Strengthening the Digital Talent Ecosystem to Support Digital Transformation in Indonesia

Rodlial Ramdhan Tackbir Abubakar[1], Fikri Aditya Tri Andhikaputra[2], Rike Anggun Artisa[3], Endah Mustika Ramdani[4], Septi Lestari[5]

{rodlial@poltek.stialanbandung.ac.id[1], fikri@poltek.stialanbandung.ac.id[2] , rikeanggunartisa@poltek.stialanbandung.ac.id[3], endah.mustika@poltek.stialanbandung.ac.id[4], 21110245@poltek.stialanbandung.ac.id[5]}

Politeknik STIA LAN Bandung, Bandung, Indonesia[1,2,3,4,5]

Abstract. The rapid digital progress in Indonesia raises the question of whether this progress is accompanied by human resources who have digital competence?. Technology trends and changes in the business landscape due to digital transformation have resulted in soaring demand for information technology workers. This research wants to know the challenges faced in strengthening the digital talent ecosystem in Indonesia. The research was conducted using qualitative methods through interviews and document review. The research results show that there is a gap between job qualifications, the qualifications of the workforce, and the output of the current education system. However, efforts are made through collaboration between government, professional/community associations, industry, academia and the media. Apart from that, preparing digital talent has also been included in the steps to accelerate digital transformation in Indonesia which is concretely implemented through various programs.

Keywords: Digital Talent; Human Resources; Digital Transformation.

1 Introduction

The rapidly evolving era brings about significant changes, especially in the field of information technology and communication. Both have a broad impact on various sectors of life, such as education, health, business, transportation, economy, and communication. In this Industry 4.0 era, there has been a shift in innovation towards digital technology [1]. According to the Communication Technology Timeline cited by Dan Brown, various electronic media began to emerge in the early 1880s, starting with communication devices such as the telephone, tape recorder, and radio. Then, in the 1940s to 1970s, other electronic devices such as television, cable TV, and mobile phones became widely used, and the digitalization transition was marked by the advent of transformative media products such as e-books, the internet, digital newspapers, e-shops, and much more.

The existing digital transformation provides convenience in communication processes and daily tasks, making it an integral part of human life today. Creating a digital nation poses a challenge for all parties involved, from citizens to the government and interconnected companies, aiming to generate benefits for all stakeholders, particularly the central government.

ICAS 2023, November 29, Bandung, Indonesia

DOI 10.4108/eai.29-11-2023.2347810

The rapid advancement of technology demands that society possesses superior competencies to keep up with the pace of change. Human resources play a crucial role in facing the era of the fourth industrial revolution, making the quality of existing human resources viewed as the most valuable asset. Indonesia is confronted with issues regarding human resources, necessitating improvement in three main areas: low skills of the workforce, mismatch between job fields and available skills, and the inadequacy of skilled and qualified workers to fulfill job positions [2]. The swift pace of technological change has created a significant gap between the current abilities of employees and the rapidly evolving requirements.

One of the competencies required to keep up with the times is having human resources with expertise in the digital field. This is highly supportive in achieving digital success. According to research, the digital dilemma arises in the battle to build digital talents [3]. Thus, digital transformation is not just about technology but also involves human talent.

Currently, workers are required to advance in technology and acquire new skills to withstand the increasingly evolving global world. Therefore, existing human resources need to be trained and developed to upgrade practical implementation using theoretical knowledge, thus fostering innovative and new ideas.

The limitation in the capacity of each individual often becomes a challenge and obstacle in developing the quality of human resources. Hence, one of the functions of human resource management is to create a more comprehensive, structured, and standardized human resource within an organization [4].

Thus, digital capability development is crucial for every organization to be better prepared for digital transformation. Digital capabilities refer to digital alignment related to the culture, structure, and tasks within the organization. Considering the rapidly advancing information technology, what challenges exist in strengthening the digital talent ecosystem in Indonesia, and whether this progress is accompanied by human resources possessing digital competence.

2 Theoretical foundation

2.1 Digital Insight

Digital literacy is an individual's ability to operate and utilize the developments in digital technology efficiently to support work activities. The digital literacy of civil servants (ASN) encompasses several indicators that provide an overview to subsequently assess the level of digital literacy possessed by ASN, as follows:

a. Familiarity with commonly used hardware and software to support work activities
b. Understanding terminology related to the utilization of digital technology
c. Having a global perspective on the development of digital technology
d. Understanding plans and national targets in the field of digital technology and their relevance to the tasks and functions of the work unit or institution.

