

CULTIVATING SOFT LIFE SKILLS FOR GENERATION Z TOWARD OPPORTUNITIES AND CHALLENGES IN THE ERA OF FOURTH INDUSTRIAL REVOLUTION

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Abstract: Along with the rapid development of world technology today, in this case the Fourth Industrial Revolution, inevitably forces the current generation (Generation Z) to improve and prepare themselves. Gen Z which is expected to be the spearhead for industry 4.0, needs to be educated comprehensively and skillfully. Therefore, mapping the challenges and opportunities of the industrial revolution 4.0 and how to deal with it is very important. This is where soft life skills related to current technology are needed to be mastered and applied to deal with this industrial revolution 4.0.

Keyword: The Fourth Industrial Revolution, Generation Z, Soft Life Skills

I. INTRODUCTION

The word "revolution" means sudden and radical change. The revolution brought new technologies and new ways to understand the world. This triggers a major change in the existing systems. This revolution may take years to develop. Likewise, what happened at this time, the fourth industrial revolution. In this way, the industrial revolution can mean a radical change in the way humans produce goods. This big change has been recorded three times, and now we are experiencing the fourth industrial revolution. Every major change is always followed by major changes in the fields of economy, politics, education, even the military and culture. Of course, there are millions of old jobs disappearing, and millions of new jobs are emerging (Hyun Park, Seon Shin, Hyun Park, & Lee, 2017).

The first industrial revolution began in the 18th century, when agricultural societies in England became better and advanced with the help of technology. The First Industrial Revolution was a radical change in how to produce something. Hand production turned to production by machine. This change occurred in the US and Europe, in the period from around 1760 until around 1820 and 1840. The development of trade and business revival were the main causes of the Industrial Revolution. With the existence of this Industrial Revolution, it also caused an unprecedented increase in population growth in the world.

The First Industrial Revolution which ended in the mid-19th century, precisely in 1870 was the beginning of the Second Industrial Revolution. The Second Industrial Revolution (Technology Revolution) was a phase of rapid industrialization between the end of the 19th Century and the beginning of the 20th century. This revolution was a period of rapid industrial development, especially in Britain, Germany and the United States. The Industrial Revolution took place between 1870 and 1914. This revolution was marked by the construction of large-scale railroads, large-scale iron and steel production, widespread use of machinery in manufacturing, rapid use of steam power, widespread telegraph use, use of petroleum and the beginning of electrification. This revolution was also a period in which the methods of modern companies operating large-scale businesses in a large area began to be used.

In the late 1950s until the late 1970s, the Third Industrial Revolution (Digital Revolution) began. This revolution is a change in the use of mechanical and analogue electronic technology to digital electronics. When compared to the first and second revolutions, the Digital Revolution marked the beginning of the Information Age. The essence of this revolution is the massive production and use of digital technology such as computers,

cellular telephones, and the Internet. This technological innovation has changed various kinds of traditional production and business techniques.

A few years ago, a new era of revolution began, namely the Fourth Industrial Revolution. This is characterized by a combination of technology between the physical, digital and biological fields commonly referred to as the physical-cyber system. The phrase 'fourth industrial revolution' was first introduced by Schwab (2016). In his book, *The Fourth Industrial Revolution*, Schwab explained that the underlying basis for this revolution lay in progress in communication and connectivity, no longer depending on the type of technology used. The current technology has great potential to continue to connect billions of people to the web, drastically increasing the efficiency of businesses and companies. This revolution also helps regenerate the natural environment in the world through better asset management.

The Fourth Industrial Revolution will be built and developed on the basis of the Digital Revolution. This revolution makes the technology that exists today, a part of society and even the human body. The Fourth Industrial Revolution was marked by the emergence of technological breakthroughs in a number of fields, including robotics, artificial intelligence, nanotechnology, quantum computing, biotechnology, Internet of Things (IoT), decentralized consensus, 3D printing, and autonomous vehicles (Hyun Park et al., 2017). The biggest impact expected from the Fourth Industrial Revolution is increasing quality of life, reducing population inequality in the world, and increasing the level of income of the world community. Furthermore, the Fourth Industrial Revolution can be defined as the radical change that conducted when IT are used in all industries (Lee et al., 2018).

