

Impact of Industrial Revolution 4.0 to the Accounting Industry in Vietnam

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Abstract:

The paper provides comments on the characteristics of the industrial revolution 4.0 and the impact of industrial revolution 4.0 on the accounting profession in Vietnam. The achievements of the industrial revolution 4.0 such as artificial intelligence, cloud computing, blockchain, have helped the process of automating data entry, improving the accuracy as well as the diversity of input and lifting data. High dead amount of accounting information provided. In addition, the industrial revolution 4.0 also creates challenges for Vietnam's accounting profession such as requirements on information technology skills, adaptation skills, and global language skills. The article also offers solutions to help Vietnamese accountants develop better and adapt to the industrial revolution 4.0.

Keywords: Industrial revolution 4.0; accounting, auditing, Vietnam

1. Introduction

The Industrial Revolution 4.0 will completely change the channels and methods of mobilizing, distributing capital, methods of accessing capital, accessing financial and accounting products and services, the process of implementing accounting work. and the process of organizing financial and accounting information. Along with that, issues such as application programming interface, seamless distribution or intelligent analysis will be common applications in the development of financial products and banking services, especially the high-tech products and services of financial institutions and banking institutions. Industrial revolution 4.0 will create stronger competition, in new ways, on new content in the fields of financial services, banking, and payment services.

Vietnam is gradually integrating deeply into the world and regional economies by participating in many free trade agreements. The proactive preparation of the necessary foundation to access the Technology Revolution 4.0 (CMCN 4.0) will help Vietnam's economy in general and the financial, accounting and auditing sectors, in particular, participate effectively in Global value chain, contributing positively to the country's growth.

First of all, CMCN 4.0 will completely change the channels and methods of mobilizing, distributing capital, methods of accessing capital, accessing financial and accounting products and services, the process of implementing the next task. math and process of organizing financial and accounting information.

Secondly, Significant effects of the digital currency. The development of digital currencies, as well as other electronic money in the economy, will force financial institutions; credit institutions; The bank must change payment methods, change monetary functions and how to govern the nation's fiscal policy.

Thirdly, With the emergence of smartphones, smartphones have changed the way communication and interaction leads to changes in distribution channels, sales networks and payment methods in the economy.

Fourthly, with CMCN 4.0, issues such as programming interface, application (API), seamless distribution or intelligent analysis will be common applications in financial product and service development. , Bank.

Fifthly, CMCN 4.0 will definitely create stronger competition in new ways on new content in the field of services, finance, banking, and payment services. E-commerce has been developing strongly in Vietnam. When people understand the convenience, economy, and safety of electronic payment, mobile payment, Vietnam promises to become one of the most potential markets for developing electronic payment.

Sixthly, Accounting is one of the leading areas of information technology application. The accounting work is computerized, the accounting process has been and will change fundamentally when most of the accounting sections are applying information technology, including book recording and financial reporting activities. main.

Seventh, The development of telecommunications infrastructure in the context of CMCN 4.0 has set new challenges on security, first of all in the security of accounting management information, in payment operations, in activities. investment. Therefore, the issue of network security has become extremely important, while ensuring the national financial security, peace of mind and protection of the rights of users of financial and accounting services.

2. Method

The paper applies descriptive methods through the collection of previous domestic and foreign documents, research articles on cloud computing, artificial intelligence, Blockchain and their impact on the accounting profession in Vietnam. Male.

3. Content

3.1. Application of cloud computing (Cloud computing)

Cloud Computing, or Virtual Server Computing, is a computer model that uses Internet-based computer and development technologies. The term "cloud" here is a metaphor for the Internet (based on its layout in the computer network diagram) and as an association of the complexity of the infrastructure contained in it. , application of manipulating online accounting sections and tax declaration, is one of the typical examples in cloud computing application.

According to author Abdullah Mohammad Al-Zoub (2017), the nature of the impact of cloud computing on specific factors in the economic concentration system in enterprises is specifically presented: Setting up accounting organization ; Financial activities; Document; Accounting books; Financial report; User; Procedure; Software; Physical equipment. Research results show that, when applying cloud computing to accounting, it allows enterprises to reorganize their accounting apparatus in a compact way because they are not affected by geographical location and equipment. Economic analysis is enhanced thanks to timeliness and accuracy with support for processing and reporting in real time. Sales information is sent and received directly from customers and processed automatically through the cloud computing system. Information is established once and shared directly to the objects inside and outside the enterprise, ensuring the transparency of information while transactions between the parties take place. And finally, save on hardware and software costs during deployment and installation.

