.30%	56.52%
26 to 36	2	4.35%	5	10.87%	15.22%
37 to 47	3	6.52%	4	8.70%	15.22%
48 to 60	2	4.35%	1	2.17%	6.52%
61 above	2	4.35%	1	2.17%	6.52%
<b>TOTAL</b>	<b>16</b>	<b>34.79%</b>	<b>30</b>	<b>65.21%</b>	<b>100.00%</b>

Source: Research Data.

Table 1 contributes to the understanding regarding the characteristic of the sample, the fact that the number of answering students has exceeded the number of accountants may have interfered in the reduction of the average age, in this regard, the data are in line with the results found by Cardoso and Nagai (2018), who pointed out the participation of students in universities, with an average age of 26 years representing 65% of the total. In terms of gender, the results are inconsistent, since Cardoso and Nagai (2018) found 35% women and 65% men.

It can be seen through Figure 1 that 76.1% of the target audience are aware of the Fourth Industrial Revolution while 23.9% are unaware of the matter.

**Figure 1.** Aware of the Fourth Industrial Revolution.

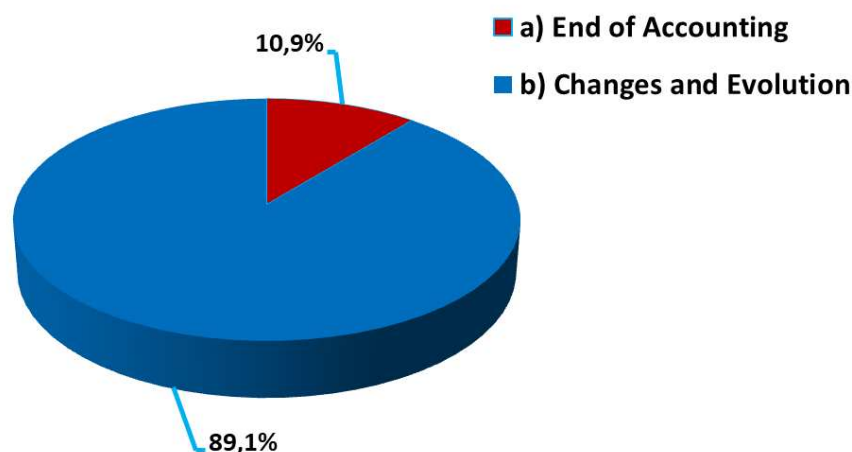


Legend: 23.9% | 76.1% - a) Yes | b) No. Source: Research data.

The results found in Figure 1 confirm the importance of the new perspectives brought by the fourth industrial revolution, the fact that most respondents are aware of the existence of a new evolutionary perspective is in line with the research by Francisco, Da Veiga and Da Cunha (2018), who pointed out to self-knowledge about the fourth industrial revolution as a condition for technological development.

In Figure 2, it is observed that 89.1% believe in the change and evolution of accounting, showing that the professional is also open to the changes that are to come. While 10.9% believe in the end of accounting.

**Figure 2.** End of Accounting or evolution period of Accounting.



Legend: 89.1% | 10.9% - a) End of Accounting | b) Changes and Evolution. Source: Research data.

The results of Figure 2 show hope on the part of accountants and students, in the matter of survival of the profession, in the face of the challenges generated by artificial intelligence arising from the fourth industrial revolution. These results confirm the data found by Lima (2019), who pointed out that more than 60% of respondents disagreed with the end of the

accounting profession being caused by the fourth industrial revolution.

## 4. Discussions

### 4.1 The Accounting

As stated by Almeida (2017), accounting is an influential social science for decision-making, through the search for information, deep analysis and heritage registration, which is its subject matter of study.

According to Holanda (2001), accounting as a science of asset control is responsible for controlling and knowing the economic, social and institutional development of entities. It began in the cities of Venice, Genoa, Florence, Pisa, and others, where in the golden era, mercantile, economic and cultural activities represented what was most modern. It also went through the great maritime discoveries, it was strengthened in the industrial revolution with the appearance of the steam engine and it had the maturity in equal proportion in the strengthening of capitalism. Today, there is no idea of what the future holds, that is, there is no consensus regarding the future of accounting.

