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# ACCOUNTING & AUDITING INDUSTRY IN THE CONTEXT OF INDUSTRIAL REVOLUTION 4.0.

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**SUMMARY**
The industrial revolution 4.0, the digital era has been changing the environment and working conditions of accounting - auditing. In Vietnam, we are also changing to follow the global trend. In the present study, the author presents some issues related to trends, working environment in the field of accounting - auditing in the digital era, directions to develop competitiveness of individuals and organization operating in the field of accounting - auditing. This is not only a solution to contribute to solving the problem of accounting and auditing quality, but also helps individuals and organizations improve their competitiveness in the field of accounting and auditing in the digital era.

**Keywords: Future accounting, future audit, 4.0 era**

## 1. Introduction

The world is changing at a rapid pace in the digital era, the skills and knowledge requirements for accountants and auditors are also changing. Especially with the achievements that humanity has achieved in technology, accounting - auditing will have even more breakthrough changes. Jobs in the field of accounting - auditing is and will be gradually replaced by artificial intelligence. This poses an urgent requirement for those who have been, are, and will work in the field of accounting - auditing to understand and be aware of their opportunities and challenges, to find the right direction for his/her professional development.

## 2. Accounting - auditing in the current period is gradually changing compared to the previous ones

Among the industries and fields that have made great strides in the digital era, accounting - auditing is one of the industries that is considered to have the strongest change. While in the past, accounting - auditing was the work of bookkeeping, calculation, and financial reporting; Auditing is mainly the work of checking the data that accountants have done. Today's accounting-auditing work is more complex and in forms that did not occur in previous decades.

Initially, on the threshold of industrial revolution 4.0, foreign businesses do not even have accountants, all documents are scanned and transferred to an accounting service center located in another country, outside. Besides, there are online meetings on appraisal, investment… In addition, with the support of accounting software, the number of accountants in an enterprise is decreasing while the labor force supply in accounting - auditing is constantly increasing. This puts the workforce in the finance - accounting - audit sector into a state of crisis when it fails to exploit the opportunities and challenges that the digital era brings. Not only that, but the digital era also warns that financial service companies will be disrupted and removed from the market when they fail to exploit the value that the digital age brings.

Many people worry whether accounting - auditing - finance is still necessary today along with the rapid development of technology. The Institute of Management Accountants investigated how technology affects accounting, and the skills and knowledge needed to thrive in a technology environment in July 2017. Of the 161 senior finance professionals surveyed, 42% said that they are also worried about new technology with artificial intelligence, automation will change their jobs (only 5% are very worried). ), the remaining 58% said they were not worried at all. According to the survey results, the jobs that will be automated in the next three years are asset depreciation, payment; The jobs that are judged to be less likely to automate our inventory, reconciliation, analysis, and forecasting. Thus, manual jobs are gradually replaced by artificial intelligence. Professional knowledge and

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skills are involved in artificial intelligence. This trend is extending accountants' time to higher value-added jobs than before. In addition, according to the ACCA (Association of Chartered Certified Accountants) Investigative Report on the future of finance - accounting - auditing, the survey was conducted in 2016 with 18,646 people aged between 16 and 36 over 150 countries around the world, including Vietnam. Survey results show that 85% of people agree that professional experience and expertise in accounting - auditing - finance is very valuable to future leaders and is a good foundation for career development...

The digital era suggests many trends for the field of accounting and auditing. The work will no longer simply record, record, process, provide, check... but will be more extensive with computer processing and data structures, information security, data analysis. ... Thus, the 4.0 revolution with the demand for human resources with skills in data analysis and application development in the field of Finance is having the fastest growth rate today according to the report of the World Economy Forum in the period 2015-2020.

**3. Accounting – auditing in the digital era, with big data, artificial intelligence, internet of things**

The digital age is changing everything. Thanks to scientific achievements, accounting and auditing work has changed quite a lot. According to the Investigative Report on 100 factors leading to the change of global accounting published by the British Association of Chartered Certified Accountants and the Institute of Management Accountants (IMA) in 2012: by 2022, accountants need to providing information for strategic purposes, helping to solve potential financial problems in industry and the market, focusing on developing management accounting in addition to financial accounting; in the future, with the rise of big data, predictive analytics and intelligent accounting systems (artificial accounting intelligence) to plan, evaluate and develop business strategies, ensure compliance Comply with tax policies and market mechanisms, check the financial health of enterprises.

With the internet, accounting and auditing work can be done anywhere without being limited by geographical distance. Accountants - auditors in Vietnam can perform accounting - auditing work in any country around the world if the individual organization performing the accounting - auditing work meets the conditions. do accountants - audits in that country. And any accountant - auditor in any country that is accepted to practice in Vietnam can perform accounting - auditing work of enterprises and organizations in Vietnam. This creates both opportunities and challenges, posing a requirement for those who practice accounting and auditing in Vietnam to improve their capacity as well as their conditions to be able to meet the requirements of international practice. economy, enhance their status, and expand their practice scope.