According to Ayman Mohamed Zerban's study (2015), when comparing between enterprises with and without using cloud computing technology in the process of data recovery due to technical errors, enterprises using technology in the process save and recover (takes 2.1 hours) 4 times faster than unused businesses (takes 8 hours).

Two authors Shaban Mohammadi and Ali Mohammadi (2014) in a comparative study between cloud-based accounting and traditional accounting models have pointed out the positive effects and risks that businesses face when Cloud computing application in accounting work. The study refers to cloud computing techniques integrated with applications in accounting, helping to improve the effectiveness of accounting work such as Data analysis; Expert system; Predictive support tools; Decision support software; The software provides continuous testing. These techniques support businesses in analyzing information, controlling information and assisting in making decisions on a regular and continuous basis.

The research results from the authors show that the positive impact when applying cloud computing to accounting work will help organize accounting work more effectively, accounting data is processed

automatically. and can share directly with related objects in real time, increasing timeliness, accuracy and transparency, data protected by high-tech companies and data recovery capabilities. also better. In addition, cloud computing technology can integrate applications based on artificial intelligence, Blockchain, to meet the requirements of data analysis, security and risk control in accounting. However, although accounting applications in the cloud computing environment are being widely deployed and introduced by accounting software companies, enterprises are not really interested in this technology because of some difficulties. Such as: Depending on the internet connection bandwidth, fear of information security of enterprises is revealed and enterprises' concerns when changing to a new platform will face many challenges.

3.2. Application of artificial intelligence (AI)

Artificial intelligence or artificial intelligence (English: Artificial Intelligence or Machine Intelligence, often abbreviated as AI) is the intelligence represented by an artificial system. Artificial intelligence relates to the behavior, learning and smart adaptability of machines including control tasks, planning, and scheduling, as well as the ability to answer questions about diagnose diseases, answer customers about a company's products, handwriting recognition, voice and face recognition.

According to research by Daniel E. OLeary (1991), artificial intelligence can have a significant influence on accounting databases that have developed models to support decision makers and focus on information needs. of the decision maker. Furthermore, recent developments in AI have underscored the integration of contextual and symbolic information that facilitates a broader understanding of accounting events, emphasizing the importance of data. Text and symbols rather than numbers to understand the situation of enterprises. In addition, the integration of intelligent systems with accounting databases can assist (either with decision makers or decision makers) in investigating large volumes of data regardless of or without the direct involvement of the decision maker. Therefore, systems can analyze data and assist users in understanding or interpreting transactions to determine which accounting events are collected by the system.

Currently, the application of automation technology and artificial intelligence to record books is becoming a reality when accounting software currently provides the ability to automate data entry and adjustment. Companies apply data entry using optical character recognition (OCR) technology by converting images, PDFs, and handwriting into soft-text documents, in addition to applying technology to the engineers. machine learning and tree decision to analyze the semantic in the sentence, thereby extracting important information and saving it in the database. A system like this can provide clear reports and advice on options to implement, at the same time all repetitive tasks, especially in accounting.

In addition, a tool that allows artificial intelligence to learn quickly is the "Machine Learning" technology. This innovation is based on algorithms that allow computers to interpret the data they receive, to improve their knowledge and functionality. The potential of this technology is the beginning of the predictive and analytical capabilities of artificial intelligence. Systems like this can provide specific reports and advice on options, to perform for all repetitive tasks.

By combining two known technologies, expert systems and decision support systems, researchers have brought a new technology called an automatic decision system. These systems perform data analysis, statistics and algorithms to make real-time decisions (Davenport, 2004).

In fact, the application of artificial intelligence to accounting work is becoming increasingly popular, making automated data collection and more diverse data collection, not just data. finance but also non-financial such as text, context, symbols. This increases the accuracy of the information and facilitates the analysis of economic analysis according to specific events and circumstances as well as support for decision making for managers. For example, A company uses artificial intelligence to help automate accounting work for small and medium enterprises. Customers will send invoices to the company, then they will be digitized, encrypted and then assigned to each accounting account in accordance with the provisions of the accounting standards. In this

process, the system will learn which documents to write on which account and over time, the work will be fully automated. The system has a mechanism to check the validity of data by checking accounts to see if they are sufficient and correct, the amount of money when issuing invoices match with the return or not, payment term How much is the bill.

3.3. Blockchain application

Blockchain is a hierarchical database that stores information in information blocks that are linked by encryption and expand over time. With the ability to substantially reduce the possibility of errors, prevent data modification, high security, Blockchain is evaluated by experts to become popular in the field of accounting and banking finance. According to the Blockchain report and the future of ICAEW accountants, three main features of Blockchain are highlighted: (i) A new transaction is made from one person and transmitted to an identical ledger network without control center; (ii) All transactions and records are permanently stored and are not likely to be tampered with or deleted; (iii) Blockchain programmed to automate transactions and control through smart contracts.

