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by Melinda Malau

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ANALYSIS OF THE ACCOUNTING LEARNING DIGITAL DISRUPTIVE IN INDUSTRIAL REVOLUTION 4.0 AND SOCIETY 5.0

Melinda Malau

Accounting Department, Faculty of Economics and Business
Universitas Kristen Indonesia
melinda.malau@uki.ac.id

ABSTRACT

The Industrial Revolution 4.0 is a fundamental work processes and change in the way of human life. The advancement of information technology integrates the world with digital which can have an impact on scientific disciplines. The emergence of the Industrial Revolution 4.0 appeared in the stages of technological progress. The study of accounting learning in the era of the Industrial Revolution 4.0 was carried out. There is a variety of very fast transformations in design, operation, manufacturing, and production systems that cause digital disruptive. The existence of disruptive and degradation of human role then makes a change as Society 5.0, a human-centered society developed in Japan. Thus, the purpose of this study is to evaluate the things that have and need to be done in accounting learning in the context of Society 5.0. The study was conducted with descriptive, analytic and qualitative methods which were supplemented by literature studies and observations of the evolution of accounting learning. This study concludes that some have anticipated accounting learning in Society 5.0, but there are still many opportunities for improvement.

Keywords: society 5.0, industrial revolution 4.0, accounting, learning, digital disruptive

1 INTRODUCTION

The existence of technological changes that are very fast have an impact on the development of accounting learning. The era of the Industrial Revolution 4.0 called a change in work methods, and the focus is on data management, industrial work systems through technological advances, communication and increased work efficiency related to human interaction. Data is the main requirement of an organization in its decision making process, and is supported by unlimited computing and data storage systems (World Economic Forum, 2016).

Educators must be able to adapt to changes in accordance with the Industrial Revolution 4.0, so that accounting learning will become more effective. In this era, almost in all fields using digital, cyber and internet so conventional learning in schools is considered to be no longer his era. Therefore, an educator is required to be able to upgrade themselves optimally and independently and utilize existing

technology to improve the quality of education in Indonesia (Martani, 2018).

Aoun (2017) concludes that in achieving effective learning and in accordance with the expected goals, a thematic study is needed which is a combination of the tertiary environment and the real world of work. Thematic study is a real picture that introduces challenges to the world of work to students. A visionary curriculum is very necessary in accordance with the educational needs of this disruptive era. Where the concept is right to support millennial students to develop themselves to the fullest. This implementation will be maximized if the educator has qualified abilities.

The Industrial Revolution 4.0 was finally judged to have the potential to degrade the role of humankind, so that in January 2019 Japan gave birth to a new concept namely Society 5.0. Society 5.0 exists as a human-oriented social concept, which achieves a balance between economic progress and solving social problems through a system that integrates virtual space and physical space. Through

this concept, it is hoped that artificial intelligence will transform big data collected via the internet in various fields of life into new wisdom. The hope is to increase the ability of humans to open up opportunities for humans (Mayasari, 2019).

As a formal institution, universities are expected to be able to produce a competent workforce, ready to face the world of work in accordance with technological advances. Job skills and dynamic thinking are human resource requirements. The success of dealing with Society 5.0 is closely related to the innovation created by high-quality resources. Quality is the main indicator of college success, not the number of college graduates.

The problems that arise are as follows: (1) How to map strategic accounting learning in the Industrial Revolution 4.0 and Society 5.0? (2) How does the revised higher education accounting course respond better to the Industrial Revolution 4.0 and Society 5.0? (3) What is the analysis of learning, challenges and opportunities related to Society 5.0 in Higher Education?

2 LITERATURE REVIEW

Learning is a process that takes place from within a person that can change behavior in thinking, behaving and acting. Learning is a process in a person to achieve certain goals and behavior change is the result of learning or learning is a process of learning and learning outcomes (Gulo, 2002).

Learning is defined as a change towards development for the better. Internal factors originating from within the individual and external factors that come from outside the individual will influence the success of students in learning activities. Internal factors are physiological and psychological factors. Meanwhile, external factors are environmental conditions around students both social and non-social (Suryabrata, 2010).

Education is planned to create a society that is in accordance with the era. The mentality of the people according to the industrial revolution requires policies and strategies to really enter the economic era. For this reason, education needs to change and guide Indonesia towards the industrial revolution 4.0. (Jalal, 2018).

The digital era is a period where all humans can communicate with each other so close despite being far apart. We can quickly find out certain information even in real time. Globalization is a process of international integration, which occurs due to the exchange of world views, products, ideas and other

cultural aspects caused by the development of telecommunications, transportation and internet infrastructure. In this era, industrial manufacturing activities were integrated through wireless technology and big data which were carried out on a massive scale (Burrit, 2016).