To know how old accounting is, you can have the bible as a reference. In one of his books, considered to be one of the oldest, the book of (Job, 1.3) says: “There was a very wealthy man named Job, whose patrimony was inventoried in detail in the book of Job” (Job, 42.12). “After losing everything, he recovers the goods, and a new inventory is presented in Job” (Zanluca & Zanluca, 2017).

Since then, accounting has been evolving and adapting to the innovations created, increasingly adhering to the digital age. (CFC, 2016). Research carried out by Oxford University shows that the chances of the services provided by accountants being replaced by machines with Artificial Intelligence (AI) are above ninety-four percent (94%) (Duartes, 2018).

On the other hand, for Breda (2019), President of the Federal Accounting Council (CFC) of Brazil says that he does not believe in the end of accounting, that it adapts to the environment, because, during the three Industrial Revolutions that occurred earlier, Accounting changed and remained.

As the world evolved and went through the three Industrial Revolutions, accountants and accounting recreate themselves and adapt to the innovations of the profession. Coming to the 21st century, it is necessary to take a college degree to be recognized and provide service as an accountant, no longer having only the profession of bookkeeper, being able to choose the area of activity, within accounting, in a wide range of options, among them: Business Planning, Education, Self-Employment and Public Bodies. (Reis, Silva, Silva, 2007).

### 4.2 The Regional Accounting Councils

On May 27, 1946, the Federal Council and the Regional Accounting Councils were created, through Decree-Law No. 9. 295, comprising in Art-10 all the attributions applicable to the Regional Accounting Councils – CRCs, namely: (Brasil, 1946)

- a) to issue and register the professional card provided for in article 17;
- b) to examine complaints to written representations about registry services and infringements of current legal provisions, relating to the exercise of the accounting profession, deciding on the matter;
- c) to inspect the exercise of the professions of accountant and bookkeeper, preventing and punishing infractions, as well as sending detailed and documented reports to the competent authorities on facts that they find, and whose solution or repression is not within their competence;
- d) to publish an annual report of its work and the list of registered professionals;
- e) to prepare the proposal for its internal regulations, submitting it to the approval of the Federal Accounting Council;
- f) to represent to the Federal Accounting Council about new necessary measures, for the regularity of the service and for inspection of the exercise of the professions foreseen in subparagraph “b”, of this article;
- g) to admit the collaboration of class entities in cases related to the matter of the previous paragraphs (Brasil, 1946).



The first CRC created in 1946 was in the state of Maranhão, it took 49 years for all Brazilian states to have their own Regional Accounting Council. (Brasil, 1946)

To be aware of the difficulties faced by accounting professionals regarding new technologies, both with regard to hardware and software, according to Nascimento (2019), in an article in which the analysis of the skills of accounting professionals, having as purpose the study about the perception of the professionals registered in the CRC's of the states of Paraíba and of Pernambuco on the process of implementation of the e-social in the daily accounting practice, it was possible to conclude that, the professionals felt challenged and tried to adapt to the new proposals of the e-Social, which is a representative of the new technological implements to facilitate inspection and tax collection, according to the author:

It was also noticed that professionals aimed at technology to adapt to e-Social, as an alternative support to what traditional media are lacking, for example the CRC's to which they are linked, and they fall short in supporting their professionals. In this regard, both the theme and the tool under analysis are of great importance in the process of continuing education for accounting professionals, so that they can get used to the various challenges that have not yet been overcome. (Nascimento, 2019).

#### 4.3 The Fourth Industrial Revolution

According to Bezerra (2019), the First Industrial Revolution began in the mid-eighteenth century, and caused major changes in human relationships, being responsible for the creation of the Mechanized Factory System; During the Second Industrial Revolution, improvements in techniques were promoted, as well as the creation of machines and new means of production.