According to Nadine Ruckusus (2017), Blockchains are a shared database, maintained and verified among network participants, ensuring the transparency and reliability of information records without must have a third party. The paper also highlights the application of Blockchain in accounting and emphasizes the immutability of financial recognition based on a decentralized consensus that can prevent fraud.

According to Deloitte's (2016) report on influencing Blockchain to account, instead of keeping separate records based on transaction receipts, companies can record their transactions directly into the general register, create a continuous bookkeeping system. Since all items that are distributed and encoded, distorting or destroying them to conceal the actual operation is impossible and this reduces possible errors and frauds.

Blockchain offers two very important advantages for the accounting profession: transparency and invariant. It is a great benefit to the integrity of an accounting company whose records can easily be accessed by stakeholders. Of course, there must be rules that regulate even how objects can access financial records and Blockchain using smart contracts to meet such rules (Smart contracts are code blocks written to automate certain processes in accounting. Meanwhile, lower-level services such as account adjustments, bank adjustments, confirmations, accounts receivable and accounts payable are authorized for the Blockchain platform.

In addition, Blockchain is a cloud-based database that stores a wealth of information, including financial and non-financial information. Any information uploaded to the Blockchain network is validated and approved by existing members and then distributed to network members in real time. That means, data on Blockchain is theoretically secure against being stolen and adjusted data. At the same time, it greatly reduces the possibility of errors when comparing complex and different information from different sources.

Thus, the application of Blockchain will help businesses reduce errors in data entry based on automatic accounting functions in smart contracts and thereby reduce errors and errors in input data such as automatic import. material, easy comparison. In addition, Blockchain also helps reduce fraud due to the adjustment and modification of data after being accepted by the parties is almost impossible. Through smart contracts, many audit functions can be automated, reducing the time that auditors need to look at records, moreover, the traceability capability that is made up of Blockchain helps. The test becomes quick and easy. It can be seen that the quality of economic solutions will be much more transparent, accurate and complete when applying Blockchain technology into accounting.

However, most accounting software is not compatible with Blockchain technology. The company can purchase cloud-based accounting services as they become available and can hire a Blockchain developer to create a custom user interface for your company. As more and more Blockchain accounting platforms emerge to fill this new market, cost-effective solutions will reduce the need for custom-designed Blockchains.

4. The requirement to set things to do in the field of auditing accounting:

Enterprises operating in the field of accounting and auditing need to focus on the following tasks:

- Unifying and raising awareness, further strengthening the propagation and dissemination of knowledge on financial and accounting activities in the market economy, open integration and in the context of launching CMCN 4.0.
- It is necessary to continue to promote the development of technology infrastructure to serve the development of products and services of accounting organizations and at the same time develop policies to encourage financial institutions and organizations to provide accounting services to develop products and services based on digital technology.
- Need to continue to innovate and apply modern technology through the formulation and planning of information technology development strategies in economic - financial transactions, payment operations ...
- Focus on and strengthen network security management.
- Renovate and establish new accounting processes, from collecting, processing and importing accounting voucher data to processing and exporting information.
- Promote the development of accounting and auditing human resources, focusing on training high-tech human resources.

accountants still play a key role in accounting, because current machines cannot perform professional judgment and career skepticism. Besides, the accounting profession uses different and diverse data sets, which are difficult to standardize. However, to adapt to the technology, digital accountants need to be equipped with the necessary skill set, including a set of technological skills; ability to receive change; Communicate and fluent in English with a set of critical thinking, strategic and analytical skills.

In the CMCN 4.0 period now, accounting activities have been going on in the context of increasing international, regional and economic integration, so full awareness and proactive measures are needed. Let the accounting system operate effectively, convergently and harmoniously among countries. The success of accounting and auditing of each country depends on the sense, responsibility, and wisdom to catch opportunities and actively overcome challenges.

5. Some solutions for export and recommendations

On the management side

Firstly, it is necessary to focus on strengthening the legal framework, in particular: By 2020, issue standards of VAS / VFRS in the direction of updating and approaching international standards.

By 2025, apply IFRS in 3 levels: Companies with the public interest to implement IFRS prototypes; other companies apply VAS / VFRS; Small and medium enterprises implement accounting regime for small and medium enterprises. The full application of IFRS will help Vietnamese accountants and auditors open a new era to change the way of recording, measuring and presenting elements of financial statements.

