

## Indonesian Sharia Banking in Facing the Industrial Revolution 4.0

Zulfikar Hasan<sup>a\*</sup>, Mutia Rosiana Nita Putri

<sup>a</sup>*Department of Islamic Banking and Center for Research and Community Service at STAIN Bengkalis Riau Indonesia*

<sup>b</sup>*Faculty of Education Monash University Australia*

*\*Corresponding Author : zulfikarhasan61@kampusmelayu.ac.id*

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### Abstract

This study looks at the impact of the industrial revolution 4.0 on the Islamic banking sector. The industrial revolution simply implies major and advanced innovations to the way humans produce goods. This great change has happened three times, and we are currently experiencing the fourth industrial revolution. Every major change is always followed by major changes in the economic, political, even military, and cultural fields. The Industrial Revolution 4.0 has entered Indonesia since 2015. This provides opportunities for several economic sectors around the world to gain market share and wider investment. This study uses qualitative methods to explain the phenomenon being studied. The Sharia Supervisory Board and National Sharia Council of the Indonesian Ulema Council (DSN-MUI) are one of the regulators that make sharia banking stronger and more recognized. A method that we use is a qualitative method by looking at and analyzing the object of research to be studied. Where the object of research in this paper is Islamic banking in Indonesia, and how Islamic banking faces the Industrial Revolution 4.0. Islamic banking in Indonesia needs to apply advanced technology to be able to compete with conventional banking, especially during the 4.0 era, technology is one of the most important things to be able to keep up with the times.

*Keywords:* Industrial revolution 4.0, Islamic Banking, Innovations

## **1.0 INTRODUCTION**

The Industrial Revolution 4.0 is a development of the Revolution Previous industry. The first industrial revolution is the one that is often reviewed because it was the beginning of the invention and maintenance of the steam engine in the production process of goods. This discovery is very important because, before the presence of the steam engine, we could just rely on muscle power, hydropower, and wind power to move anything. The term Industry 4.0 itself was properly born in Germany to be precise when the Hannover Fair was held in 2011. The German state has a big interest in this because Industry 4.0 is part of its development plan policy called the High-Tech Strategy 2020. This policy aims to defend Germany to always be at the forefront of the world of manufacturing. Several other countries have also participated in realizing the concept of Industry 4.0 but using different terms such as Smart Factories, Industrial Internet of Things, smart industry, or Advanced Manufacturing.

The goal of the Industrial Revolution 4.0 is a change in the way of life human and work processes fundamentally, where the advancement of information technology can integrate with the world of life with digital which can have an impact on scientific disciplines. Industrial revolution 4.0 makes the boundaries between the digital, physical, and biological worlds thinner and even disappear. The founder of the World Economic Forum, Professor Klaus, said that the 4.0 revolution could have a bad impact on governments that cannot take advantage of technology. One area that can take advantage of this 4.0 era is the economic sector, where humans are encouraged to continue to innovate products to survive in the middle of the 4.0 era. The fintech phenomenon is the delivery of financial products and services through a mix of technology platforms and innovative business models. The origin of fintech comes from Silicon Valley, then extends to New York, London, Singapore, Hong Kong, and several other global cities (Sharma, Jabbour, & Lopes, 2020).

According to the Financial Services Authority (OJK) in 2016, the national financing (loan) needs to reach Rp. 1,600 trillion. But only around Rp. 6.00 trillion alone which can be served by the banking and other financial industries (Ozcan & Akkaya, 2020). This is a great opportunity for fintech start-ups to develop their business in Indonesia, it's no wonder that this sector is also flooded with players. As of the end of June 2018, the OJK has recorded 64 peer-to-peer (P2P) lending-based fintech companies and dozens of them are still queuing behind.

So far the MUI DSN has encouraged cooperation between sharia fintech companies and sharia banking through the DSN-MUI fatwa no: 117 / DSN-MUI / II / 2018 concerning information technology-based financing services based on sharia principles, which will accelerate the increase in financial market share sharia in Indonesia. Seeing this fact, it is very detrimental if Islamic banking does not take part in developing its products in the form of technology-based products, because in the era of the Industrial Revolution 4.0, technological developments will greatly support the development of a technology-literate institution, moreover, Islamic banks will lose their market share if not immediately meet current and future market needs (Hamim, Abdul, & Mohd, 2021).

