

What are Digital Skills Still Lacking to Survive in Digital World?

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Abstract: - Digital transformation is an essential requirement in various companies currently. The emergence of digital transformation creates challenges for companies in technology and digital utilization. In the future, Generation Z will dominate the workplace. Generation Z is known as Digital Natives, however, do they have high digital readiness? The Research Questions of this study are (1) How is Generation Z's digital readiness level in Indonesia for Workplace Digital Skills? and (2) How is Generation Z's digital readiness level in Indonesia for Everyday Digital Skills? A quantitative study involving 420 Generation Z in Indonesia was conducted to review their workplace and everyday skill digital readiness. The result showed that Generation Z was ready for three digital skills, which were Collaboration Technology, Digital administration, and Creative Design. Then the unpreparedness of Generation Z was in 3 digital skills, namely Encryption and cyber security, Coding and app development, and Sales technology. The self-rating of everyday digital skills showed that most of Generation Z have readiness at the Advanced level, rated at 8-10. However, they were unprepared for the Data Analytics and Productivity Program skills.

Key-Words: - digital skills, digital readiness, digital transformation, generation Z

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1 Introduction

Digital transformation is an essential requirement in various companies currently. According to [1], digital transformation can boost productivity, value creation, and social welfare as a strategic move emphasizing long-term policy. The study, [2], explained that digital transformation must be carried out by companies as a form of innovation from developing technology to improve company performance. In other words, digital transformation positively impacts companies to increase productivity and performance.

Regardless of the importance of digital transformation, the emergence of digital transformation creates challenges for companies in technology and digital utilization. The involvement of technology also requires companies to update their work systems. Most companies are asked to carry out digital transformation to keep pace with current technological developments. Companies must be able to carry out digital transformation in the company sustainability, [3].

The most important part of digital transformation is not the system itself. Changing the working system and business in the digital era requires expertise in the technology field. To

operate and face the market, companies need to ensure the readiness of employees to work in a digital environment. Employees' readiness to work in a digital environment is known as digital readiness. Digital Readiness is a tendency and willingness to switch and adopt digital technologies and their readiness to create new innovative opportunities by using them to bring individuals, organizations, industries, and countries to achieve their goals faster and with more significant results, [4].

The McKinsey Survey suggested that one of the barriers to digital transformation is lacking the necessary skills and expertise, [5]. Do employees have high digital readiness? Workplaces nowadays contain multiple generations. At this time, there are three generations in the workplace, namely Generation X, those who were born the year 1965-1977, Generation Y or Millennial, born between 1977-1993; and Generation Z, those who were born between 1993-2005, [6]. However, in the future, Generation Z will dominate the workplace. In 2020, Generation Z will be estimated to occupy 20% of total employment.

Generation Z or also referred to as iGen, Homelanders, Digital Natives, and most commonly as Gen Z or Gen Zers, consists of individuals who

were born between 1995-2012, [7]. Generation Z is the first generation born in the world of internet-connected technology. Generation Z has become accustomed to technology or digital media. With the advancement of technology, studies have shown that technology is one of the key modifiers of human behaviour. Technology is known to be a norm in social interaction. The utilization of technology is the most prevalent in Gen Z, [8]. Gen Z was introduced to gadgets from an early age. Based on a survey conducted Center For Generational Kinetics (CGK), approximately 95% of Generation Z own a smartphone, and 25% of them have a smartphone before the age of ten, [9]. The most striking characteristic of technology in Generation Z is that they are a tech-savvy generation. According to many dictionaries, a tech-savvy person is a person who is well-educated about new technologies and uses his skills to take advantage of existing technologies, [10]. According to [11], Tech-savvy conjures up images of young digital people easily using technology in ways that are often difficult for people of the older generation to imitate.

A study of Gen Z shows that 95% of them own a smartphone, 83% own a laptop, 78% own a high-end game console, and 57% own a desktop computer. Then 29% use their smartphone up and past midnight every single night. Reports from, [12], focusing on technology or digital device usage behavior on average have found that Generation Z got their first smartphone at age 12, around grade 7. Their digital connection started at an earlier age than the previous generations; this means smartphones became one of their first screens, and Generation Z is a genuinely mobile-focused generation.