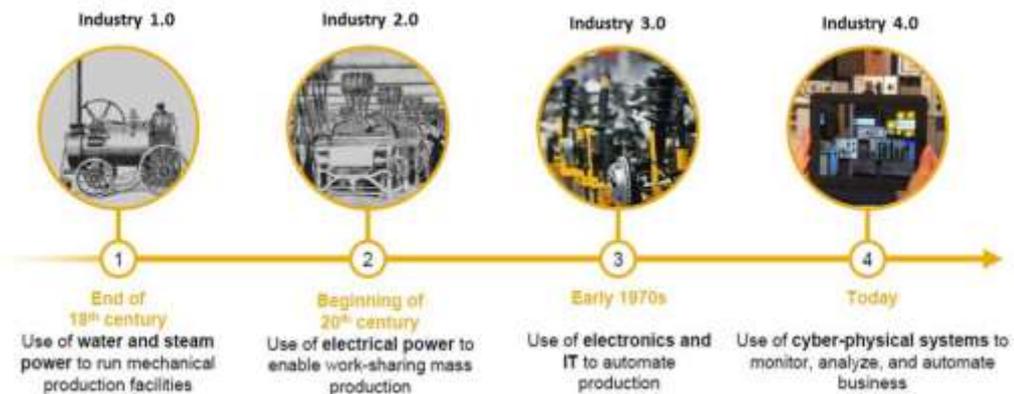


Fig. 1 The Four Phases of Industrialization

The industrial revolution does not only occur in the western world, but occurs in almost all the world including Indonesia. In Indonesia, the industrial revolution changed the way of life of society in general, for example its food, clothing, lifestyle, education, and also the work of the Indonesian population. The most visible change when looking at agrarian Indonesia, turned into Indonesia which was full of factories and companies. This as a result and impact of the industrial revolution. Inevitably, Indonesia must keep up with the times and prepare as well as possible to deal with a new era of industrial revolution, namely the fourth industrial revolution.

Numbers of countries are planning and implementing national strategies for industry to meet this revolution (Hyun Park et al., 2017). They are Germany, for example, started 'Industry 4.0', a plan to campaign for data exchange and automation in developing technologies. The USA adopted the 'National Strategic Plan for Advanced Manufacturing' in order to guide federal programmes and activities in support of advanced manufacturing research and development. China has launched 'China Manufacturing 2025', while Korea introduced 'Manufacturing Industry Innovation 3.0' (Moon, 2017). Hence, Indonesia also has launched "Making Indonesia 4.0" as a comprehensive roadmap to implement a number of strategies for facing industrial revolution 4.0 era (Kementerian Perindustrian Republik Indonesia, 2016). With the implementation of industry 4.0, large national targets can be achieved. These targets include bringing Indonesia into the top 10 of the world economies by 2030, returning the industry's net export figure by 10 percent, and increasing industrial labor productivity by double the increase in industrial labor costs by adopting technology and innovation that is able to create more or less 10 million new jobs in 2030 (Kementerian Perindustrian Republik Indonesia, 2016).

The 4.0 industrial revolution did not come without bringing new problems. One problem that might be caused by this revolution is the creation of unemployment which is influenced by the widening of economic inequality (Lee et al., 2018). Hence, from here we know the importance of human resources (HR) that are able to meet the challenges of the era of industrial revolution 4.0. The magnitude of the role of soft life skills is very necessary, especially for generation Z as a new generation after millennial generation, in Indonesia.

Some previous studies have already investigated by researchers on Generation Z in the aspects of challenges and opportunities toward fourth industrial revolution (Grow & Yang, 2018; Kazancoglu & Ozkan-Ozen, 2018; Lee et al., 2018; Loureiro, 2018), but there is limited study reveal key skills that are demanded by Generation Z (Dinira, 2019; Leal, 2018). Therefore, as the challenges and opportunities presented by this industrial revolution 4.0 above, this study tries to shed the light on two important things that should be a concern in facing this new era. First, it elucidates what soft Life skills are needed in the Era of Industrial Revolution 4.0 and second, how to cultivate soft life skills in the Era of Industrial Revolution 4.0?

II. RESULT AND DISCUSSION

Generation Z and Industry 4.0

Generation Z (Gen Z) are humans who were born between 1995 and early 2004 (Bernstein, 2015; Grow & Yang, 2018). The name, Gen Z, refers to Generation Y, the generation that preceded them. Generation Z is a person born in the internet generation, that is a generation that has enjoyed the ease and convenience of surfing. Therefore, children born during this period have had constant access to technology (PCs, cellphones, gadgets) since their childhood. So far, Generation Z is known as a character that is less focused than millennial, but more versatile; more individualized, more global, more open minded, faster to enter the world of work, more entrepreneurs, and of course more technology-friendly. The closeness of this generation to technology while proving the future of the sector will be brighter in their hands. In terms of economics, according to the Nielsen survey, Generation Z has affected the turnover of the world economy as 62 percent of consumers who buy electronic products. This is influenced by the lives of those who are already connected to the internet (Lubis, 2016). With the current lack of talent in manufacturing, many companies are looking for generation Z to fill the gap left by retirees. Fortunately, generation Z is familiar to use a new technology yet there are still many who are unsure about what and how to deal with Industry 4.0. So, all they need is confidence to face the Fourth Industrial Revolution.