The Third Industrial Revolution, in turn, represented a period of technological advancement that brought together science and industry that began in the mid-twentieth century, with the development of electronics, robotics, genetics, information technology and telecommunications, promoting the automation of industries. Within this period, the participation of the internet and electronics reduced the distance and time of the processes, consolidating the development of knowledge and the interaction between people and institutions, a process that became known as globalization (Bezerra, 2019; Kochhann, 2021).

According to Schwab (2016), the current conjuncture of the Fourth Industrial Revolution poses great challenges and requires an understanding of the structure of this new Revolution that can influence the habits of the whole society. Also according to the author, this revolution will influence the habits related to the daily life of each human being, whether in basic needs or professional needs. For Schwab (2016) the Fourth Industrial Revolution will provide something never before experienced by humanity:

I am well aware that some academics and professionals consider the developments that I am looking at as simply a part of the third industrial revolution. Three reasons, however, underpin my conviction that a fourth and distinct revolution is underway:

— **Velocity:** Contrary to the previous industrial revolutions, this one is evolving at an exponential rather than linear pace. This is the result of the multifaceted, deeply interconnected world we live in and the fact that new technology begets newer and ever more capable technology.

— **Breadth and depth:** It builds on the digital revolution and combines multiple technologies that are leading to unprecedented paradigm shifts in the economy, business, society, and individually. It is not only changing the “what” and the “how” of doing things but also “who” we are.

— **Systems Impact:** It involves the transformation of entire systems, across (and within) countries, companies, industries and society as a whole. (Schwab, 2016).

Another component of the Digital Revolution, according to Schwab (2016), is the blockchain, highly revolutionary, and used in several sectors, it has a function of involving and improving collaboration between individuals and institutions. Blockchain is also known as “distributed ledger”, but it is actually a:

Secure protocol in which a computer network collectively verifies a transaction before recording and approving it. The technology that underpins the blockchain builds trust, allowing people who do not know it (and therefore have no underlying basis of trust) to collaborate without having to go through a neutral central authority – i.e. a depository or central ledger. In essence, blockchain is a shared, programmable, cryptographically secure, and therefore trusted ledger; it is not controlled by any single user, but can be inspected by all. Bitcoin is the best-known blockchain at the moment, but this technology will soon give rise to countless others (Schwab, 2016).

According to Athayde Junior (2018) the Fourth Revolution is the era of artificial intelligence more accessible to the population, smartphones and increasingly modern computers, in addition to the technological innovations that are emerging such as: big data, gamification and hyperconnectivity.

The Fourth Industrial Revolution will cause solid changes in the social, economic, political spheres, in addition to the IT area (Hardware and Software) with artificial intelligence, it can be highlighted the transformations in a new way of working, which will require more intellect instead of manual strength (Camargo & da Luz, 2021). New standards will emerge to be followed, new types of customers with new needs, demanding that professionals adapt to new techniques in order to meet these customers. This full transition to the Fourth Revolution can take up to twenty years, with the peak years of transformation being the next five to ten years. (Tadeu, 2016; Amorim, 2017).

This new revolution has a dual character, to the extent that it can either become a boon for humanity or its downfall. In this regard, there is a change even in the economy that now tends to be collaborative, that is, companies like Airbnb, one of the largest online hosting platforms, do not have a single real estate venture, or Blablacar, which also does not have any cars, but is a reference alongside Uber, in relation to private transport. (Camargo & da Luz, 2021).

According to Pagotto (2019), the term Industry 4.0 is not new and is already fully inserted in our environment, deeply impacting companies, people, routines and even the mindset of society on a path of no return and literally real. Used in the market and media since 2011, identifying a global productive-social-economic phenomenon of changes, transformations and technological innovations in the fields of information technology in which automation, connectivity - a network of connections and technologies such as the internet of Things (IoT – Internet of Things) – Artificial Intelligence (AI), cloud data, big data, and several other innovations, including robotics.

Also according to Pagotto (2019) Brazil is not out of this process, on the contrary, it would already be engaged and in production rhythm, but below what experts expect, to have an idea: according to the National Confederation of Industry (CNI), In the last 2 years, the use of Industry 4.0 technologies by large companies grew by 10%, from 63% to 73%, which is not enough, because Brazil is literally behind, especially when it comes to small and medium-sized companies that have immense difficulties to adapt to this digital transformation. Training, unskilled labor, very high tax burden, lack of public policies and incentives for technological innovations end up preventing investments in technologies by these companies.