Deloitte (2017) concluded that disruptive innovation is an innovation that can help create new markets, disrupt existing markets, and ultimately replace previous technologies. Rukmini (2018) quoted Salcito, Vice President of the Microsoft Company, America that technology is undergoing a revolution that affects the way people live, work, and interact. Humans are social creatures that require interaction between humans. Professionals in the world of work continue to prioritize interaction in partnership relationships.

Christensen and Bower (1995) research concluded that disruptive innovation spurs executives to be able to determine funding and purchases in a company. This is closely related to the company's future income. Disruptive innovation model is the ability of customers to use new things in a production line.

The Indonesian National Qualification Framework / KKNI Team (2015) concluded that university graduates must be prepared (in addition to human literacy) to be able to have data literacy skills such as analyzing and using big data information and technology literacy. Practical work in companies is one of the references in effective learning.

Learning is the activity of organizing and organizing the environment around students that encourages and facilitates every student in conducting learning activities. The learning process consists of interrelated and interdependent components (Sudjana, 2009). Learning of accounting works together to form a system to be able to achieve the goals set previously.

Based on research of Burrit and Christ (2016), there are four steps that accountants must take in dealing with the Industry Revolution 4.0 consist of awareness, education, professional development, and the application of high standards. In initial steps, the industrial revolution gave birth to new opportunities. There are unprecedented opportunities to develop new businesses. The second step, requires regulators and education practitioners to be able to make courses related to digital connectivity and suitable for its development. Third step, performance of the accounting profession and its development support programs is carried out through online and in-person presentations and assessments the future has an impact on the abilities of accounting professionals. In

the fourth step, the accountants are required to have the greatest control over the data generated.

The rapid development of technology and information is due to the automation that occurs in various fields, new and fundamental digital technologies and approaches (Tjandrawinata, 2016). Industry 4.0 that occurred gave various positive impacts in the process of simulation, system integration, cyber security, internet of things, cloud computing, additive manufacturing, augmented reality, big data, and autonomous robots (Aslin 2019). Based on data from the Ministry of Research, Technology and Higher Education (Kemenristekdikti), the growth rate of startups within 5 years the number of percentages is very significant. In 2018, the number of startup companies registered reached 956 companies, while the 2015 data were 52 companies. The success of local startups with unicorn status such as Go-Jek, Tokopedia, and Traveloka has a crucial role in increasing the enthusiasm of business people to establish a company based on technology.

Martani (2018) states that the professional skills of accountants that must be developed in facing the digital era include computer science, maths and statistics, business or domain expertise, data analysis, machine learning, traditional software, and data science. Other skills that must be improved consist of: (1) Technical Skills (data processing, statistics, visualization); (2) Business Understanding Skills; (3) Soft Skills (communication, critical thinking, experimentation, questioning).

Rojko (2017) states that software will be an important key for the production process in the era of the industrial revolution 4.0. Forecasts for 2055, half of the current work will be automated. Humans will work together with machines effectively and efficiently to improve the welfare of the population (Bughin, Manyika, & Woetzel, 2017).

Crawford (2015) argues that universities must be able to work with industry to ensure that their graduates have the skills needed in the era of the Industrial Revolution 4.0, such as the use of big data technology. The skills needed in this era are: (1) ability to analyze data to understand business drivers; (2) understand what customers need most; (3) ability to use new data forms and use them for business-making decisions; (4) ability to interpret data to provide decision makers with the best and most effective information.

Lalima and Dangwal (2017) show that blended learning is an innovative approach that combines classroom learning (offline) and online learning. To help overcome the problem of learning in the current

digital era, the right learning model to apply is the blended learning model.

Trends that can change the role of management accountants using artificial intelligence-based technology include: (1) company performance management (EPM), including business analysis; (2) predictive accounting; (3) improvement of management accounting methods; and (4) integration of IT and services management a company; (5) have better skills and abilities in behavioral cost management, and (6) strategic planning (Meskovic et al., 2018).

Society 5.0 aims to create a super intelligent society that will create wealth by maximizing the use of ICT and integrating the virtual world with physical space (real space). This strategy aims to provide the necessary information when needed through the Internet of Things (IoT) and artificial intelligence (Tetsu, 2019).

3 RESEARCH METHOD

This study was conducted using analytical, descriptive, qualitative methods, supplemented by literature studies. The stages discussed in this study are the mapping of accounting strategic learning within the framework of the Industrial Revolution 4.0 and Society 5.0, identification, and analysis of applications in tertiary institutions.