2.1 The Challenges of the 4.0 Industrial Revolution.

The challenges in Business

The digital age has opened up vast opportunities for business without being separated by geographic boundaries and countries. But the challenge is not small, because the competitors are not limited to aliases from all over the world. Many business people pay less attention to the challenges found in digital business, so there are not a few who fall (Grow & Yang, 2018).

Those challenges are: (1) with the trend of internet and mobile usage, the main challenge that needs to be addressed is the recent cyber security. This incident was later experienced in various parts of the world; (2) Industrial fragmentation. At present each industry makes digital technology innovations but is not connected to each other. This causes inefficiencies and makes it difficult for people to conduct digital transactions; (3) Competitiveness. The growth of e-commerce currently cannot support the sale of local goods. Currently it is still dominated by imports from China because it is cheap. In addition, the position of both imported goods from Singapore and Japan; (4) Digital economic services are also prone to money laundering and terrorism financing practices. With these challenges, it shows that the level of mastery of soft life skills is needed for all types of workers who are directly involved with this industrial revolution 4.0.

The challenges in Human Resource

The Industrial Revolution 4.0 provided many challenges for the HR sector that all parties must anticipate. If not, there will be many Indonesian workers who are less competitive and excluded from the world of work. These challenges include (1) changes in skills, (2) changes in the type of work and (3) changes in people's lifestyle.

One problem that might be caused by this revolution is the creation of unemployment which is influenced by the widening of economic inequality. Why did it happen? This is how digitalization can shift the conventional role in the market. Conventional transportation drivers such as motorcycle taxi drivers, public transportation, and taxis have the opportunity to enter the unemployment gap due to the emergence of online transportation which is considered to be much cheaper and more convenient in the eyes of the public today. Not only that, traders at traditional kiosks can lose money and eventually go bankrupt due to the wave of e-commerce through the emergence of various online stores that provide goods that are more varied, inexpensive, and easily accessible.

Not only digitizing, going forward, the use of robots in supporting automatization in the realm of manufacturing and service industries will be increasingly inevitable. This is driven by the company's desire to cut costs caused by human resources. The demand for wage increases that are not accompanied by productivity is one of the problems often experienced by companies related to human resources. Rapid technological development will sooner or later affect the demand for labor in the future. Looking ahead, labor demand has shifted. Industry will tend to choose middle and highly-skilled labor rather than less-skilled labor because its role in doing repetition work can be replaced by automatization of robots.

As a result of technological developments too, work now is no longer limited by space and time. So, with the demands of work getting higher and more repetitive jobs, it can be replaced by machines or robots. The challenge of transforming society will be increasingly felt in this era of the Industrial Revolution 4.0. The impact on society can be seen from the inequality of competence and income between individuals who have access to computers and the internet. With these challenges, it shows that the level of mastery of soft life skills is needed for all types of workers who are directly involved with this industrial revolution 4.0.

The Opportunities of the 4.0 Industrial Evolution.

a. SMEs Digitalization

SME (small to medium enterprises) is a term used to segment small businesses and companies that are between the size of "small office-home offices" (SOHO) and larger companies. According to the European Union, SMEs are legally independent companies that have no more than 500 employees. Practically, SMEs has significant role in economy for most of the countries as their number are abundant, the large of market share and many workforces are involved (Önday, 2018).

Industry 4.0 will produce new ways of creating new values and business models. This will change the design, manufacture, operation and service of products and production systems. Connectivity and interaction between parts, machines, and humans will make the production system 30% faster and 25% more efficient and also better customization. Digitalization in all fields will have a huge impact on the criteria of 'productivity' and size due to the existence of digital real-time supply chains, digital product definition and digitally crafted and run production lines.

In the current era, digital transformation can be a solution for a company to operate efficiently. the company refers to the current business adaptation process by incorporating digital strategies and technology into its corporate systems. This can be anything, from providing a new device so that employees can work remotely, create mobile applications to improve internal communication or become paperless companies by adopting digital data retrieval solutions.

In order to remain competitive, companies cannot and must not ignore the digital revolutions that occur around them. Therefore, all companies are now trying to explore existing digital transformations and how they can properly utilize available technology to be more efficient and reduce costs. In fact, many SMEs are already looking for technology that can make them paperless - according to Xerox, 81% of SMEs want to remove paper from their businesses in the next 12 months.