Big data gives us access to limitless knowledge. This makes it possible for us to learn anything we need to know on the one hand, but it is also the surface for unorthodox information. It makes us cautious when accessing information and using it. Moreover, this large data source has the potential to be copied or hacked. It alerts us to system security measures anytime, anywhere.

With artificial intelligence, economists predict that many professions are at risk of disappearing because of the trend of automation. Some individuals fear that in the future, it is possible that accounting - auditing will be replaced by controlling robots and computers with software established thanks to scientific and technological applications. We believe that artificial intelligence can replace the manual work of accounting and auditing such as collecting, processing, and calculating data. But for stages such as analysis, finding the cause, and providing a solution for each specific situation, even situations that have never happened... then there is always a need for people. Although artificial intelligence cannot replace humans, it is changing the working environment and circumstances of accounting and auditing.

All of the above factors are creating new trends for the accounting and auditing profession. Accounting - auditing will not be able to stop at calculation, recording... but will be expanding opportunities to computer processing, information security, data analysis with the expectation of bringing more benefits to users. using information beyond numbers such as forecasting, evaluation, finding strategic direction... Its scope is not only limited to businesses and organizations but will be expanded to investment and financial services. major global. Therefore, the factors to create the survival and career growth in the audit field do not stop at the intelligence index, emotional index, and professional skills, but also extend to the ability to technology application, vision, creativity, and professional ethics.

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**4. The work of accountants - auditors are gradually being replaced by machines, robots, and artificial intelligence**

It is undeniable that the digital era is changing the accounting and auditing environment. According to the results of a 2016 survey by the British Association of Chartered Certified Accountants on future professional accountants taking place in 22 countries globally, including Vietnam: Trends are expected to have the highest impact of the 3 In the next 10 years, up to 55% of respondents believe that the development of automatic accounting systems is assessed to have the highest impact among trends, besides trends such as harmonization of accounting standards (42). %), business cloud penetration (41%), economic volatility (42%)… Accounting includes stages such as collecting, processing, analyzing, and providing information. All of these stages can be replaced by machines. At this time, accountants must be people who understand the technology and use technology for their work. Machines are artificial intelligence, it can be something that we can hardly do. However, they are only tools to support work in accounting - auditing, operating according to inherent programming, they are difficult to give judgments and advice in each case, especially with special circumstances. new situations that have never happened before. Moreover, accounting - auditing needs to follow certain legal regulations, people are always needed to update equipment as tools for their work. Artificial intelligence is a product created by humans and serves human purposes, automation can change working circumstances and conditions, but it cannot be affirmed that artificial intelligence can replace completely humans in the field of accounting - auditing but will place higher requirements in accounting: computer processing, information maintenance, data analysis, and computer networks.

However, each individual and organization operating in the field of accounting - auditing must be aware of the importance of technology to apply it to suit trends, save resources and increase work efficiency. . The British Association of Certified Public Accountants is also very concerned about this issue, conducting many research investigations. To survive and develop in the digital era, future accountants - auditors not only need factors such as intelligence, emotional index but also need additional elements necessary for growth. Career Development in the digital era such as technology skills, vision... According to the Research Report of Future Professional Accountants - Factors leading to change and future skills of ACCA published in 2016 as well pointed out that in the digital age, every professional accountant will be reflected in his competence and skills in 7 areas: professional skills and ethics (TEQ), experience (XQ), intelligence ( IQ), digital skills (DQ), creativity (CQ), emotional quotient (EQ) and vision (VQ).

An important thing in that digital age is a globally connected financial information system. This connection is brought about by technology and by the internet, it brings many investment opportunities, many sources of global financial information, but also potential risks in the financial system. The history of human development since the advent of technology and the internet has witnessed many pervasive economic crises in many countries, Vietnam is also among them and has also suffered a little bit of influence. . Then accounting, especially auditing, becomes an effective tool, and it is not surprising that auditing or financial consulting services are becoming increasingly important. Vision becomes one of the important factors in the development of those working in the field of accounting - auditing, financial consulting. And to achieve this accounting – auditing needs to change to meet the requirements of the new era, connect globally and meet the expectations of the public.