As a first step, the Higher Education strategic environment is identified for systems that meet related parties. This mapping will look at the nature of the relationship and the method of relationships that are carried out effectively. Accounting learning is expected to improve the quality of planning activities to be carried out through a structured map.

The study continues with a literature study on the revision of the accounting curriculum in higher education institutions that is more responsive to the Industrial Revolution 4.0 and Society 5.0. At the end of the study an analysis of learning, challenges, and opportunities related to Society 5.0 in Higher Education, both those that have been done and those that have not been done.

4 DISCUSSION

In the digital era and technological developments, the flow of information moves so fast technology and the internet have changed their view of obtaining information, including in the field of business accounting. With technological developments, business developments including accountants no longer need human resources. This has led accounting

professionals to underestimate the impact of technology on accountants' jobs. It is important to face these difficult challenges and find solutions.

The birth of the digital era, led to global connectivity that makes people connected to each other and provide extraordinary responses. Changes in technology will bring up a new paradigm that is very high difference in the future. The anticipation is how people around the world use technology for themselves, now and in the future.

Companies that work for accountants who are able to survive are companies that are able to see opportunities in the era of disruptive technology, make business transformation quickly, adjust to the tastes of consumers and also the business environment. Companies do not need to be large, but companies need to be innovative and efficient in operations.

The potential for technology to replace the role of the accounting industry is only a matter of time. The role of accountants will be more strategic and consultative. Therefore, in mapping strategic accounting learning in the 4.0 Industrial Revolution and Society 5.0, the accounting profession really needs to have certification and be able to survive the competition. Accountants must also have a strategy that includes mastery of soft skills, including interpersonal skills, internal interpersonal skills, technical skills, and understanding business skills in order to survive in the digital era.

Big data functions to record all data and activities that have been carried out to then predict what might happen in the future. Big Data has a roaming that goes far beyond social media networks because it affects almost every aspect of modern life. Many conventional companies have begun to switch to online media because the media is more accessible, both small and large companies.

The use of technology media in the learning process in the classroom is expected to increase student interest in learning. The conventional learning process is felt to be less enjoyable and fairly monotonous. In addition, learning that is only centered on teaching staff and books will make students bored with learning in class.

Learning mapping is done strategically by Kemendikbud together with Universities. There is a difference between universities in big cities and remote areas. There needs to be equality in Indonesia between these gaps in order to compete. The map in Indonesia be it State Universities and Private Universities through learning patterns. Learning objectives need to be standardized. Higher Education must be able to translate the things that have been

contained in the Indonesian National Qualification Framework (KKNI). In producing human resources that are adaptive and innovative to technology, it is necessary to improve learning facilities and infrastructure in terms of computerization, the internet, information technology, and big data analysis. An optimal innovation breakthrough will increase the productivity of technology-based industries. Higher education institutions that provide learning infrastructure will be able to produce competent and skilled graduates covering aspects of technological and human literacy.

The next discussion is the revision of the existing tertiary curriculum and is more responsive to the Industrial Revolution 4.0 and the subsequent reconstruction of the Society 5.0 curriculum. Important things that can be done are redesigning the learning curriculum. Curriculum with digital and human digital based expertise approach. Information technology based learning system. Preparation in producing graduates who are able to adapt to Society 5.0 is one of the ways that Universities can do to improve competitiveness of competitors and attractiveness to prospective students.

Changes in the current global economic landscape must be addressed by accountants. This change makes the accountant profession a central and strategic profession in various sectors. Accounting learning and curriculum need to be constantly revised to keep up with the changing times by adding information technology in accounting courses in the era of the Industrial Revolution 4.0 and later in the face of Society 7.0. The use of human resources began to decrease in the Industrial Revolution 4.0 era. The role of the accountant profession is also changing, namely: (1) analyzing the results of processed data statistically; (2) making non-financial reports; (3) changes in the role of accounting which was originally a book keeper into an analyzer; (4) checking data quality.

Based on an analysis of learning conducted by the Indonesian Institute of Accountants (2019), the role of accountants in Indonesia in further detail is as follows: (1) Identifying questions on data; (2) Conduct statistical analysis; (3) Checking data quality; (4) Interpreting the results of data processing; (5) As a general business advisor; (6) As a specialist advisor; (7) Taking the role of a business partner (8) Manipulating data; (9) Working with robots or similar machines; (10) Train the artificial intelligence model (artificial intelligence); (11) Sustainability; (12) Non-financial reporting; (13) Cyber Security.

