

The Young Accounting Profession in the Era of Industrial Revolution 4.0 with Artificial Intelligence System

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Date of Submission: 22nd November 2022 Revised: 8th January 2023 Accepted: 6th February 2023

Abstract - This research was conducted to find out the description of young accountants in Indonesia who started the impact of the entry of AI (Artificial Intelligence) systems in the world of accounting and regulation that must be faced in the industrial era 4.0 so that they are not replaced by artificial technology or Artificial Intelligence. Digital transformation starts from quality, reporting so that the usefulness of this digital accountant's information does not moderate other relationships. Therefore, a lot of these young accountants plunge into the real world of the accounting profession, they are less or even unable to compete with their environment, which has developed in the present and will come again to be difficult in their professional environment, [3]. such as the phenomenon that occurs in professional accountants is the occurrence of technological developments and digitalization that is too rapid in daily life, the role of strategies that can replace humans in doing work, the opportunities for the accounting profession become narrower so that digitalization of humans by using technology as a means of payment or taking decisions in making strategies[1] [2][3][4].

Index Terms – Digitalization, Accounting, Artificial Intelligence, Profession.

INTRODUCTION

The increasingly sophisticated technology that develops in accounting technology greatly affects every profession, especially the accounting profession in human life. So this year is where the company must carry out both operational and non-operational activities that can produce information systems within a company.

This greatly affects people in the world of work who will not feel satisfied if their work is less effective or time consuming. As technology develops, innovates so that in the era of the industrial revolution 4.0 there are many changes that say that all jobs will be replaced by robots, which have now replaced several jobs such as factory workers, tellers, other jobs [44,45].

Since the beginning of this century, starting to enter the 4.0 revolution era, this is a continuation of the 3.0 revolution, but has a much larger scope so that the deployment period is much shorter which will be marked by the combination of technologies that have already started. to remove the wall of separation between the digital

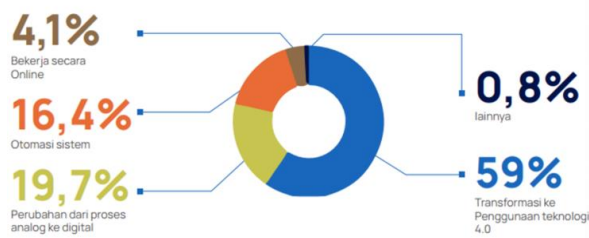
World and the real world. The era of the industrial revolution 4.0 is a phenomenon where this technological change will collaborate between cyber technology and automation technology to achieve the goal of achieving new value creation. [4][5].

The era of revolution 4.0 is very clear, it is increasingly producing new innovations or other optimal innovations effectively, resulting in changes in the way humans think, live and even relate to each other [43, 46].

As for Schlechtendahl et al (2015) emphasize that the industrial revolution 4.0 prioritizes the element of speed of information availability where entities in an industrial environment are always connected and can share information [7, 47].

The development of Revolution 4.0, companies need workers with new skills, which may not have existed before so that this field of work will experience great development opportunities and other fields of work will decline. In the 2014 World Economic Forum survey, there are 4 technologies that will dominate in 2018-2022, namely: High Speed mobile internet, Artificial intelligence, big data analytics, and cloud technology, which will affect the company's business development. By 2022, based on this survey, 92 companies in Indonesia are increasingly adopting the use of big data, which is one of the main technologies. And now many are using Artificial Intelligence which can be replaced with labor [9, 48].

The digital transformation process between companies cannot be generalized, because each company has its own digitalization journey, as illustrated below:



Based on the above, there are 4.1 of these work online, 16.4 companies have automated systems, 19.7 of these are a form of change from analog to digital processes, so 59% of these are companies in the world who are being transformed to digital, even though they are experiencing failure [7][10].

Currently, workers before entering the world of work are increasingly required to have a component of expertise or so-called soft skills so they must have mental strength. Because they will compete in this very tight Industrial Revolution 4.0 Era. These soft skills can be trained by: multiply to communicate or interact with other individuals so that they have sensitivity to those around them. In the author's view, the 4.0 revolution era must have an awareness of the importance of soft skills, especially from year to year they must be trained to be able to compete with the world and be active. [20]. There are so many technologies that support the industrial revolution 4.0, namely: Internet of things, Cloud Computing, Artificial Intelligence, Big data, Augmented Reality, System Integration, Cyber security, Simulation, Autonomous Robot, to 3D Printing or Additive Manufacturing [7, 41].

