



ACCOUNTING AND AUDITING IN THE 4.0 INDUSTRIAL REVOLUTION IN VIETNAM

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Abstract

Industry 4.0 is already changing the environment, the working conditions of the accounting industry. The article presents some issues related to trends, working environment in the field of accounting - auditing in the digital era, directions aimed at developing the competitiveness of individuals, organizations operating in the field of accounting and auditing. Measurements to improve the quality of Accounting - Auditing, assisting individuals, organizations to increase competitiveness in The Fourth Industrial Revolution.

Keywords: The Fourth Industrial Revolution, Accounting – Auditing

1.1.THE EFFECTS OF THE FOURTH INDUSTRIAL REVOLUTION ON ACCOUNTING - AUDITING

The Fourth Industrial Revolution is allowing corporations to work in many different paradigms, using various technological advancements such as Artificial Intelligence, networked devices, cyberspace, nanotechnology, and biotechnology...This has changed the way companies work and professional accountants and auditors will need to adapt in order to suit the status quo and develop. In this vein, the education provided to accountants and auditors also needs to acclimate to better prepare for new graduates, allowing the training of accountants and auditors to follow new procedures in order to comply with technological development.

People increase their abilities and productivity thanks to machinery and technology; like how a calculator would allow humans to solve math equations faster, society grants greater abilities to workers who utilize those technologies. Three basic innovations that are stimulating profound transformations to current accounting methods and procedures are Digital financial statements structured base on XBRL (XBRL is a code through which companies and other parties can communicate business information), AI-based systems, and blockchain-based distributed ledgers (Blockchain is a distributed digital ledger or to simplify -- database which

operates in a network. This ledger is accessible to people participating in the network).

The first industrial revolution was the perfect result of the steam engine. The steam engine allowed the work to be done by machines rather than humans, greatly improving productivity. The Second Industrial Revolution resulted from the exploitation of oil and electricity to create mass production, assembly lines, and the invention of important technologies such as the telephone, light bulb, tape recorder, and internal combustion engine. Again, productivity increased dramatically. The third industrial revolution is the result of the shift from mechanical and electronic devices to more efficient and effective digital devices. This era saw the invention of the personal computer, the internet, and significant advances in information and communication technology. This is also a productivity improvement.

The Fourth Industrial Revolution was built based on the principles of The Third Industrial Revolution, including the advances of Artificial Intelligence; Interconnected physical devices (usually considered as the Internet of all beings); cyber-physical systems are mechanisms controlled or supervised by computer algorithms; nanotechnology is the control of matter on atomic, molecular and supramolecular scales, and biotechnology is the use of living organisms and living systems to create products. The common denominator of the four revolutions is the use and innovation of



technologies that allow for significant productivity gains. To achieve this, there needs to be an understanding between IT professionals and accountants as well as auditors. With the Industrial Revolution 4.0, the business manufacturing sectors in general and the accounting profession in particular suffer the following impacts:

Pressure to adapt: increasing workloads, increasing complexity

The World Economic Forum (WEF) predicts that the trends in careers in 2030 will include fields such as Computer science, marketing, AI, big data, and content production.

At the same time, the six occupations that the WEF predicts will decline over the next five years include Teachers; customer care; doctors, pharmacists; auditors, accountants; security, police; specialists. Automating to do specific tasks is not necessarily the whole job. Some accountants, auditors could lose their jobs if they don't adjust their skills appropriately. Additionally, while some jobs are lost, entirely new jobs may be created. For example, the advent of the automobile led to a decline in horse-related jobs. However, entirely new industries have emerged that have a significant positive impact on employment. Not only did the fast-growing automobile industry increase jobs in that sector, but jobs in the hospitality and fast-food industries also grew to serve all those long-haul drivers and truckers.

Another example is Automated Banking, a transactional model that is gaining a lot of attention globally, allowing customers to directly perform transactions such as opening accounts, opening savings books, depositing cash, ATMs, etc. by interacting with the machine without going through a broker. Thus, instead of working with the bank's staff, the customer can initiate the transaction themselves.