2.2 Digital Skills

As a tangible manifestation to support the opportunities of digital transformation in the 4.0 era, the government needs to consider workforce development through competence

enhancement to align with the organizational needs. As known, digital skills are an individual's ability to recognize and understand the basic knowledge related to hardware and software used to support work activities. In the context of governance, these digital skills can be observed in the ability of civil servants (ASN) to communicate, access, and manage information according to needs, and this is part of the application of the previously discussed digital literacy. There are 6 indicators that can be used to determine the digital skills of a civil servant:

a. Ability to operate applications and utilize features to support work activities.
b. Ability to search for relevant data and information for reference
c. Understanding the challenges of navigating through the internet
d. Ability to map the relevance of digital technology developments to the tasks and functions of the work unit or institution
e. Ability to adapt digital technology to enhance the effectiveness and efficiency of the work unit or institution
f. Ability to utilize digital technology for decision-making

2.3 Digital Behavior

In the digital era, the quality and quantity of human resources must become assets that are irreplaceable due to the changing order of life. According to [5]and [6], digital technology has a significant impact, creating 3.7 million new jobs within the next 7 years, with the majority in the service sector. Continuous improvement of competence and self-potential will give rise to a prosperous, quality, and excellent society. Therefore, the development of digital behavior is necessary, which is an individual's ability to carefully recognize and understand the governance of ethics to enhance service quality. The application of digital behavior is personal, local, and global. In the context of governance, digital behavior can be observed in how a civil servant (ASN) responds to digitization and the evolving digital technology. This can then be measured through the following 4 indicators:

a. Awareness of the risks of using digital technology and the ability to control them
b. Understanding the weaknesses and ethical consequences of communicating through digital technology
c. Ability to analyze and present data and information, as well as understand the ethics and regulations related to digital content
d. Generating policy innovations for institutions that impact the improvement of public service quality.

3 Research Methods

This study employs a qualitative approach. Qualitative research is a research method aimed at gaining an in-depth understanding of the phenomena faced by the research subject, such as insights, skills, and behaviors performed as a whole. It involves articulating them in words within a natural context and utilizing scientific methods [7]. The research involves conducting interviews and document analysis, enabling the author to obtain data that supports the research topic. Qualitative research produces descriptive information in the form of data notes obtained from the examined text, and the analysis is carried out descriptively.

4 Result and Discussion

4.1 Existing Conditions of Digital Literacy

According to [3], there is a gap or high demand gap between digital skills and available digital talents at present. This gap raises concerns for both the government and the private sector because it affects almost every sector of life. The ongoing advancement in technology, evolving skills, and increasing demand must be supported by competent digital literacy to facilitate the adaptation process to technological innovations.

Based on information from the Ministry of Communication and Information Technology (Kominfo), projections for the period 2015-2030 indicate a digital talent gap in Indonesia reaching 9 million. This figure suggests that Indonesia needs an additional 9 million digital talents or 600,000 people per year to meet the requirements for the participation in the development of human resources in the digital sector and to fulfill the workforce needs in the digital sector outside major cities.

According to data from the Central Statistics Agency (BPS), the Information and Communication Technology Development Index in Indonesia in 2021 was 5.76, showing an increase compared to the previous year, which was 5.59. Additionally, BPS also assessed the ICT skills of the population at 5.97 and the use of ICT at 5.66. In general, ICT in Indonesia continues to improve each year, similar to other developed countries. In 2017, the International Telecommunication Union (ITU) announced the ICT ranking, and at that time, Indonesia ranked 111 out of 176 countries. This ranking indicates that digital literacy in Indonesia is still low and needs continuous improvement to avoid falling behind.

4.2 Digital Skills

The individual's ability to recognize and understand basic knowledge related to the hardware and software used to support work activities still needs improvement. However, considering the low ICT ranking and ICT assessment in Indonesia, it indicates that digital skills in Indonesia are also lacking. According to data from the ASEAN's Growth and Scale Talent Playbook for the year 2022, education is the primary reason for the low level of digital skills in Indonesia. This can be observed through the mismatch between the education system, training, and employment, making it difficult to find skilled digital talent. Education, being the cornerstone, is crucial for achieving success. Furthermore, the relatively low and uneven level of education often results in only certain regions having high-quality human resources in the field of technology