Based on the analysis of the Indonesian National Qualification Framework (2015) states that the

standard of skills that must be mastered in accounting learning is general skills that are able to apply systematic, logical, critical, and innovative thinking in the context of developing science and technology, mastering techniques, principles, and knowledge of procedures about the use of information technology. Specific skills in accounting learning are able to independently create business processes in accounting information systems that support the provision of information technology-based information. This skill is useful to support management control and the decision making process with the System Development Life Cycle.

Fintech is a technological innovation in finance, including investment, financial knowledge and education, retail banking and even bitcoin and other cryptocurrency innovations. Increased use of fintech technology can expand the scope of financial services and provide entities with access to all financial tools and services at affordable costs.

The challenge in Higher Education is to try to follow the era that is happening. Every college student also needs to be educated to become an entrepreneur, not just as a job seeker. Things that need to be considered as a challenge for tertiary institutions are learning time, individual attributes (such as personality and genetics), and living era. This challenge can be used as an opportunity.

In January 2019, Japan launched the era of Society 5.0 as a continuation of Revolution 4.0. Era Society 5.0 uses technology and information not only for business activities, but also for everyday human activities that are integrated with information technology and databases. This opportunity is a combination of artificial, big data, drowning, and robots to make technology run optimally and provide support and support for human daily activities. This technology also facilitates services in the fields of health, transportation, and education.

Existing technology does not necessarily degrade the role of humans in life. Humane thinking, innovating, and determining policy are things that can only be done by human beings. Changes in the current global economic landscape must be addressed by accountants. This change makes the accountant profession a central and strategic profession in various sectors. Accounting learning and curriculum need to be constantly revised to keep up with the changing times by adding information technology in accounting courses in the era of the Industrial Revolution 4.0 and later in the face of Society 5.0. The use of human resources began to decrease in the Industrial Revolution 4.0 era. The role of the accountant profession is also changing, namely: (1)

analyzing the results of processed data statistically; (2) making non-financial reports; (3) changes in the role of accounting which was originally a book keeper into an analyzer; (4) checking data quality.

For blended learning, in addition to using e-learning, it also maintains offline learning process (face-to-face). In face-to-face learning held in class or in the laboratory is still relevant and is very necessary to transfer aspects of skills and affective aspects. The digital learning process will be effective and optimal if it is carried out directly using tools with assistance from the lecturer teacher. Cultivation of an independent, disciplined, responsible attitude will be effective if done through a direct learning process in the classroom.

In improving learning, the need for now is the ability to collect data into big data and analyze big data into useful information in decision making. The knowledge and skills needed to collect big data are mathematical and computer science skills with programming activities. To analyze the big data that has been collected, knowledge of statistics and consumer behavior is also needed.

In the future, accounting professionals and accounting firms need to develop mobile applications so that they can access data directly from mobile devices and tablet devices. Financial report audits are carried out in real time. Supervisors and auditors will automatically extract the required data directly from sensors installed in the system and operating activities.

From the perspective of the industrial revolution, the accounting profession is no longer "bookkeeping", but has developed into a profession that is not only financial. This specialization will develop into a new field of work that requires different capabilities and capabilities for each resource. The accounting profession must be able to see the potential for short-term and long-term changes. The gap between the real world and academia must be linked and provide constructive and useful solutions.

5 CONCLUSION

This paper has described the influence of the Industrial Revolution 4.0 and Society 5.0 on the oversight of accounting learning. For further development an analysis of the strategic environment, challenges and threats are appropriate. Thus, it can be concluded that the accounting profession has partially anticipated the Industrial Revolution 4.0 and the coming of the Society 5.0 era, but there are still many

opportunities for improvement by noting all the challenges and threats that have been identified. There needs to be commitment from every student in learning.

Interactive learning processes that focus on character development can be realized with the presence of digital technology in mentoring relationships, not teaching. While in research activities in universities carried out in collaboration with the industrial sector to explore alternative solutions to problems. Technology underwent a revolution, but humans remain as needed social creatures and interactions with each other. So, professions that maintain interactive relations with equality and ethics still exist and adaptive.

For the future of accountants, it can be concluded that accountants need to provide information using mobile applications for their clients, so that each client can access accounting data and business activities from a mobile phone or smartphone. Accountants must be able to manage internet-based corporate data and understand technology. Audits of financial statements in the future will be based on real-time. The regulators, auditors, and users of financial statements will immediately withdraw data automatically from the system and sensors inherent in operational activities. If the accountant is unable to provide information, then other professions can take over the function of the accountant. The accounting profession remains an expert in the field of financial information providers.

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