In recent years Islamic countries have proposed the implementation of an Islamic economic system. The confirms that traditional Islamic values need to be revived. The state wants a complete system that includes specific patterns and areas of social and economic behavior that do not involve the reformulation of Islamic ideology or compromise of its teachings. The process of Islamization of the economic system involves economic institutions with a certain Islamic identity. The process seems to be gaining momentum over time. New institutions have been established,

such as Islamic banks and development aid agencies aimed at translating sharia economic ideals into practical business solutions Islamic economics is closely related to and is part of the concept of Islamic life. In recent developments, for example, cash waqf (Hamim, Abdul Kadir, & Mohd, SMEs Retailing in Malaysia: Challenges for Industrial Revolution 4.0 Implementation", Sergi, B.S. and Jaaffar, A.R. (Ed.), 2021), and digitalization Islamic economics (Devies, 2015). The two models are a form of real development in the Islamic economy carried out by the people in Indonesia.

This study raises about Islamic Banking how to deal with the industrial revolution 4.0. Further studies are needed, not only related to the economic sector but also all sectors, especially Islamic banking. In addition, Indonesia's position has enormous potential in the international arena, considering that Indonesia has a Muslim population. Therefore, this article discusses analytically how Islamic banking in Indonesia is facing the industrial revolution 4.0.

## **2.0 LITERATURE REVIEW**

The concept of the industrial revolution 4.0 was first introduced by Professor Klaus Schwab - a well-known German economist in his book *The Fourth Industrial Revolution* which states that this concept has changed human life and work. The industrialization of the world began at the end of the 18th century with the invention of the first mechanical loom in 1784. At that time, the industry was introduced to the facility of mechanical products using hydro and steam power. Work tools that were initially dependent on human labor and ultimately animal labor shifted by the machine. This period is considered to be the birthplace of the 1.0 industrial revolution (Devies, 2015).

According to the Chancellor of Germany, Angela Merkel (2014) the industrial revolution 4.0 is a comprehensive transformation of all aspects of production in the industry by combining digital technology and the internet with conventional industries. Then, according to (Sharma, Jabbour, & Lopes, 2020) the notion of the industrial revolution emphasizes the speed element of information availability, namely the industrial environment where all entities are always connected and able to share information (W Wahlster, 2013).

Thus, the industrial revolution 4.0 is an industrial era in which all entities in it can communicate with each other in real-time at any time based on the use of internet technology and CPS to achieve the goal of achieving new value creation. (A Horch, 2014). The Industrial Revolution 4.0 was first introduced by Prof. Klaus Schwab and the Executive Chair of the World Economic Forum (WEF). It was explained that the industrial revolution 4.0 fundamentally changed human life and work (Balasingham, 2016) (Rusydia, 2018). This industrial revolution is the 4th generation which has a wider scale, scope, and complexity than before. The industrial revolution itself began in the 18th century to develop creative industries (Balasingham, 2016).

Meanwhile, the fields that are experiencing breakthroughs with the emergence of new technologies are (1) artificial intelligence robots, (2) nanotechnology, (3) biotechnology, and (4) quantum computer technology, (5) blockchain (such as bitcoin), (6) internet-based technology, and (7) 3D printers. (Merkel, 2014). Currently, there are five industrial backbones in carrying out the 4.0 industrial revolution in Indonesia, namely (1) food and beverage, (2) textiles, (3) automotive, (4) electronics, and (5) chemistry. Meanwhile, an example of implementing the 4.0 industrial revolution is the IKM e-smart policy. With this, business players can promote more massive products on digital platforms.