#### **4.4 The Fourth Industrial Revolution in Accounting**

According to Athayde Jr. (2018), the Fourth Industrial Revolution or Industry 4.0, unlike the other three previous industrial revolutions, in which accounting would have adapted, including to information technology innovations, with computers, the internet, digital accounting, and that these innovations had actually helped accounting professionals over the past few decades. But the current revolution, as some studies are demonstrating, poses a real danger to traditional professions, including accounting. Based mainly on a publication by the University of Oxford in England in 2013, which deals with the



likely end of some professions, including accounting, as they would die with the advent of technological innovations brought about by Industry 4.0.

The essential material for the accountant to carry out its function is a computer with all its specific programs installed. It is known that these kinds of software tend to become more powerful and modern due to artificial intelligence, which is increasingly present in our days. And this evolution becomes of paramount importance for the accountant to carry out his activities in less time and with quality feedback for the company regarding its costs and investments. (Santos, 2015).

This new industrial revolution intends to take the accountant out of his activities of just making entries and printing tax slips and placing him as a thinking person for the company, using his knowledge in data analysis, and transforming the numbers into information for customers. (Santos, 2015).

According to (Duarte, 2017), in his Article, published in January 2017, “data from KPCB (Kleiner Perkins Caufield & Byers) show that Brazilians occupy third place in the ranking of the most active internet users in the world”. Therefore, still according to (Duarte, 2017):

Digital Transformation in Accounting: Innovate to Thrive.

Many accounting companies still operate in the traditional way, with a lot of paperwork, bureaucracy and little innovation and technology. It is necessary to be aware of the digital transformation, which is changing the profile of the consumer, and this also applies to clients of accounting offices.

According to data from We Are Social, published by the news portal R7, until 2015 Brazil had 276 million connections via cell phone. This number confirms the fact that the search for information in real time is a reality, and that your accounting office needs to have mechanisms to meet this demand. (Duarte, 2017).

As stated by Schwab (2018), although online or digital accounting are part of the evolution of the profession in recent times, they can, according to Industry 4.0 predictions, be replaced by evolutions of themselves (online and digital accounting). Even so, however, not everyone believes in the drastic end of these professions, not even the main authority on the subject (Industry 4.0). Also according to the author, professionals should keep their focus on constant updating, and on learning new activities related to new technologies. The search for IT skills, such as: use of systems based on “data mining” techniques (the Management System itself, BI – Business Intelligence, Machine Learning, Big Data, Cloud Computing, etc.) and several other backup tools, and database, no longer on physical units, but in the cloud and the use of fully online systems, through internet access and other sophisticated means.

There is an incredible list of new activities linked to the evolutions of Industry 4.0, which must undoubtedly be analyzed and pursued with vehemence, this must also come from the universities that train new accountants, so that these new trends are included in the graduations of these new professionals. (Schwab, 2018).

Even so, online accounting or digital accounting, are the expressions that will be common, at least until the effects of Industry 4.0 arrive, and offices and their professionals must be fully aware of these new etymologies, and also update themselves, because it will not only be the expressions that identify the activities that will change, but all the routines. According to the vice-president of the CRC-PR (Regional Accounting Council of Paraná), Laudelino Jochem, in the article by journalist Luperine (2018), Brazil, since 2010, has been experiencing an exceptional moment, with the adoption of the International Accounting Standards, together with the SPED project, which became a milestone for Brazilian accounting professionals, who were domestic accountants and today are professionals capable of doing accounting in more than 140 countries, despite being good events for these professionals, this event brings moments critical, as this, combined with artificial intelligence, leads to disruption, that is, a paradigm shift with regard to technological innovation.