The development of this technology is a concern for the accounting profession because the development of increasingly sophisticated technology can be influenced by globalization which has been proven and can also replace the accounting profession where usually accountants, for example as audits, will carry out their work through human actions or activities[2][3].

Because of these concerns, a lot of these young accountants have plunged into the real world of the accounting profession, they are less or even unable to compete with their growing environment in the present and future times, let alone being difficult in their professional environment,[3] such a phenomenon that occurs in professional accountants is the occurrence of technological developments and digitalization that is too rapid in their daily lives, the role of strategies that can replace humans in doing work, the opportunities for professional accountants become narrower so that digitalization replaces humans by using technology as a means of payment or making decisions in making decisions. strategy.[1][2][3][4].

That is why, the author will discuss in this paper entitled "the influence of the young accountant profession in the era of the industrial revolution 4.0 with the Artificial Intelligence system" which will discuss and analyze the problems faced by accountants and provide an overview of solutions so that it will be a consideration in facing industry 4.0 so that the accounting profession is not replaced by artificial technology and the author will expect how to change his position and establish good communication so that he can develop a deeper. Understanding of the right technology so that the opportunities for the accounting profession become wider based on the description above. The problem that can be formulated is how professional accountants easily face the 4.0 revolution era, the impact of the 4.0 revolution on the profession. Based on this, the purpose of this research is to find out how to deal with the 4.0 revolution era related to the AI (Artificial Intelligence) system [42].

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

All papers The industrial revolution is a rapid change in social and cultural systems so that everything in the world becomes effective and efficient and makes labor easier. [21]. According to IAI (Indonesian Institute of Accountants), Indonesia still lacks professional accountants to date around 16,000. Meanwhile, the need for this profession is around 452,000 in Indonesia. Therefore, it can be concluded that the need for the accounting profession is still very high so that the shortage of accountants cannot be met by human resources (HR) from Indonesia, it is not impossible for accountants from abroad to fill it. [22].

Katherine Christ and Roger Leonard Burrit in Accounting and business magazine will convey that there are four steps that need to be taken for accountants in facing the industrial revolution 4.0, namely: awareness that the industrial revolution 4.0 presents new opportunities that have emerging opportunities to grow new businesses that have never existed before. Previously, this education has developed which will be required to create a relevant curriculum adapted to the development of digital connectivity, professional HR development that will support it by conducting presentation exercises.

Online evaluates its impact on the capability of the profession in the future, and the application of high standards (Reaching Out) which is required to have maximum control over the data produced means that the working relationship between accountants and engineers must run in harmony so that accounting data and information are well maintained. [22][23].

The industrial revolution 4.0 has a positive effect on making many industrial sectors easy, namely:

1. ease of accessing information due to being able to use gadgets and other technologies,
2. effectiveness in the field of production by replacing human labor,
3. increase national income because it can produce goods in a relatively short time with good quality
4. can increase job opportunities for experts.
5. A higher standard of living that can increase an individual's income
6. as well as greater specialization of workers to increase the marginal value product of labor which can be more profitable.

But there is no positive side, there is still a negative side are :

1. More vulnerable to cyber attacks
2. Requires a large investment in equipment, has an impact on the environment because more and more existing machines will produce air pollution so that it can damage the environment
3. Humans become dependent and increasingly lazy. Due to the large number of technologies happening, the more people are becoming comfortable so they don't want to let go of information technology.
4. Uneven distribution of technology [19, 30].

Examples of the industrial revolution 4.0 of course are: food, which initially required human labor to make it, can now use advanced technology to make it, for example: making light snacks must use a machine that has been regulated by human power so that the machine only follows continuously. The industrial revolution 4.0 will hold the fifth technology in the development that occurred in the industrial revolution according to the ministry of communication and information (kominfo) namely the Internet of Things (IoT), Big data, AI (Artificial Intelligence), cloud computing, and Addictive manufacturing. But the author only explains one of the types of revolution 4.0 which is now increasingly popular so that it is widely used to facilitate the workforce is AI (Artificial Intelligence).

AI (Artificial Intelligence) which is a technology that uses computer systems, software and robots to think intelligently in order to help make it easier for humans, AI is created by humans who resemble to carry out a task [12]. John McCarthy said that AI is an activity or technology that models a human mind and designs a machine so that it can imitate human behavior [11].