The development of automated banking systems is a piece of the puzzle that makes the image of banks in the Scientific Revolution 4.0 more complete, making it easier and more convenient for customers to make transactions with banks without having to go to the traditional trading counter. This comes from changes in service usage behavior and customer needs. A McKinsey survey of retail banking consumers with 45,000 consumers in 20 countries shows that digital channels are becoming increasingly important, even for countries that are slow to adopt digital. And, in fact, it has dramatically reduced the number of average bank traders.

The Fourth Industrial Revolution enables accountants in Vietnam to do accounting work in any country around the world, but also faced a major challenge from the massive influx of foreign workers in Vietnam. This creates fierce competition in the accounting workforce, if Vietnamese accountants do not improve their capacity and conditions to meet the international practice conditions, improve their position, and expand the scope of practice, they will be dismissed.

The combination of the computer and the human:

The computer is the machine. There are tasks that machines do well, there are tasks that machines are less adept at doing, and there are even some tasks that they can't do. The same is true of humans. There are some tasks that humans are very good at, and there are some tasks that machines do better than humans.

Human-computer collaboration and leveraging each other's strengths is how work will be done in the future. In the first industrial revolution, steam engines amplified the power of muscles. In the fourth industrial revolution, computers will amplify the power of the human brain. The ability of humans to be augmented by the capabilities of computers is an important way to increase productivity in the fourth industrial revolution. Assisted by computers, humans will spend less time on extraordinary tasks and more on customer service and creative work.

A study by the U.S. federal government on human-machine collaboration found that: In the next five to seven years, up to 1.1 billion hours of work could be freed up in the federal government each year, saving 37 billion dollars annually, potentially freeing up 30 percent of the time of federal employees.

Automation is done with machine-readable rules that allow automation. Accounting professionals need to be involved in creating and maintaining the rules that drive these automated processes. Auditors need to understand how these processes work, and what the rules are, in order to build an appropriate audit process.

Thanks to the Industrial Revolution 4.0, Vietnamese enterprises have applied high technologies to carry out accounting work such as accounting software, tax declaration software, electronic invoicing software, etc. have saved many accounting personnel and costs for enterprises.

Cloud computing has enabled businesses to store large amounts of data. However connecting to the Internet can lead to the risk of losing data information, which adversely affects the business production situation of the enterprise.

Digital financial statements

The inputs of digital financial statements do not change, but the information conveyed by that report is changing a lot compared to traditional reporting. Paper-based and even electronic financial reporting processes cannot be understood by computer processes. But digital financial statements that are structured based on XBRL (machine-readable computer language - known as XBRL standardizes financial data from around the world and enables temporal analysis) are machine-readable.

Most accountants still do not understand how to accurately convey the meaning expressed by the complex logical information that makes up a financial statement in a machine-

readable XBRL structured format. Accountants don't understand how to create business rules that help ensure that they don't make mistakes in communicating that meaning. Professional accountants do not take advantage of existing technologies to automate financial reporting. Most auditors do not really understand how audit information is conveyed by a structured XBRL-based digital financial report. This is because the financial reporting process is an extremely inefficient process. Here are some descriptions of the process:

- Consulting expert Gartner points out, "...average Fortune 1000 company used more than 800 spreadsheets to prepare its financial statements"
- Ventana research says, "...for larger companies, the compilation of periodic reports is often an inefficient and error-prone process".
- PriceWaterhouseCoopers points out, "...manual processes... "and are "often cut and pasted, or hand-transferred to word processing and spreadsheet applications used to assemble reports and review the steps of the process".

Auditing will not intervene manually.

Jun Dai and Miklos A. Vasarhelyi (2016) *Imagining Audit 4.0*. Journal of Emerging Technologies in Accounting provides a brief review of the 4.0 Industrial work in accounting.

Audit in the 4.0 era uses data collection devices such as sensors, computers, and software to collect data across the entire company and entities outside the company, such as suppliers and customers. Data analysis techniques are used to construct models based on these data for the purpose of monitoring product quality, identifying machine errors, saving costs, and facilitating decision-making. Audit work is largely automated.