However, to adapt to the rapidly changing digital market is still a daunting task for many SMEs. As we all know, technology will only provide tangible benefits if used correctly and according to business needs. Digital transformation plays an important role for every SME to remain competitive and be able to compete with larger players in this sector. With the digital market constantly changing, maybe now is the right time to implement new technologies and digital strategies for a better future.

b. Startups and Unicorn

Startup is a new company that is starting to develop. Startup companies are usually small and were initially funded and operated by several people or even one person. These companies usually offer products or services that are not currently offered elsewhere on the market, or which the founder believes is offered by means, quality and special prices. Unicorn is actually a startup that has a valuation value or market value of US \$ 1 billion. The term Unicorn was first coined by Aileen Lee in 2013 the founder of Cowboy Ventures. Unicorn is basically a startup, only its valuation distinguishes it from startup.

In the era of the fourth industrial revolution the use of information and communication technology is fully utilized, this is what will lead to the growth of new startups that might become unicorns (Lee et al., 2018). Industry 4.0 is able to give birth to a new unicorn in Indonesia. The name of the Unicorn was chosen because it is very rare for a startup company to survive so that it can produce such a large valuation. At present, there are only eight unicorns in Southeast Asia. Four of them are unicorns from Indonesia, namely: *Tokopedia, Bukalapak, Gojek* and *Traveloka*.

c. *Digital Application*

Digital applications are one business strategy that modernizes and digitizes our business processes. These services and applications are online. This application combines data, functions, and a modern user interface to serve our customers - anytime and anywhere. Digital applications can complement our business services or can also be the main channel for doing business. In Indonesia, there are so many digital application that can be a source of making money. Generation Z are expected to use games, android application, and other thing wisely so that they will be able to earn money easily.

d. *Cashless Transaction*

A cashless transaction is the practice of initiating a financial transaction without the use of physical cash to send or receive a payment. A cashless transaction is carried out using a credit or debit card or electronic transfer of funds to save time and reduce transaction costs. After being applied on numbers of countries in the world, the use of cashless payment has proven to be affective and efficient (Bátiz-Lazo, Haigh, & Stearns, 2014).

2.2 *Soft Life Skills*

Experts predict that by 2020, the world will enter the Industrial 4.0 era (Grow & Yang, 2018; Hyun Park et al., 2017). In that era, many advanced robots, supercomputers, autonomous vehicles, 3D printing, and optimizing the functioning of the human brain with genetic editing and neurotechnology development will emerge.

It may look sophisticated and astonishing, but that does not mean there are no losses caused by the industrial revolution. Quoting the results of the annual International Forum with the theme "Mastering the Fourth Industrial Revolution" in 2016, the Industrial Revolution 4.0 will cause disruption or disruption not only in the business sector, but also in the labor market (Schwab, 2016).

This means that there will be many types of work lost and replaced by robot functions or artificial intelligence. The human workforce also does not rule out the possibility of facing a new type of work that has never been thought of before, so that this revolution inevitably requires us to continue to develop skills that can be useful and capable in the future. This study proposed different soft skills from the previous study conducted by Dinira, (2019) , which need to be developed among for generation Z. She only focused on 4C : critical thinking, creative thinking, communication, and collaboration. Hence, this study proposed wider rage of soft skills needed to deal with the 4.0 Industrial Revolution as follows:

First, *Complex Problem Solving*. Complex problem solving here is the ability to solve complex problems. starting from identifying problems, determining the main problem, looking for possible solutions to the problem, taking action to solve the problem, and finally, taking lessons from problems that arise /exist. Second, *Critical Thinking*. Critical thinking is the ability to think sensibly, cognitively and develop strategies to achieve the expected results. Critical thinking is also called thinking with a clear, reasoned and goal-oriented.

Third, *Creativity*. Creativity is the ability to continue to innovate, be creative, create something unique and beneficial to society and the environment. Creativity here can also mean developing something that already exists so that it can be better than before. And fourth, *People Management*. People management is the ability to regulate, foster, lead, and utilize human resources in a directed and effective manner. Fifth, *Coordinating with*

others. Coordinating with others is the ability to work in a team or work with other people from outside the team. And Sixth *Emotion Intelligence*. Emotional intelligence is the ability of a person to regulate, assess, accept, and control the emotions of himself and others around him.