We need to know that the current era of technology is growing rapidly and dominates in all aspects of human life. Currently, we are facing Industry 4.0, all of which are closely related to technology and industry. The industrial revolution is often referred to as cyber-physical systems. The industrial revolution 4.0 offers us opportunities as well as threats to the sustainability of even established businesses, Islamic banking institutions are no exception (Man M. , 2020). The importance of the industrial revolution 4.0 and innovation are the two highlight points that are currently developing. The sharia economy will be strongly encouraged by the existence of industry 4.0, one concrete example is that transactions in the industrial revolution era 4.0 involve more cyberspace (e-money). Facing the industrial revolution 4.0, Islamic banks must innovate to remain involved in the wheels of the Indonesian economy.

Innovation in Islamic banking is needed in building Indonesia in the 4.0 Industrial Revolution era, and innovations that need to be underlined are related to optimizing the potential of the Islamic economy which is driven by the presence of the Industrial Revolution Era 4.0. In this era, machines have become a substitute for human power so that humans must blend in with the Internet of Things (IoT), and Artificial Intelligence (AI) (Butt, Siddiqui, Soomro, & Asad, 2020). In addition, Islamic economic human resources served with Big Data, and Cloud Computing, and BlockChain. The era of the industrial revolution 4.0 is a new and unique phenomenon that is being experienced by the majority of countries in the world. The West's response to the Islamic economy in Indonesia is expanding until this digitalization era in various real sectors of human life. A small example is cyberspace or commonly known as e-money. In welcoming the industrial revolution 4.0, the Islamic economy in general and in particular, Islamic banks must innovate so that they are always involved in the realm of advancing the Indonesian economy.

### **3.0 METHODOLOGY**

The method used in this research is research qualitative with a case study approach model. Which is a research approach that tries to explore real-life through detailed and in-depth data collection involving various sources of information, both in the form of interviews, observation documents, or reports by describing the object of the research case.

The research procedure in qualitative research is holistic and emphasizes more on the process, so qualitative research in looking at the relationship between variables on the object under study is more interactive, namely influencing each other so that the independent and dependent variables are not known. In this case, it relates to the Islamic banking strategy in the face of the industrial revolution 4.0.

Judging from the method, this research is qualitative research namely research conducted by collecting data in the form of words, pictures, and verbal information instead of numbers. While the materials are arranged systematically, studied, then a conclusion is drawn about their relationship with the problem under study.

The data collected in qualitative research is in the form of interview data, observation, and documentation. However, it needs to be realized that qualitative data is subjective. The three data collection techniques which was adapted from Sugiyono (2014) will be explained as follows:

- a) The interview technique used in this research is the in-depth interview (in-depth interview), which is a process obtain information for research purposes utilizing inquiries answer face to face with the informant or person interviewed.

- b) Observations or observations in data collection are only a supplement to the interview, so some researchers are of the view that there is no need to make observations if the interview is deemed to have provided complete results and has an accountable truth value.

The process of data analysis in qualitative research was carried out in three stages, namely before entering the field, during the field, and after finishing in the field. However, in practice, data analysis is more often done when collecting data. Data analysis was carried out simultaneously and continuously as this is a characteristic of a qualitative research approach that prioritizes meaning, context, and emic perspectives. In this study, the data analysis method used by researchers was in the form of qualitative data analysis by analyzing data obtained in the field as in some existing literature (Sedarmayanti & Syarifudin, 2000).

## 4.0 RESULTS AND DISCUSSION

Islamic banks are financial intermediaries that provide funds from parties with excess funds (surplus units) to parties who need funds (deficit units) at a specified time and provide financial services that work based on ethics and the Islamic value system, especially those that Riba, free from speculative activities that are not considered gambling (*maysir*), free from things that are unclear and doubtful (*gharar*), have the principle of justice, and only finance lawful business activities. Islamic banks have two roles, namely as a business entity (*tammil*) and a social body (*maal*). As a business entity, Islamic banks have several functions, namely as managers of investors and services.

