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The Role of Accounting Information Systems in the Industrial Revolution 4.0

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Abstract *- The purpose of this research study is to provide a solution so that the role of accountants continues to exist in the era of the industrial revolution 4.0 by starting to learn computer programming so that they can adapt to existing changes. This study report used a descriptive qualitative method with data collection from articles on google or internet browsing. Because in recent years there have been various technological breakthroughs that produce new value in human life through the form of artificial intelligence. Business circles call this the core of the 4.0 industrial revolution. This condition has an impact on the role of humans, especially the accounting profession which will be replaced by the role of robots.*

Keywords*: Accounting Information Systems, Industrial Revolution 4.0.*

I. INTRODUCTION

The world today has entered an era of disruption marked by the era of the industrial revolution 4.0. What needs to be done is how we must be able to adapt to the existing environmental conditions. Companies must be able to adapt quickly if they want their business to survive and not be eliminated from the increasingly competitive arena. Disruption is characterized by fundamental and fundamental change. One of the things that makes fundamental changes happen is the technological revolution that targets the gaps in human life. Digitalization is the result of the technological revolution, especially information that has changed almost all aspects of life, including the business world. The era of disruption, on the one hand, has created many opportunities, but on the other hand, it will only provide a few opportunities for companies to become winners.

In various ways the development of technology and production processes in the economic world. Changes in the work process have changed human interactions with the work environment and the community environment. Starting from the first industrial revolution in 1784-1850, brought innovations in agriculture, manufacturing, transportation, and technology that had an impact on social, economic, and cultural changes in society. The first industrial revolution was marked by the emergence of the steam engine for the production process, the second revolution with the development of electrical energy, and the third revolution was marked by the automation of production processes and information technology. Until now, the industrial revolution has reached its fourth stage, where the digital revolution has fundamentally changed the way people live, work, and interact with people all over the world.

The industrial revolution 4.0 is marked by significant technological advances, one of which is the emergence of artificial intelligence technology (Artificial Intelligence), it makes many activities that used to require a human touch, now all are reduced by the use of artificial intelligence for many purposes.

Based on the problems above, the purpose of this research is to provide a solution so that the role of accountants can still exist in the era of the industrial revolution 4.0 by starting to study computer programming and algorithms to adapt to existing changes.

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II. RESEARCH METHOD

This research method uses qualitative methods, namely data collection by conducting library research from various articles on Google or browsing the internet to get material so that it can be analyzed according to data classification which functions to group data according to what has been designed.

III. RESULTS AND DISCUSSION

The history and development of the Industrial Revolution prove that changes in the business world are so fast, which is called the industrial revolution. The Industrial Revolution was the period between 1750-1850 when there were massive changes in agriculture, manufacturing, mining, transportation, and technology, and had a profound impact on social, economic, and cultural conditions in the world. The Industrial Revolution started in Great Britain and then spread throughout Western Europe, North America, and Japan, and spread throughout the world.

Industrial Revolution, A major turning point in world history, almost every aspect of life was affected by the Industrial Revolution, especially in terms of the continuous and unprecedented increase in population growth and average income. During the two centuries following the Industrial Revolution, the average per capita income of the world's countries increased more than sixfold.

Industry 4.0 is related to optimizing all available resources in business networks to meet all market demands. Optimization is nothing new, but the difference is the “how to play” in the effort. How to determine the solid orchestration of various supporting technologies, including the internet of things, 3D printing, cloud computing, artificial intelligence, and big data analytics in addition to increasingly autonomous robot technology. (Cahyadi, 2018).

Accounting Information Systems in the Industrial Revolution 4.0

History records that initially the use of computers in the business world was limited to transaction processing. In the 1960s, the concept of Management Information Systems emerged after the discovery of the need to provide information to managers. The need for Management Information Systems is very broad and seeks to provide information to all managers in the company for use in solving all problems. This is a very ambitious endeavor and many systems fail to live up to expectations. This is because the problems in the company are not only dealing with structured problems, but also semi-structured and unstructured problems.

This condition has the consequence that the problem exists but uses the manager and the computer. The position of the computer here as a decision support system (Decision Support System / DSS), meaning that DSS was never intended to solve problems without the help of managers. DSS emphasizes the use of mathematical modeling and querying the database. With the condition of DSS being less than optimal, DSS designers began to realize the need to combine it with artificial intelligence (AI).

Artificial intelligence is the activity of providing machines such as computers with the ability to display behavior that is considered intelligent if the ability is displayed by humans. Artificial intelligence is the most sophisticated computer application because this application seeks to imitate the way humans think. AI is applied in the business world in the form of expert systems, artificial neural networks, genetic algorithms, and intelligent agents. Briefly, the explanation is as follows:

a) An expert system (expert system), is a computer program that seeks to represent knowledge of human expertise in the form of heuristics. The term heuristic is taken from the Greek which means to find, so heuristics are rules that become benchmarks or rules for guessing well. Heuristics are not guaranteed to be as good as algorithms commonly found in mathematical models, but they usually offer results that are specific enough to be useful. Heuristics allow expert systems to function in a way that is consistent with

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human expertise, and suggest how to use them to solve problems. Since the expert system functions as a consultant, the act of using this application is called consulting. Because consult the expert system for advice. Expert systems are designed by information specialists (who are often called knowledge engineers) who have special expertise in the field of artificial intelligence.

b) Neural networks (neural networks) mimic the physiology of the human brain. This network is capable of finding and distinguishing patterns, making it very useful in businesses in the area of speech recognition and optical character recognition.
c) Genetic Algorithms (Genetic algorithms) apply the "strongest survivor" process to enable problem solvers to produce increasingly better problem solutions.
d) Intelligent agents are used to performing repetitive computer-related tasks. One example is data aggregation, where knowledge discovery allows data warehouse systems to identify previously unknown data relationships.

Financial Technology Company

Known as start-ups specifically for financial service providers or financial technology (Fintech) emerging in Indonesia. Fintech offers innovation in financial services. The goal is to make it easier for the public to access finance, facilitate transactions, and improve financial literacy. Because of that, fintech is often interpreted as a competitor to the banking world. Because without being bank customers, people can carry out various financial transactions according to their needs.

The Role of Accounting Information Systems

The role of the Accounting Information System is very vital considering that all of the company's operational activities are related to financial transactions and all of that must be recorded in the company's accounting system. An accounting information system is a system that converts business transaction data into useful financial information for the user. The purpose of the accounting information system is to support the company's daily operations, support management decisions, and fulfill obligations related to accountability.

Some Challenges of the Accountant Profession

a. The use of mobile applications for companies, so that company owners and leaders can access accounting or business data from their mobile phones, tablets, or smartphones.
b. managing internet-based data.
c. Measurement and assessment of the costs and benefits of using technology in global cloud computing and social networking.
d. Accounting will be reduced due to the use of software so that accounting is run independently. Thus, the audit of financial statements will be based on real-time, regulators and auditors will automatically pull data from systems and sensors installed in the company's operational activities.

IV. CONCLUSION

According to (Suwardana: 2017), said that the industrial revolution 4.0 was a change that took place quickly in the implementation of the production process where the work of the production process was originally done by humans, replaced by machines. Work that was originally done manually will be automated. The accountant profession is one of the impacts of this 4.0 industrial revolution. (Osborne and Frey: 2016), states that accountants have the opportunity to lose their jobs because of computerization.

The industrial revolution was marked by the emergence of artificial intelligence technology (Artificial Intelligence) which changed many things in the field of life, including eliminating many activities that used to be done by humans. Accountants must be able to prepare themselves so that they can face the industrial revolution 4.0 by increasing their competence.

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