Investigation of IT Competence and Readiness of IT Students Facing The Industrial Revolution 4.0

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***Abstract*—The focus of this research is to investigate IT competence and IT students' readiness to face the industrial revolution 4.0 based on student perception. In this preliminary study, a survey was distributed through an online survey to 50 Indonesian IT students. Respondents were students of Syarif Hidayatullah State Islamic University who were between 18-24 years old. The results show that the hard skills that are more in demand are Information Technology Governance and Management, and the least desirable is Information Technology Enterprise Architecture. Regarding soft skills, most of the students agreed that the important trait the IT graduates should uphold to is honesty. In general, 92 percent of respondents were ready to enter the era of the industrial revolution 4.0. These findings confirm that competence in the form of hard skills, soft skills, and readiness to face the era of the industrial revolution 4.0 is one of the core elements to determine the extent of preparation of IT students facing the era of the industrial revolution 4.0. Enhancing one competency to embark on the new industrial revolution is a must, and agility is indeed a critical identity that must be inherent in IT students in facing the industrial revolution 4.0.**

Keywords—Competence, Readiness, Industry Revolution 4.0, IT Student, Soft Skills

I. INTRODUCTION

Nowadays, the world is facing the era of industrial revolution 4.0 (R. Morrar et al., 2017). The term Industrial Revolution was launched by Friedrich Engels and Louis-Auguste Blanqui in the mid-19th century (cf Blanqui, 1837; Engels, 1975). The industrial revolution can be interpreted as a big change in the way humans produce goods. This major change has occurred three times, and we are currently experiencing the fourth industrial revolution.

IR 4.0 applies the concept of automation technology that is carried out by machines without requiring human labor in its application. It is a vital thing needed by industry players for the efficiency of time, labor, and costs (Schwab, 2017).

According to Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation, released by the McKinsey Global Institute (December 2017) that the existence of the Industrial Revolution 4.0 causes in 2030 from 400 million to 800 million people have to find new jobs because they are replaced by machines.

Furthermore, according to the Minister for National Development Planning of Indonesia, Bambang P.S. Brodjonegoro that was facing the industrial revolution 4.0 Indonesia, will lose 50 million job opportunities. It directly has an impact on oneself, who still wants to have a presence in global competition must prepare skills that have advantages over the others (Siregar & Harahap, 2020). The main way to prepare skills can be taken by having good behavior, practicing self-competence, and having technology literacy. Data from research conducted at Harvard University in the United States, it is known that it turns out that one's success is not determined solely by knowledge and technical skills (hard skills), but rather by the ability to manage themselves and others (soft skills). This research revealed success is only determined by about 20 percent by hard skills and the remaining 80percent by soft skills (Suparno, 2017). Furthermore, according to research firm A.T. Kearney in Marsyaf stated that Indonesia needs five times (5x), more IT graduates in the next ten to fifteen years to support the development of the digital economy.

IR 4.0 is a phenomenon that collaborates with cyber technology and automation technology. The impact is that all aspects of human life have begun to be distracted in computerized and digital forms, all facing a world that is changed by technology. This is, of course, a challenge and an opportunity for students to improve their IT competencies in the form of hard skills and soft skills relevant to IR 4.0. It is assumed that if students have these competencies, students are ready to face IR 4.0.

Based on this, researchers are interested in investigating IT students with the aim of knowing student IT competencies and knowing their ability to prepare themselves for the IR 4.0.

II. LITERATURE REVIEW

Previous research revealed how important it is for someone to have competence in the era of IR 4.0 (Flores, & Lu, 2020). One of the competencies needed is IT competence (Prifti, L. et al., 2017). Therefore, it is very necessary for someone to improve IT competence in the era of the industrial revolution 4.0.

Competence is a person's ability or capacity to carry out various tasks in a job (Robbin, S, 2007; Sutrisna, 2011). Ability is determined by two factors, namely intellectual and physical abilities. Furthermore, competence is a characteristic that underlies a person that is causally related to the criteria referred to as ineffective performance and / or excellence in a job or situation (Spencer and Spencer, 1993). The targets to be achieved from the concept of competence are skills, knowledge, and behavior. The aspects contained in the