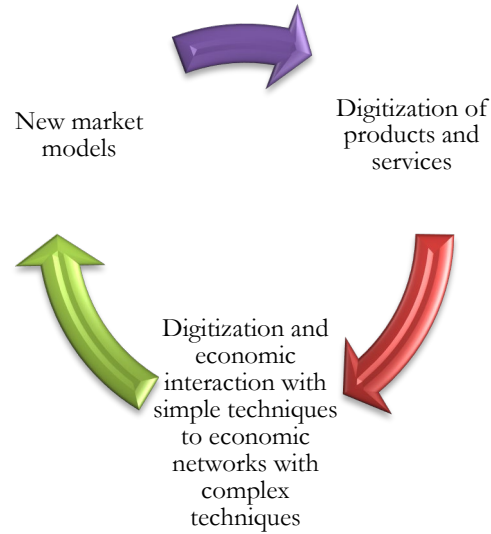
Meanwhile, as a social agency, Islamic banks have the function of managing social funds for the collection and distribution of *zakat*, *infaq*, and *sadaqah* (ZIS), as well as distribution of *qardhul hasan* (benevolence loans). In carrying out their function as an intermediary institution, banks base their business activities on public trust. The bank is also known as an agent of trust.

The development of Islamic banking in Indonesia in the last ten years has been very significant both from the institutional aspect, as well as from the development of assets, third party funds, and from the side of financing. It is believed that the development of Islamic banking in the future will continue to grow better, given the increasing awareness of the public to transact according to sharia.

The industrial revolution 4.0 will bring many changes with all the consequences, the industry will be more compact and efficient. However, some risks may arise, for example, a reduction in human resources due to being replaced by machines and robots. Industrial revolution 4.0 affects the various lifestyles of the world community, including the banking industry. Using technology, everything becomes easy, practical, and fast. This requires banks to continue to innovate to keep up with developments so they are not left behind.

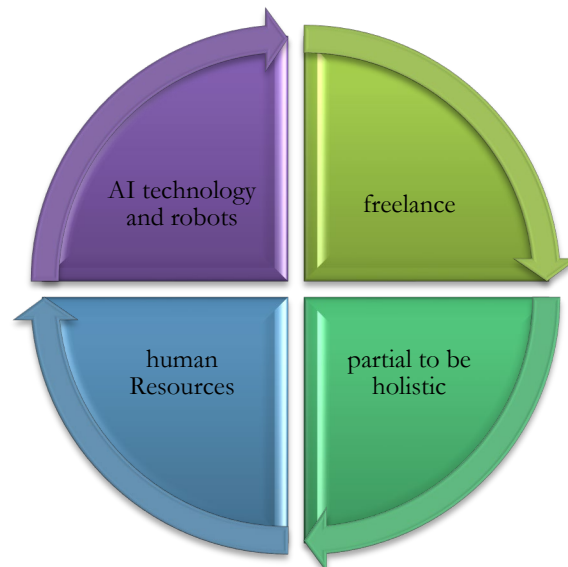
One way to deal with Islamic banking in the era of the industrial revolution 4.0 is to synergize to build a sharia economic ecosystem that is carried out by every element. The elements in point are the community, academics, media, regulators, and sharia lawyers themselves. For example, the community aspect is how they can open accounts and conduct transactions through Islamic banking system. One of the reasons why people are less interested in Islamic banks is because the features and services are not the same as conventional bank standards. This is one of the challenges for Islamic banks.

Industry 4.0 is an approach to control the production process by synchronizing time by integrating and adjusting time. Industry 4.0 is used in three interrelated factors (see Figure 1), namely;



**Figure 1** Three Factors That Are Interrelated

The presence of the 4.0 industrial revolution that is currently taking place has indeed led to pros and cons in the community. On the one hand, some people argue that advances in artificial intelligence technology (Artificial Intelligence) in the industrial sector are inevitable. However, it cannot be denied that this industrial revolution is a threat to mass unemployment in the future. The good news is that the presence of the Industrial Revolution 4.0 has not had a completely negative impact as previously feared. The World Economic Forum predicts four issues that will affect future employment (see Figure 2).



**Figure 2** Four issues that will affect future work

First, AI technology and robots will create more jobs, not mass unemployment. Automation will indeed cause some jobs to be lost, but on the other hand, it will bring new job opportunities in other fields. Economists believe that what happens in the future is not a lack of job vacancies, but a lack of skills to suit the type of work in the future.

