

The Implementation & Practice of Industry Revolution 4.0 Associated with Makassar Local Concept

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Abstract- The industry revolution 4.0 has given a huge impact to Makassar people. Hence, the implementation and practice of its principle has shown certain viewpoint and action. To figure out the implementation of industry revolution 4.0, the descriptive qualitative study was conducted. The study aimed at identifying and finding out the understanding of Makassar people towards the implementation of industry revolution 4.0 within five areas: understanding of the meaning of industry 4.0, support of digital technology to the life activities, the importance of Internet, the awareness of Bill of Act on Electronic Information and Transaction, and interaction and communication via social media. The subjects of the study were 30 Makassar people who live in Makassar and work in Universitas Negeri Makassar from three different positions who were chosen purposively. Data on the subjects' responses about their understanding towards the implementation of industry revolution 4.0 were collected through the distribution of questionnaire in the form of Likert Scale and the conduction of semi-structured. Data on the questionnaire were categorized into *Extremely High, High, Moderate, Low, and Extremely Low*. The finding showed that the subjects in accumulation were categorized *Moderate* with 31.93 mean score for their understanding towards the implementation of industry revolution 4.0. This means that the subjects did not have deep understanding but could comprehend certain principles of industry 4.0 in their life activities. It is inferred that their understanding towards industry 4.0 still needs to be intensely imparted and deepened, particularly to the stage of creating and customizing feasible products or possible ways and also to the agreement of the customs and tradition in Makassar.

Keywords: *understanding, industry revolution 4.0*

I. INTRODUCTION

The change of era has brought people from all ranges change their own view and lifestyle. Right now, our era is bombarded with the use of digital technology. Our daily chores are equipped with various applications through mobile phone, tablet, or laptop which solve their complication. People can communicate and show things one another from different places via video call. They can send documents converted into small sizes from one place to another in a second. Also, they can order and eat their favorite meals from their house without going to the restaurant to buy them within just a short few minutes. These attributive activities are the kinds of easiness which are gradually undertaken by people and are the indication that the industry revolution 4.0 is happening.

It can be denied that the use of technology tools along with the digital attribute has given a huge impact to the people's life. Industry 4.0, which is so-called, has optimized the work of computerization to use data to be operated and to make decisions about people's chores. Then, based on the tremendous volume of data that are saved, the computerization becomes smarter to identify and inform as well as perform the people's needs. The implementation of industry 4.0 has shown rapid and astonishing change that happens since the year of 1990 till 2019. A few of the change are people are more inclined to communicate via video call than to meet physically face to face, people are more contented to buy their stuff via online shop than to go to the store directly, or people are more entertaining to play online games than to go hanging out outdoor. These changes gradually become the habits which are practiced in people's life. However, the change which people experience now results positive and negative impacts, particularly to the people's psychological conditions. The most positive impacts are people experience efficiency and practicality to finish their daily chores. On the other hand, the most negative impacts are people become less intense in interaction and inaccurate in communication. Toward these opposite impacts, people have initially chosen to live their life to be.

Nevertheless, their conviction is still doubtful towards what they want and need in their life. People, particularly in Makassar, Indonesia, have inherently established and performed their own cultural and local perception in respect to their life view and life style. They have perceived the principles of togetherness, oneness, and peace among the vast differences. Though their surroundings lay on various ranges of tribe, age, religion, language, economic & social status, education level, or individual differences, they manage to believe that their different surroundings are not a conflict-cause. The fact that the implementation of industry 4.0 also affects Makassar people in various aspects of their life also arouses inquiry concerning how far Makassar people understand the implementation of industry 4.0.

Therefore, the study of this paper will then describe the understanding of Makassar people in implementing the principles of industry revolution 4.0 in their life.

II. LITERATURE REVIEW

1. Industry Revolution 4.0

The term, Industry 4.0, is coined by Professor Klaus Schwab, the Founder and Executive Chairman of the World Economic Forum. [1]–[4] The industry revolution 4.0 marks the change of the production process by taking the automation with the customized and flexible use. Then, to produce products, industry 4.0 employs a machine that can be operated independently by creating a customer-oriented production

On surface, Schwab states that the way people live, work, and relate to one another changed since the beginning of a revolution in the midst of 1800s. His assumption proves that with the implementation of industry revolution from 1.0 until 4.0, the transition is shifted from muscle power to mechanical power, to cognitive power. This transition has eventually affected the changes of people's life. Right now, the changes are based on the adoption of new technologies that are attributive for the industry 4.0 for the progressive automation of the result process.

The change affected by industry 4.0 is about innovative technologies which are developed in the applications to operate and run systems that are needed by human.

In principle, industry 4.0 is established to integrate the real world into a virtual one and enable machines to collect live data, to analyze them, and to make decisions based upon them.