Secondly, it is necessary to invest and develop information technology infrastructure in an asynchronous and timely manner to meet the development trend of the global digital system. In particular, focus on building a network security system, ensuring high security of accounting and auditing data.

Besides, it is necessary to study and apply effectively and appropriately the audit methods, including basic methods and technical methods, especially the methods of collecting and evaluating audit evidence, methods of

technical analysis in the accounting profession context using electronic vouchers, blockchain technology, cloud computing ...

Thirdly, there should be regulations to support enterprises in policies for training human resource accounting and auditing as well as developing guidelines on orientation and encouragement of labor transfer in the ASEAN Economic Community.

Fourth, continue to promote international cooperation, constantly developing markets of accounting and auditing services that are healthy and sustainable; Developing accounting and auditing service activities according to the development trend of regional and international countries, creating and expanding professional exchanges.

On the side of organizations and enterprises providing accounting and auditing services

Applying the right policies and regulations of the State. At the same time, invest in developing skilled staff, deeply knowledgeable about professional skills and capable of integration; Strengthen training to develop effective soft skills, active group activities and proficient use of digital technology according to market demand

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On the side of training institutions

Firstly, there should be changes in the training perspective. Training does not derive from what we have but must derive from the demands of practice, the requirements of the digital technology era, that is to provide high quality human resources for society.

Secondly, focus on specialized accounting and auditing training programs in line with the world development trend. Therefore, training institutions should review training programs in accounting and auditing.

The training program to be built must ensure the requirements of integration and interference in quality with the programs of advanced countries in the region and the world, in accordance with the training programs of professional associations aimed at mutual recognition between professional training institutions and diplomas and certificates.

Oxford Brookes University is an example, this is one of the top five schools ranked by the QAA Training Quality Assessment, officially cooperating with ACCA, thereby allowing ACCA students to receive bachelor's degree after completing the first 9 subjects of this ACCA program and this bachelor's degree is accredited by the QAA. This helps employers to be assured of the quality of candidates who are members or ACCA students.

In Vietnam, City University of Industry. Ho Chi Minh City, since 2011 has signed cooperation with ACCA on an accounting training program for students, which will bring 5/14 ACCA subjects into the training content for students in the third and fourth years of Accounting Department - Audit under the support of curriculum and lecturers from Smart Train Training Center.

Third, develop training content to help students after graduation adapts to the digital technology era. In addition to teaching professional knowledge, training organizations need to focus on training necessary skills such as effective communication skills, working in many different groups; critical thinking skills and problem solving on the basis of respect for professional ethics.

Fourth, moving from traditional teaching methods to applying positive teaching methods. Developing teaching in the direction of promoting the activeness, initiative, and creativity of learners, taking learners as centers.

Fifth, establishing relationships between training institutions with domestic and foreign enterprises. During CMCN 4.0, the establishment of relationships with businesses is expanding not only with domestic units but also abroad, because that helps the training and research activities to be integrated, award resolving problems of practice, meeting the requirements of enterprises.

On the accounting side and auditors

During CMCN 4.0, each individual operating in the field of accounting and auditing needs to be aware of the importance of technology to apply it to the trend, saving resources and increasing work efficiency.

An indispensable means for each accountant, KTV in the present and in the future is the international language. Opportunities will be increasingly expanded for the accounting teams - KTV of international standards recognized to operate in many countries around the world such as ACCA, CMA, CIA ...

These certificates can help accountants - Vietnamese KTV maximizes the scope of their activities, improving the competitiveness of human resources in the field of accounting and auditing of Vietnam.

The application of new technologies, especially cloud computing, artificial intelligence, and Blockchain, has made and will drastically change in the field of financial accounting. The quality of information of the economic system when applying technology will become faster, more timely and more accurate, with diversified and extensive integrated information including financial and non-financial information. This will help managers get more and more extensive information when conducting analysis and decision making in business and corporate governance. Besides, currently relying on the application of smart sensors, communication equipment, and integrated management solutions, enterprises can digitize the entire process from production, business to management. Information from the manufacturing process, through sensors, is digitized into real-time data and transmitted to processing systems and management systems. Thus centralized management systems always have complete, up-to-date and accurate data to help managers make timely decisions. The more digitized the more complete, the more updated and accurate information.

The industrial revolution created smarter technological solutions with stronger processing capabilities. It helps administrators everywhere, at all times, has enough information from grasping the panorama of businesses to querying the smallest transactions, instead of having to ask many people to look up from multiple sources, Help improve productivity and efficiency of work processes.

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