Second, each city will compete for human resources with the best talents. The competition for the best talent is no longer only between companies but will increase to be between cities. Along With technological developments that make it possible to work remotely, people will prefer to live in a city with a technology-friendly environment compared to living in a place closest to the office.

Third, most of the workforce of developed countries will become freelance workers before 2027. These freelance workers will be dominated by the millennial generation. On the other hand, companies are believed to prefer recruiting freelance workers rather than permanent workers to fill the talent gap they need.

Fourth, the education system has changed from a partial to a holistic approach. Mathematics, arts, and science which have been seen as separate disciplines are considered irrelevant in filling the needs of job competencies in the future. Schools will start to adopt a project-based curriculum as a bridge to break down the barriers that have hindered the generation of thinking creative.

Banking in Indonesia has experienced various phases of the Industrial Revolution in its long journey. Development after development then ushered in an era that is now called the era of the industrial revolution 4.0, as stated by President Joko Widodo, the industrial revolution 4.0 has encouraged technological innovations that have an impact on disruption or fundamental changes in people's lives. The Industrial Revolution 4.0 offers us opportunities as well as threats to the sustainability of even established businesses, including Islamic banking institutions. But basically, some benefits can be obtained from this change. The first is related to product optimization encourages the optimization of business profits. The ability to utilize this technology can also be used as a medium for offering banking services without having to step down straight to the field.

The second benefit is related to orientation, meaning that the Industrial Revolution 4.0 can create a flexible market that is customer-oriented and will help people access banking products quickly and easily. In this case, the acceleration and ease of accessing banking products, especially related to financing, which so far has been deemed difficult and convoluted due to administrative processes, will be greatly assisted by the existence of a digitalization system.

The third benefit of the 4.0 Industrial Revolution for Islamic banks is to encourage education and research. That the times do not provide opportunities for those who are stagnant and do not want to learn. Even so with Islamic banks, even though they already have thousands of loyal customers, customers may gradually move on if the bank does not develop to keep up with the times and the practical needs of customers.

From the various benefits obtained by the existence of the Industrial Revolution, an opportunity arose that Sharia banks had in developing their products to be up to date according to market developments. Some of the opportunities that the author has formulated include:

**a) Qualified Human Resources (HR)**

One of the potentials for Indonesia to enter the era of the fourth industrial revolution or digital economy is the demographic bonus during the period 2020 to 2030. This momentum when the population is dominated by productive age reaches 70%. Indonesia's internet connection has also reached 51.8% of the population. Active users of Indonesian mobile phones also grew significantly from 55 million in 2015 to more than 100 million in 2018.

The vocational education and training program aims to improve the competence of human resources according to the needs of today's industrial world. The impact of industry 4.0 on the number of workers can be minimized by preparing the current workforce. Workers who will be

shifted to another section will be given additional skills. For workers who have not mastered internet technology, the government will provide new skills education. Meanwhile, in the roadmap for implementing the fourth industrial revolution of Making Indonesia 4.0, the government has 10 priority steps that need to be carried out to boost the national economy in the digital economy era according to the basic principles of Pancasila Economy, namely social justice for all Indonesian people.

The role of HR in the Islamic Banking Business is very important because the banking business is one type of service business provided to the community, especially in matters related to finance. In this regard, Islamic banks must be able to provide good service to customers so that customers can feel comfortable when they visit the bank. Services to customers can be carried out optimally and best when human resources in Islamic banking have the competence and ability in their fields. This makes many Islamic banks sometimes accept new employees employing selection until they finally get an ideal employee figure with the criteria of Islamic banks.

The existence of human resource management is very important for the company in managing, organizing, managing, and using human resources so that they can function productively, effectively, and efficiently to achieve company goals. In addition, human resources in Islamic banking are highly demanded to be able to compete amid globalization as it is now. The element in management is the workforce in Islamic banking who is capable in their field in addition to having qualified skills. In human resource management, the factor that is considered is the human itself. This means that the skills that exist in employees are one of the most important things to face the industrial revolution 4.0.