4.3 Digital Behavior

Currently, the government has issued five directives on digital transformation that have been underway since 2019. From these directives, various training programs have emerged to

develop digital talents through three skills, ranging from basic to intermediate and advanced levels. The Ministry of Communication and Information Technology (Kominfo) states that the training programs are provided for CEOs, university rectors, and directors, while civil servants have the Government Transformation Academy Training. These training activities are part of the efforts to cultivate digital behavior, especially within the government. The training programs are applicable at every level of governance, and they are conducted online for flexibility

Additionally, the government has established regulations to obtain competency certifications so that each worker can perform tasks according to their expertise. Certifications are divided into two types: first, formal education certificates or diplomas issued by universities, and second, competency certificates issued by international/global standards, SKKNI (National Competency Standards), and specific/industry standards. To expedite digital transformation, a national collaboration is carried out by the Ministry/Agency of Communication and Information, the National Planning Agency, the Ministry of Finance, the Ministry of Home Affairs, and Local Governments. Through this collaboration, every agency can be connected to collaborate in building a better digital talent ecosystem.

4.4 Challenges in Strengthening the Digital Talent Ecosystem to Support Digital Transformation in Indonesia

The occurrence of digital transformation has significantly altered various aspects of human life, from job automation that ultimately led to many tasks being performed by technology, the emergence of new professions, to the surge in demand for mid-level and high-level IT workforce. Based on research findings, we identified three main challenges, including:

a. The cost of technology needed in the future is quite high, requiring a substantial allocation of funds to support digital transformation in Indonesia.
b. Human Resources issues ranging from the quality of education, participation in the development of digital sector human resources, to the workforce with technical skills and soft skills that are still limited. There are many skills needed to strengthen the digital talent ecosystem. There are 10 skills that are crucial to possess by the year 2025, including:
    1. Analytical thinking and Innovation
    2. Active learning and learning strategies
    3. Complex problem-solving
    4. Critical thinking and analysis
    5. Creativity, originality and Initiative
    6. Leadership and social influence
    7. Technology use, monitoring and control
    8. Technology design and programming
    9. Resilience, stress tolerance and flexibility
    10. Reasoning, problem-solving and ideation

5 Conclusion

The ongoing digital transformation in Indonesia and other countries needs to be supported by an improvement in the quality of human resources to keep up with technological advancements. Today, all aspects of life involve technology to facilitate various activities. According to data from the Ministry of Communication and Information Technology (Kominfo), the projected digital talent gap in Indonesia is expected to reach 9 million by 2030. The Central Statistics Agency (Badan Pusat Statistik) also mentions that Indonesia's ICT index has been increasing every year. However, when looking at the global ICT ranking, Indonesia is placed 111th out of 176 countries.

However, research findings reveal a gap between job qualifications and the quality possessed by the workforce, as well as the output of the current education system. The analysis also emphasizes the need for organizations to focus on talent development, educate about talent management, and succession planning. There are several challenges in facing digital transformation in the coming years. However, to address these challenges, various stakeholders, including the government, professional/community associations, industry, academia, and media, are making continuous efforts through programs to enhance the quality and quantity of digital talent in Indonesia.

References

[1] Supartoyo and Hendriani, "Digital Literacy Supporting Competitiveness And Digital Transformation Towards The Society 5.0 Era.," . *Social and Humaniora Journal*, vol. 3, no. 3, pp. 387–391, 2022.

[2] J. Nagel, "Peningkatan SDM Indonesia yang Berdaya Saing melalui Pendidikan di Era Transformasi Digital dan Teknologi yang Berkelanjutan," in *Prosiding Seminar Nasional Sains Dan Teknologi Terapan*, 2020, pp. 31–38.

[3] Cardenas and Nafi'ah, "KESIAPAN KEBIJAKAN DIGITAL TALENT DI INDONESIA," *Public Administration Journal of Research*, vol. 2, no. 1, 2021.

[4] S. Adiawaty, "Kompetensi Praktisi Sdm Menghadapi Era Indusri 4.0," *ESENSI: Jurnal Manajemen Bisnis* , vol. 22, no. 2, 2019.

[5] Suwardana, "Revolusi Industri 4. 0 Berbasis Revolusi Mental," *JATI UNIK: Jurnal Ilmiah Teknik dan Manajemen Industri*, vol. 1, no. 2, pp. 102–110, 2018.

[6] Sugiat, "Pengembangan Sdm Unggul Berbasis Collaborative Strategic Management," *SULTANIST: Jurnal Manajemen Dan Keuangan*, vol. 8, no. 1, pp. 1–9, 2020.

[7] J. , W. Creswell, *Research Design: Qualitatitve, Quantitaive, and Mixed Methods Approaches*. Thousand Oaks, CA: Sage, 2009.