Hermann, Pentek, and Otto (2016) listed six design principles based on the four most components of industry 4.0—Cyber-Physical Systems (CPS), Internet of Things (IoT), Smart Factory, and Internet of Services (IoS), they are:

- a. Interoperability: Objects, machines and people need to be able to communicate through the Internet of Things and the Internet of Services.
- b. Virtualization: CPSs must be able to simulate and create a virtual copy of the real world.

- c. Decentralization: The ability of CPSs to work independently by giving room for customized products and problem solving.
- d. Real-Time Capability: A smart factory needs to be able to collect real time data, store or analyze it, and make decisions according to new findings.
- e. Service-Orientation: Production must be customer-oriented. People and smart objects/devices must be able to connect efficiently through the Internet of Services to create products based on the customer's specifications.
- f. Modularity: In a dynamic market, a Smart Factory's ability to adapt to a new market should be fast and smoothly to seasonal changes and market trends.

Based on the principles above, industry 4.0 has established a revolutionary approach which results a new level of personally customized products. Though the implementation of the principles can give positive impact to human beings, the result process is still unfamiliar to the people who live where they belong to.

2. The Culture of Makassar

Makassar is the capital city of South Sulawesi, one of the provinces in Indonesia. It is the fifth big city in Indonesia and it is the most metropolitan city in East Indonesia. Demographically, Makassar is a multi-ethnic city inhabited with diverse tribes, such as: Buginese, Makassarese, Torajanese, Mandarese, Enrekangnese, Javanese, and Tionghoa. Along with this diversification, Makassar is filled with people who speak more than one vernacular language, besides Bahasa Indonesia as the national language, such as: the four most languages are: Buginese, Makassarese, Torajanese, Mandarese, with each diverse dialect as well.

Locally, Makassar people have their concept towards the life they live in and that forms the life values that governs their behaviors and social life. Almaliki listed five local values and concept that are applied mostly by Makassar people, they are:

- a. Tau "a human"
A human is diverse. There are real humans and ordinary ones. It can also be said that a human is the one who can talk. So if Makassar people are real humans or ordinary ones, they should talk and behave well without disturbing or hurting other people.
- b. Siri' "self-esteem"
Self-esteem and solidarity are the pillars of character imparted and practiced by Makassar people. Whatever they do, they always put dignity or respect to one another in the first place.
- c. Pacce "compassion"
Makassar people are compassionate to help other people who are in trouble. They do not want to see other people suffer in agony and, therefore, they will help them.
- d. Pangngalik "mutual respect"
Mutual respect is the value that is upheld by Makassar people in all their life activities. When they undertake an activity that is related to the people's business, they will glorify and honor other people with high regard.
- e. Pangngadakkang "customs and tradition"

The customs and tradition are the habits that govern social norms in Makassar. These habits are established and practiced since the past time.[5]

3. The Understanding of Makassar people towards the Industrial Revolution 4.0.

Literally, the word *understanding* is defined as “the power of comprehending, especially the capacity to apprehend general relations of particulars” as cited in Merriam-Webster dictionary. This definition means that when someone has understanding about a particular object, he has the ability to predict, identify, analyze, synthesize, and interpret the good and bad sides of that particular object.

In line with the definition above, Baraitte (2006) defined understanding an object, such as a human, situation, or information as one is able to figure out the essence of the object and finally has concept towards that object. [6], [7] For instance, if someone understands what love is to his lover, he will be directed to focus on giving more affection, time, and sacrifice to his lover. The center of his concept, which is his understanding, affects his psychological condition which directs him to realize certain actions.

In relation to the industry revolution 4.0, the understanding of Makassar people lies on the concept perceived from various situations and conditions that happen in the implementation of the industry 4.0. Within the implementation of the industry 4.0, Makassar people adapt, adopt, adjust, or refuse the meaning of the principles and the functions of the tools created by the industry 4.0.

III. METHOD

The study of this paper is a descriptive qualitative which aims at identifying and finding out the understanding of Makassar people in implementing the principles of industrial revolution 4.0. The study employed the distribution of questionnaire in the form of Likert Scale and the conduction of semi-structured interview to gather data on the subjects' responses about their understanding towards the implementation of industry revolution 4.0. Data on the questionnaire were categorized into *Extremely High*, *High*, *Moderate*, *Low*, and *Extremely Low*. The subjects were Makassar people who live in Makassar and work in Universitas Negeri Makassar from different background. They were 30 Makassar people with three different positions: 10 students, 10 lecturers, and 10 staff respectively. They were selected purposively based on their high frequency of the use of digital technology tools every day in all their daily activities.

IV. RESULTS AND DISCUSSION

The study has found that the 30 Makassar people in accumulation were categorized *Moderate* with 31.93 mean score for their understanding towards the implementation of industry revolution 4.0. This means that the subjects did not have deep understanding but could comprehend certain principles of industry 4.0 in their life activities. The following illustrations will elaborate understanding of the subjects towards industry 4.0.