**5. Solutions to help individuals and organizations operating in the field of accounting and auditing improve their competitiveness, adapt and develop in the digital era.**

Thus, the digital era brings new opportunities and new challenges for individuals and organizations operating in the field of accounting and auditing. For individuals, who have been and will be working in the field of accounting - auditing, there are two highlights in the digital era that each person must be aware of to change: technological ability and ability. ability to make judgments (vision), besides a core factor besides professional competence is professional ethics. When every job can be handled by technology, professional ethics becomes more essential than ever to help build and define the true image of a business. Only accountants with professional ethics and respect for the truth can create true value for shareholders so that shareholders continue to invest in the business. Only ethical auditors can help investors determine the path with fewer risks and more opportunities, helping to protect the legitimate interests of the public. Thus, to seize the opportunities brought by the digital era, it is imperative that each accountant-auditor first understands the basic principles for all conduct in the professional field,

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to know what that behavior is. correct or incorrect standards, principles and must understand the most basic knowledge then can progress to higher-level knowledge in the process of becoming professional accountants - auditors. To do this, firstly, those who have been and will be entering the accounting-auditing career must clearly understand the basic professional knowledge, cultivate an experience, and regularly update changes. Second, maintain professional ethics, but the public interest above self-interest. This will contribute to the formation and development of professional skills and professional ethics, experience, and vision for accountants and auditors.

Moreover, in the fields of accounting, management accounting is also playing an increasingly important role in the new trend, helping businesses regulate business activities in the present and the future. Therefore, at the basic level, accounting work can be done automatically, businesses also need people to check, analyze, and even make assessments for the current and future financial situation. . Depending on the level, the employer pays their employees. An accountant-audit who knows how to seize opportunities is someone who not only fosters his professional skills, but is also able to use technology for his work, has a vision, and has a professional ethic besides his ability to do his job. creative, sensitive, and intelligent. At this time, each current and future accountant - auditor needs to train himself on how to use artificial intelligence (using technology) for his or her work from as simple as applying excel functions to software applications. accounting software, management software, analysis ... and ways to secure information for businesses and their customers, thereby exploiting the customer market thoroughly. In addition, fostering knowledge and applying the ability to see problems of management accounting in enterprises, besides the current trend of financial accounting. This is the area that helps increase investment benefits for the business itself.

Next, an indispensable means to help current and future accountants and auditors reach out beyond their scope of activities is the international language. Particularly for the field of accounting and auditing, the added benefit of language is not only communication language but also international expertise. Therefore, opportunities will be increasingly expanded for accounting teams - auditors of international standards, recognized to operate in many countries around the world such as ACCA, CMA, CIA... These certificates can help Vietnamese accountants and auditors maximize the scope of their activities, improve the competitiveness of human resources in the field of accounting and auditing in Vietnam.

For organizations providing accounting, auditing, and financial consulting services: In the global trend, investment goes beyond the national scope, professional accountants and auditors must have a vision, assess financial capacity honestly, and preserve investors. Companies that provide financial advice are forced to change in order not to be disrupted or possibly knocked out of the market when they fail to exploit the value that the digital age brings. Basically, easy to implement services such as accounting services, providing basic metric financial information bring normal profits, but only more advanced services such as providing analytical data. Financial analysis, in-depth consulting... are the sources of high profits for businesses. Thus, globalization, big data, internet of things, and technology are bringing a global market to businesses operating in this field, especially those with quality employees, high-quality products, and services. international service.

## REFERENCES

1. The Association of Chartered Certified Accountants (11/2017), Professional accountant – the future (Generation next): Managing talent in small and medium sized practices.
2. The Association of Chartered Certified Accountants (8/2017), Professional accountant – the future (Generation next): Ethics and trust in a digital age.
3. The Association of Chartered Certified Accountants (3/2017), Professional accountant – the future (Generation next): Managing talent in finance shared services.
4. The Association of Chartered Certified Accountants (11/2016), Professional accountant – the future: Generation next.
5. The Association of Chartered Certified Accountants (6/2016), Professional accountant – the future: Drivers of change and future skills.
6. The Association of Chartered Certified Accountants (2016), The future of audit

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International Journal of Engineering Technology Research & Management

7. The Association of Accountant and Financial Professionals in Business and ACCA (2013), Drivers of change in Asia-Pacific.
8. The Association of Accountant and Financial Professionals in Business and ACCA (2012), 100 drivers of change for the global accountancy profession.
9. Baygin, M., H. Yetis, M. Karakose and E. Akin, 2016. An effect analysis of Industry 4.0 to higher education. 15th International Conference on Information Technology Based Higher Education and Training.
10. Blasi, J.R., R.B. Freeman and D.L. Kruse, 2013. The citizen"s share: Putting ownership back into democracy. New Haven: Yale University Press.
11. Davis, R., 2015. Industry 4.0: Digitalisation for productivity and growth, briefing for the European parliament (PE 568.337) September 2015. European Parliamentary Research Service.
12. Doll, N., 2015. Deployment of the robots, World on Sunday.
13. Frey, C. and M. Osborne, 2013. The future of employment: How susceptible are jobs to computerisation?, London: University of Oxford.
14. Gabriel, M. and E. Pessl, 2016. Industry 4.0 and sustainability impacts: Critical discussion of sustainability aspects with a special focus on future of work and ecological consequences. Annals of the Faculty of Engineering Hunedoara, International Journal of Engineering, T.XIV, Romania.