Consciously or not that human resources are a problem Islamic banking is the most important because it is through human resources that other resources in the company can function/run or be carried out properly and optimally. In addition, human resources can improve the efficiency and effectiveness of Islamic banking.

Islamic banking views the importance of developing human resources because currently, employees are a very important asset in achieving the organizational goals that have been set. In addition, in human resource development activities, it is necessary to have good coordination between each work unit in Islamic banking and the staffing department. That is important considering that each work unit is more aware of the development needs of the knowledge and technical skills of the employees under it. Therefore, the personnel department, in this case, the development, plays a role as a supporter in the implementation of development activities and relates to improving the technical skills and knowledge of each work unit, the personnel department can plan employee career development so that the organization has employees who are ready to use when needed to new position or title.

#### **b) Technological sophistication**

The intense competition between banks demands to improve services through the application of information technology that is more effective, safe, and controlled in the daily transaction process. The implementation of centralized and decentralized systems will be used as a controlling tool in banking operations

depending on the system situation to be applied. With tight competition, banks must have a vision and mission that can be developed into the technology system architecture to be applied. Bank customers want one basic need, namely easy, fast and safe service. Satisfaction with service is the main factor to be wary of for service businesses. Banks need to practice cyberbanking, which is service to customers via the internet. Every customer transaction. Can be via the internet without



having to come to the bank office. Cyberbanking will be connected to the EFT (electronic fund transfer) system if you use internet services so that electronic transfers can be done easily and quickly. The existence of cyberbanking will motivate world banking or information technology to develop and innovate to achieve customer satisfaction.

Advances in computer technology and information systems will be a disruption to the increase in human resources if users do not keep up with developments. The application of information technology needs to consider individual abilities first, especially the ability of individuals to operate electronic devices.

With the help of banking technology, bank customers no longer need to meet face to face with tellers to deposit money, check balances, or make transfers between banks. They can do almost all banking activities in the palm of their hand with a smartphone. Day by day, the types of banking activities are becoming increasingly complex, which requires the banking world to continue to develop. It is not impossible in the future that the number of physical banks will decrease or disappear altogether, because all transactions can be made via the internet or electronically.

## **5.0 CONCLUSION**

From the qualitative research several things can be concluded. First, Indonesia as a country with the largest Muslim population in the world has great potential to develop the role of Islamic economics and finance. Indonesia is expected to make a major contribution to the world's sharia economy. Second, the industrial revolution 4.0 is one of the times when using digital technology at work, Islamic banking has a pretty good opportunity to develop and introduce various Islamic banking products where these products can compete with conventional banking. Third, human resources are one of the most important things in the 4.0 industrial revolution. After all, when Islamic banking has qualified human resources, it will have a good impact on Islamic banking activities because it is directly handled by people who are experts in the field of Islamic banking.

The era of digital banking 4.0 or technological advances in the banking and financial industry is an opportunity for banks in Indonesia to innovate more in providing services to customers. Innovation is needed to respond to competition in line with the rapid growth of financial technology or fintech. Digital development will disrupt banks if it is not addressed properly because consumer behavior changes. Currently, various forms of financial services from various non-bank startup companies are rapidly developing in digital form that is easily accessed and used anywhere and anytime.

The development of information technology requires that the banking industry be ready to change and transform. Now information technology has entered the era of the industrial revolution 4.0. This era has changed the way people live, work, and relate to one another, including the banking sector, which is experiencing more challenges, especially with the presence of financial technology (fintech) and technology partners in recent years. The digital era is increasingly embedded in changing the lifestyle of people in Indonesia, especially the financial industry such as banking, insurance, and finance companies (multi).

With the development of technology today, more innovations have resulted from human innovation and creativity. Hopefully, this research has implications in the world of Indonesian education, not only used in the academic world but also the world of practitioners.

The author holds that he has limitations to further examine the impact of technology 4.0 on the world of Islamic banking in Indonesia. It is hoped that there will be other researchers who are interested in looking further at the role and impact of the 4.0 industrial revolution on the banking world with more complex research methods.

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