1. Understanding of the meaning of industry 4.0

43,33 % of the subjects stated that they understand the meaning of industry 4.0. They assured that industry 4.0 has marked the change of era from muscle to brain power. That is why they realized that various applications installed through their gadget could help ease the finishing of their business. However, they also realized that most of their daily activities have been spent by looking down to their gadget and exploring ways to help them answer their curiosity. This means that most of their time used to empower and harness their brain.

This finding proves that the subjects have applied and practiced the principles of virtualization, decentralization, and real-time capability to understand how industry 4.0 worked. Gradually the subjects could work more independently by looking at the copy of their real data in their gadget and finally solve their own daily problems. This kind of activity is also in line with the local values and concept of Makassar people about human and compassion. The subjects felt real when they could finish their own problems and helped themselves and others to find more way outs.

2. Support of digital technology to the life activities

56,67% of the subjects assured that the digital technology particularly applications installed through their mobile phone, tablet, and laptop supported their daily work. In line with their understanding of the functions of the applications, a lot of time every day they explored and used the applications to ease their activities, particularly: google search, google maps, social media, online shop, and online transportation. Another support to their life activities was online games and you tube which became the entertainment for their fun leisure time.

This finding shows that the subjects applied and practiced the principles of interoperability and decentralization in industry 4.0. By giving personal room and time, the subjects used certain applications to communicate and complete their daily tasks. In line with this practice, the subjects strengthen their local values and concept of self-esteem and compassion. To improve their capability as well as to assist their daily tasks, the subjects upholding and empowering the functions of the applications.

3. The importance of Internet

56,67% of the subjects viewed that Internet since 2000 has supported some of their daily tasks, such as browsing expected information and showing feasible ways of their demanded daily tasks completion. They also realized that Internet was the base of using the digital technology tools so they need to save and waste their money to buy Internet quota.

Conforming to the principles of industry 4.0, the subjects have applied and practiced decentralization by working more independently to empower their capability upon the completion of their daily tasks. This practice again revealed that the subjects still established and implemented self-esteem as the local value and concept of Makassar

people. They ascertained that the improvement of self-quality by practicing decentralization would increase their self-esteem and respect to themselves.

4. The awareness of Bill of Act on Electronic Information and Transaction

43,33 % of the subjects were aware that there was Bill of Act on Electronic Information and Transaction which was set and regulated by the national government. Therefore, they were more cautious and watchful towards their posts, particularly in the social media. Their awareness was more centered on the points of information they would share through the typed words. They took care of the positive points instead of teasing other people with their haphazard and clueless points.

This awareness becomes a real action that the subjects implemented and practice interoperability by self-examining and selecting information via social media. Along with this practice, the subjects have conceptualized the local values of human and mutual respect. The realization of the awareness of Bill of Act on Electronic Information and Transaction has shown that the subjects were the real and ordinary humans who did not want to hurt other people and respect to other people's business.

5. Interaction and communication via social media

43,33 % of the subjects admitted that they did online interaction and frequent communication through social media, such as: Whatsapp, Instagram, and Facebook. They assured that by typing messages, posting, looking at the picture and watching videos could waste their time more fun and more pleasantly. Though the interaction was not physical but they enjoyed when they chatted and saved memories of their chat.

The kind of interaction and communication applied and practiced by the subjects was in accordance with the principles of interoperability, virtualization, and decentralization in industry 4.0. All in all within their interaction and communication, the subjects could manage to have a social life with other people and could bring information more virtually. This is also in line with the local values and concept of human and mutual respect. By communicating their ideas and feelings through social media, they could feed their social needs.

Based on the description above, the subjects of the study or 30 Makassar people do understand about the coming and the establishment of industry 4.0. In certain situations and condition, the subjects could define the essence of industry 4.0 through the use of applications in their gadget. However, other principles of industry 4.0, such as service orientation and modularity have not been applied and practiced. This means that most of the subjects chose to use applications that can assist their daily tasks, such as browsing expected information and finding possible ways to help ease their task completion. Yet, they have not been in the stage of creating and customizing products or ways to help empower and strengthen their quality. Therefore, their understanding towards industry 4.0 was not high still.

Moreover, their average understanding towards industry 4.0 is not in consonance with the local value of customs and tradition. In the initial step, it is assumed that the subjects will prioritize a safe relationship by upholding the common interest and getting rid of a conflict with others. Nevertheless, their understanding towards industry 4.0 still could relate to the customs and tradition in Makassar.

V. CONCLUSION

Regardless their profession and their different background, Makassar people apply and practice certain principles of industry 4.0 on surface. Therefore, their understanding towards industry 4.0 still needs to be intensely imparted and deepened, particularly to the stage of creating and customizing feasible products or possible ways and also to the agreement of the customs and tradition in Makassar.

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