Seventh, *Judgment and Decision Making*. Judgment and decision making are the ability to draw conclusions about the situation at hand and the ability to make decisions under any circumstances, including when under pressure. Eighth, *Service Orientation*. Service orientation is the desire to help and serve others as best as possible to meet their needs. With service orientation, we will always try to give the best to customers without expecting mere appreciation. Ninth, *Negotiation*. Negotiation is the ability to talk, negotiate, and convince others in aspects of work. This ability will develop better along with the amount of practice and habituation. And the last, *Cognitive Flexibility*. Cognitive flexibility is the ability to compile knowledge spontaneously and be able to adjust to the demands of a rapidly changing situation.

Finally, all aspects on learning and teaching need to insert those ten soft skills. This is intended to enrich students knowledge related to the technology and the ability of students to adapt to their future environment including work place. Hence, once they have equipped the knowledge as well as the use of sophisticated technology, when generation Z are expected to be environmentally friendly and easily do their responsibilities by mastering soft skills.

III. CONCLUSION

The fourth Industrial Revolution brought many changes in human life. This revolution has fundamentally changed the way people think and move. Moreover, this revolution has a huge influence on the world of work. The positive influence of this revolution is in the form of effectiveness and efficiency of resources and production costs despite the impact on reducing employment. As a consequence, this industrial revolution requires workers who have skills in digital literacy, technology literacy, and human literacy.

As the suggestion, through the education system which also emphasizes the development of soft skills, in addition to technical skills, the generation Z can be more able to adapt quickly to change and have qualified provision to face the future and develop their careers amid the stretch of the industrial revolution 4.0.

IV. REFERENCES

- [1]. Bátiz-Lazo, B., Haigh, T., & Stearns, D. L. (2014). How the future shaped the past: The case of the cashless society. *Enterprise and Society*. <https://doi.org/10.1093/es/kht024>
- [2]. Bernstein, R. (2015). Move over millennials here comes gen Z. Retrieved January 21, 2015, from <http://adage.com/article/cmo-strategy/move-millennials-gen-z/296577/>
- [3]. Dinira, L. (2019). Sharpening 4C for Students in Vocational Higher Education Program Towards Industrial Revolution 4.0 Through Summer Camp. In *2nd International Conference on Vocational Education and Training*. <https://doi.org/10.2991/icovet-18.2019.32>
- [4]. Grow, J. M., & Yang, S. (2018). Generation-Z Enters the Advertising Workplace: Expectations Through a Gendered Lens. *Journal of Advertising Education*. <https://doi.org/10.1177/1098048218768595>
- [5]. Hyun Park, S., Seon Shin, W., Hyun Park, Y., & Lee, Y. (2017). Building a new culture for quality management in the era of the Fourth Industrial Revolution. *Total Quality Management and Business Excellence*. <https://doi.org/10.1080/14783363.2017.1310703>
- [6]. Kazancoglu, Y., & Ozkan-Ozen, Y. D. (2018). Analyzing Workforce 4.0 in the Fourth Industrial Revolution and proposing a road map from operations management perspective with fuzzy DEMATEL. *Journal of Enterprise Information Management*. <https://doi.org/10.1108/JEIM-01-2017-0015>
- [7]. Kementerian Perindustrian Republik Indonesia. (2016). Making Indonesia 4.0.
- [8]. Leal, R. L. V. (2018). Design Thinking And Product Roadmapping In The Fourth Industrial Revolution. *Journal on Innovation and Sustainability*, 9(1), 3–15. <https://doi.org/10.24212/2179-3565.2018v9i1p3-15>
- [9]. Lee, M. H., Yun, J. H. J., Pyka, A., Won, D. K., Kodama, F., Schiuma, G., ... Zhao, X. (2018). How to respond to the Fourth Industrial Revolution, or the second information technology revolution? Dynamic new combinations between technology, market, and society through open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*. <https://doi.org/10.3390/joitmc4030021>
- [10]. Loureiro, A. (2018). There is a fourth industrial revolution: the digital revolution. *Worldwide Hospitality and Tourism Themes*. <https://doi.org/10.1108/WHATT-07-2018-0044>

- [11]. Lubis, M. (2016). *Gen Z: Konsumen potensial masa depan.*
- [12]. Moon, S. S. C. (2017). Missions from Korea 2017: The fourth industrial revolution and missions. *International Bulletin of Mission Research*. <https://doi.org/10.1177/2396939317693991>
- [13]. Önday, Ö. (2018). What Would Be the Impact of Industry 4.0 on SMEs: The Case of Germany. *The International Journal Of Management*.
- [14]. Schwab, K. (2016). The Fourth Industrial Revolution: what it means and how to respond. *World Economic Forum*.