AI in Indonesian is artificial intelligence which means "intelligence" with artificial intelligence where the intelligence of the human brain is naturally owned and grows. The length of a person breathes effectively and efficiently[11].

AI or called artificial intelligence has been started since 1940 but the history of development can be traced since ancient Egypt, this attention is on the ability of computers to do something that can be done by humans[13], McCulloch and Pits (1943) mathematical model called the perceptron of neurons in the brain [17]. Then in the field of AI, the biggest field began in Alan Turing's paper in 1950 which answered "Can this computer think" using a Turing machine and will be entitled "Computing Machinery and Intelligence, which is based on the criteria of machines being considered intelligent. In 1956 these experts bringing together ways of doing tasks to lay the groundwork for future research and development AI, John McCarthy, which defines AI is a branch of computer science from computer science that focuses on developing computers to be able to have the ability and behave like humans. [16].

In 1960 to 1970 the term "Classical AI" appeared which discussed how this computer imitated in as much detail as possible the capabilities of the human brain so that in 1980 computers became easier to obtain at a cheaper price and carried out various researches in their fields. the field of artificial intelligence is developing more rapidly as summarized from various sources[15][16].

According to Luckin and Colen in the journal pratikno Ahmad Sudi (2017) who said that Artificial Intelligence is a computer system that will be designed to interact with the world through certain intelligence abilities and behaviors that we are aware of like humans in general [31, 40].

In the 4.0 revolution era, Artificial Intelligence is now important because now AI is able to analyze data more and more deeply so that it can work quickly and can be repeated according to programmed instructions and can take a long time, AI also reaches a high level of intelligence. Accuracy [32,41]. After researching that AI is said to be accurate and detailed because AI can be used which is more consistent than humans who often make mistakes or carelessness).

AI also has advantages which are:

1. can be permanent, do not change, store various information or data without limitation,
2. more efficient use of time and can be accurate in doing a job,
3. can replace human tasks that alternately are routine in nature
4. AI can be used at any time and for a very long time.
5. able to solve problems and increase work productivity.

But drawback that are :

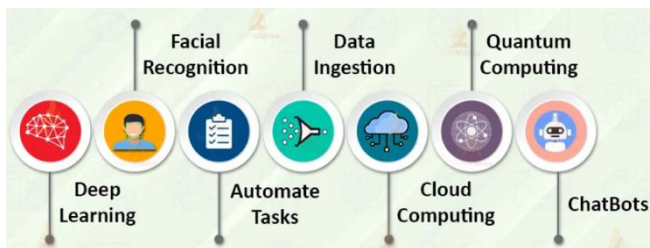
1. only depends on what is inputted by the programmer (Limits), cannot innovate or create new things,

2. do not have common sense, namely the ability not only to process information, but also to understand the information.
3. loss of human jobs, as more and more use of AI can occur to eliminate the role of the job profession.
4. must work according to instructions because AI is governed by programs made so that AI only works according to data and instructions that have been entered for certain tasks.
5. Damage, because the longer you use intelligence, you can experience interference or damage that can lose important data and information [18].

Digital transformation is currently a challenge so opportunities, based on data from the ministry of industry, which makes the largest contribution, which will reach 7.07% in the second quarter of 2021, so that it is related to AI, this contribution will be even greater. At this time, the biggest challenge is being efficient and optimizing the production planning process so that Microsoft has the benefit of allowing industry players to access various data in real time, which can facilitate decision making or setting business plans [24].

When entering the industrial era, there are many preparing the younger generations to become a competitive, productive, so innovative workforce throughout that era. To deal with industry 4.0, one of the computer science study programs with one of its concentrations is AI which has the goal of how to make machines or software that has intelligence, namely human intelligence. Intelligence here can be reasoning, knowledge, planning, learning, so that it can be communication intelligence and others, so that the role of AI can analyze various things, such as analyzing the situation in the field and providing recommendations for appropriate paths.

Based on data that has been collected which is usually used by Google Maps, but not only that, there is still online shopping such as shopee, pedia shop, and others [25][26].