In another article, DATA ACT 2022: Changing Technology, Changing Culture, published by Deloitte and the DATA Foundation, the authors provide a vision of what can be achieved by 2022: By 2022, if all goes well, spending information will also be automated: reporting, exchanging and auditing without manual intervention. The system will provide reports immediately; this implies that the manual audit steps are not added value, instead, the manual audit steps are unnecessary barriers that need to be removed from the system.

Accounting is the essence of knowledge.

The jobs of white-collar workers like accountants are probably feeling threatened by AI and other technologies. This threat occurs in many different industries and many different jobs. However, to survive, accountants need to adapt to machines and use them effectively.

The enormous potential of using technologies to increase productivity in this Fourth Industrial Revolution to free up resources presents huge opportunities for accountants facing limited resources. It's very likely that new tasks for white-

collar workers such as professional accountants will arise, many of which can only be performed by humans, making humans with the right skills even more valuable.

Managers can use these new technologies as a way to increase employee innovation; encouraging their employees to use the freed-up work hours to improve the services they provide to customers. Progressive-minded managers see these technologies as an opportunity to reevaluate the way accountants work, increasing the value they provide to their clients.

1.2.SOLUTIONS TO ADAPT AND DEVELOP IN THE DIGITAL ERA

At present, the Ministry of Finance is focusing on implementing the strategy for the development of Vietnam's accounting and auditing by 2022, projected 2023 with the following objectives: Continuing to complete the legal framework for accounting and auditing on the basis of international practices appropriate with the specific conditions of Vietnam; Reinforcing human resources in the field of accounting and auditing, ensuring parity with regional developed countries both in quantity and quality, recognized by internationals; Strengthening the capacity of state management agency in accounting and auditing, simultaneously increasing the work of professional vocational organizations, in order to enforce and support developing accounting and auditing services market in Vietnam. It can be seen that, given the current opportunities and challenges, there is a need to focus on developing solutions to address the following issues:

For accounting workers

In order to increase the competitiveness of the profession, and expand the scope of practice of accountants, Vietnamese auditors are constantly learning, updating their knowledge, participating in training courses aiming at international qualifications. In addition, accountants and auditors need to improve their foreign language skills, computer science, to be able to work alongside accountants and auditors in other countries during the integration process.

To become professional accountants, auditors, they need to strictly comply with the law and professional standards, being able to handle creatively complex situations arising at the enterprise, situations regarding conflicts of legal security and economic interests of the enterprise as well as shareholders.

For businesses:

Accounting and auditing is a highly specialized profession, therefore, accounting and auditing service enterprises must constantly apply new information technology in the work of performing accounting services, mastering the standards and Vietnamese accounting regime as well as understanding the standards and international accounting regime in order to operate effectively in the Vietnamese accounting market as well as the international accounting market.

Accounting and auditing service businesses must be especially concerned about "Cloud computing and Internet connection" because of the possibility of data theft, so they need to prepare even better information technology infrastructure, especially cybersecurity.

For training institutions:

The training institutions need to research analyze the characteristics of the 4.0 revolution to then propose innovations in all aspects, especially the innovation of training methods. It is necessary to continue to innovate the quality of our curriculum with the knowledge that comes with the evolution of this industrial revolution. Training institutions need to have apprenticeships in accounting, auditing in businesses to prepare students for starting their careers.

In addition, training institutions also need to build simulated accounting models with a system of testimonials, practical books to shape students' work steps in corporate accounting.

REFERENCES:

1. Accounting Today: Top 100 Extra: The Biggest Issues Facing the Profession, (Sept. 1, 2012) at www.accountingtoday.com.
2. Baron, Jon (2017) "Blockchain, accounting, and audit: What accountants need to know," Accounting Today.
3. Hood, Daniel (2016), Accounting Today: Looking on the Brighter Side: The profession's leaders share why its best days may lie ahead of it, and Accounting Today: The Audit of the Future – Virtual Roundtable at www.accountingtoday.com.
4. Hood, Daniel (2017), Accounting Today: Melancon: CPA firms will be unrecognizable in 5-10 years at www.accountingtoday.com.
5. Lewczyk, Megan (2016), Going Concern blog: Automation to Artificial Intelligence: New Frontiers for Auditors.