Still according to Jochem (2018), artificial intelligence is gradually replacing human material, especially in repetitive tasks such as entering data into systems, as well as in the preparation of reports. This situation, according to the vice-president

of the CRC-PR, is taking great strides and has replaced some jobs in the accounting sector, since all activities that can be performed manually, with human action, can be implemented through of artificial intelligence. The author emphasizes that, in a scenario of uncertainties, a crisis is already being witnessed, mainly in accounting companies, because, perhaps, of the delay and the difficulty of managers to assume and insert themselves in this new context.

#### **4.5 Empirical research**

Contreiras (2015) sought to show micro-enterprises that reached a high level of growth with the beginning of the Fourth Industrial Revolution. The case study model used as a sample a technology company, from the city of Anápolis, State of Goiás, and aimed to encourage and promote projects to create free machines, helping other companies to optimize their activities with self-financing. The article resulted in the recognition of the quality of the company and the products created by it.

Rizzo (2019) questioned the future of Brazilian companies with the need to adapt to the new way of working that is emerging with the Fourth Industrial Revolution. The purpose of the article was to present a broad view of the new working relationships that will exist with the implementation of new technologies in Brazil. Through the research carried out, the author concluded that it would not be time for Brazil to enter the Fourth Industrial Revolution due to failures in several aspects. It is suggested the training of several sectors of society, such as the educational system, labor and government.

Cavazzana, Alves and Chaves (2018), evaluated Management Systems in the market, with the aim of suggesting systems that are most suitable for their needs, in addition to meeting technological innovations aimed at accounting firms in general. As a result, the need for accounting evolution towards increasingly integrated systems was identified, bringing information that is actually relevant for decision making.

Neutzling and Vier (2014) studied the future market perspectives for the accounting profession, the methodology used was field research, with questionnaires applied to students of the Accounting Sciences course at Faculdades Integradas de Taquara, data analysis was carried out with the graphics aid. The results showed the risks arising from the technological revolution on the future of the profession as median.

### **5. Conclusion**

Despite the predictions of the Fourth Industrial Revolution, from the perspectives of some professions, work methods and also a significant change in the way in which individuals and entities will relate to the technological evolution with regard to the Industry 4.0 of Schwab, it is almost unanimous, according to the authors' reflections, that accounting should not be eliminated, but those involved with this specific profession must always be attentive to technological developments.

When tracing a timeline, it is clear that the then operational executor (the accountant of the past) has been assuming the figure of a consultant, who, in addition to generating data, is able to suggest new ideas, find trends and opportunities for improvement; always aligned with the strategic management of the entity.

When it comes to the future of this professional, it is important to say that many changes are yet to come. In a simple analogy, the accountant can be seen through the ages, initially performing his functions through rudimentary techniques, soon after adapting to globalization and mastering the use of technologies. That said, trends in information technology, brought about by the Fourth Industrial Revolution event, alluding, for example, to the use of Artificial Intelligence, can be represented as a continuation of evolution through time.

In a way, the result of this research is satisfactory, taking into account not only the students of UEMG, but also the owners of offices in Abaeté, State of Minas Gerais, after all, the work shows a certain awareness of these respondents in

relation to the Fourth Industrial Revolution and the paths that accounting should follow so as not to be left out of the race for technological innovations, since according to the studies, the difficulties will be immense.

The respondents showed interesting knowledge about the Fourth Industrial Revolution and its effects, since, every day, it becomes more noticeable that the Fourth Industrial Revolution is already a reality.

The results show that most participants are well related to technologies and their innovations, even understanding that the innovations proposed by the Fourth Industrial Revolution are much deeper and will bring technologies that are not yet within the reach of the majority.

It can be concluded that the professionals in the sector are responsible for the incessant search for knowledge that will give prominence and conditions to act in such a modern era, considering accounting as the main focus, which will increasingly demand high performance and mastery over the new technologies.

This article contributes to the accounting profession and the students of Accounting Sciences courses, with regard to awareness and motivation for continuous technological updating to ensure the profession's permanence in the market. As a suggestion for new research, there is the option for other professions mentioned by Schwab and the inclusion of other Universities and municipalities. As a suggestion for future work, the expansion of the sample can be indicated, the use of more robust econometric models and the study of the relevance of the fourth industrial revolution and the future of other professions.

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