RESEARCH METHODOLOGY

3.1 Population and Sample Size

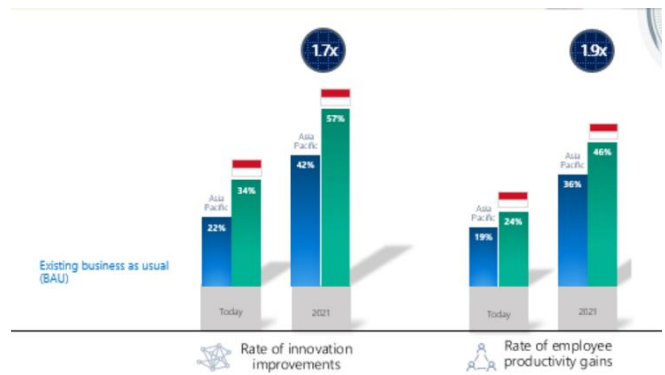
In this study, I use the descriptive method because the descriptive method in this study is to explain the quality of the presentation of financial statements, internal control, and also accountability so that this data is collected with problems with the aim of research to be analyzed which is processed with theories so that it can be drawn. conclusion.

Not only descriptive, the author also uses verification in which this study finds out whether there is a partial or simultaneous influence on quality. Data from the state statistical agency with a sample of this level is because the level is getting higher due to increasingly rapid technological developments in Indonesia so that there are many changes in the accounting profession to artificial intelligence robots.

3.2 Data Collection Method

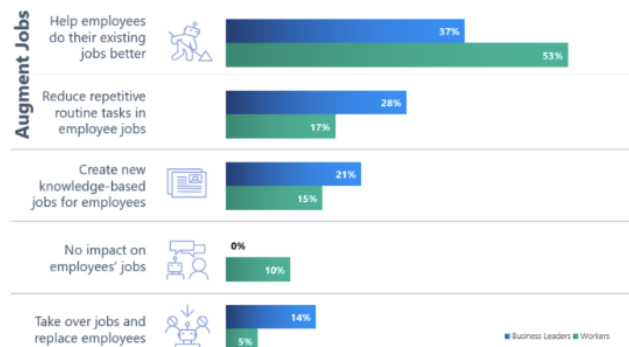
The method used for data collection in this study is a survey method. The survey method is a system for collecting information from various sources for a research purpose naturally, but this researcher conducts treatment in collecting data from several companies to get the best solution to overcome these problems and distribute questionnaires.

DATA ANALYSIS AND FINDINGS

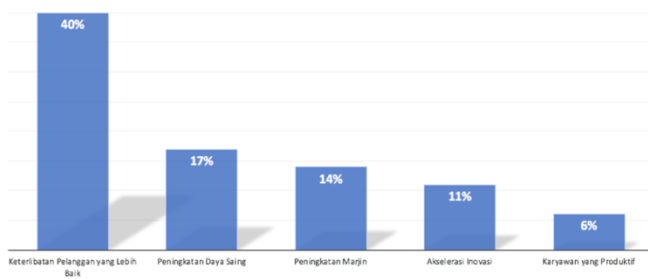


From this figure, it can be compared with the APAC Region countries with a value of 42% so that it has a 57% increase in innovation in 2021 and to increase employee productivity it also has 46% or 10% higher than other countries so that the level of Indonesia's digital economy is growing rapidly. starting from the emergence of startup companies or also known as Start-ups, e-commerce to SMEs that contribute to state revenue.

The application of AI will create new jobs for humans so that it can be accompanied by the transformation of skills needed in a course-based work environment such as programming and also soft skills such as adapting skills and studying technology design.



From the picture above, it can be said that AI is a human being which will be designed to do work that hampers human productivity such as repetitive work so that technical skills or data processing can also be taken from humans.



From the picture above, based on the benefits of using Artificial Intelligence, better customer engagement, one of which is the most important at 40% and the lowest is in productive employees at 6% because the more people use this technology, the fewer employees, so only technology tools that can be used and will be designed by humans.

CONCLUSION

With the development of the globalization of network society technology in the era of the industrial revolution 4.0 at this time, it is increasing through existing large technologies so that many are developing which are used by various groups so that they can become more effective, efficient, and optimal so that one technology that can replace human activity is Artificial intelligence .

Artificial Intelligence is one of the technologies that are most often used and heard in the current revolutionary era in both developed and developing countries.

Of course, many countries are competing in developing various devices that are more advanced, as well as wirelessly automated so that ultimately artificial intelligence will become a new breakthrough in the IT world to develop technology and software that is able to solve problems more intelligently without having to wait for orders or instructions from man.

Future research can re-conceptualize the moderating role of transformation in digital which can increase more benefits as a good independent variable is needed to test the research relationship so for companies it is very important to help simplify and ease human activities so that many companies use these technology machines.

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