Furthermore, Generation Z has complex and valuable knowledge related to digital. Regardless of the common knowledge that Gen Z used technology most of the time for all aspects of their life, [13], [14], they mostly spend more on socialization than productivity. They consider ease of use, usefulness, and enjoyment as important features when using technology, [15]. On the contrary, Gen Z cannot work in a digital world with high digital readiness. A survey by the Global Digital Skill Index Survey found that digital readiness for Generation Z does not even reach a third. Moreover, a survey has been done in 19 countries focused on Generation Z. It turns out that the Digital Skill Readiness index only reached 31 out of 100 points compared to 33 points for the entire generation, [16].

Aside from that, Salesforce found a skills gap where only a third of respondents felt ready for the social media skills in the workplace needed over the next five years (Figure 1). They are the first

generation who are truly digital natives and feel "very ready" for today's digital jobs. There are not many Generation Z respondents who believe they have "advanced" digital skills in areas such as coding (20%), data encryption & cybersecurity (18%), and AI (7%), [16].



Fig. 1: Global Digital Skill Readiness Index
 Source: [16]

The newest research stated that some earliest studies showed that 62% of the EU population uses the internet daily. However, almost half of the EU population, i.e., 47%, have "low" or "non-existent" digital skills and are not even considered to be functioning in a digital society, [17]. The younger generation today is already spending much time in the digital environment; in fact, that does not help them enough in the digital workplace. The problem is that after graduation, they are not armed with the digital competencies required by companies, [17].

The digital readiness survey conducted by Salesforces and several other surveys did not include Generation Z's digital readiness in Indonesia. To fill the gap in Generation Z's digital readiness in Indonesia, this study aims to look at the digital readiness index in Indonesia and see the perception of Generation Z in Indonesia towards the digital workplace. Research Questions from this research are (1) How is Generation Z's digital readiness level in Indonesia for Workplace Digital Skills? and (2) How is Generation Z's digital

readiness level in Indonesia for Everyday Digital Skills?

2 Literature Review

2.1 Generation Z

A generation cohort is a group of individuals born in a certain period and has the same attitudes and preferences. Generation cohorts are determined by year of birth, not by the current age. There are currently 4 Generation cohorts in adulthood. They are Baby boomers, Generation X, Generation Y, and Generation Z, [18]; Baby boomers are those who were born between 1946-1964, and Generation X was born between 1965-1977; Generation Y or Millennials born in 1977-1993, and Generation Z born in 1993-2005, [6]. Generation Z is the latest demographic to complement over five generations working side by side for the first time in the history of the modern workforce, [19].

A recent survey shows that the younger generation prioritizes their happiness and freedom. The latest survey by Randstad found that around 35,000 individuals in 34 markets showed that employee attitudes toward work experience have significantly changed. Later, in the same study, 56% of employees aged between 18 to 24 years old answered that they would rather quit their job than work in a company that makes them unhappy. Generation Z puts lifestyle and happiness as their top priority, followed by company values, [20].

Generation Z is the first-born generation who were born as internet-connected technology developed. Generation Z is mostly getting used to technology or digital media. They use gadgets from an early age. A survey conducted by [9], published on the CGK website, shows that 95% of Generation Z own a smartphone, and 25% have a smartphone before age 10. Generation Z is known as digital natives. A recent study about Generation Z conducted by [11], shows that 95% own a smartphone, 83% own a laptop, 78% own a high-end game console, and 57% own a desktop computer. Generation Z is tech-savvy and globally connected. Moreover, they are very fast in finding and gathering all the information they need, more intelligent, and more flexible, [17].

Digital readiness for students implies their technology-related knowledge, skills, attitudes, and competencies to accomplish digital technology to meet educational goals and expectations in higher education, [21]. Generation Z is ambitious in achieving its goals. They were born to believe that education is the key to realizing their goals and, accordingly, make tireless efforts to get into

reputable universities that also offer scholarships, [22]. A critical characteristic of this generation is that they know how to handle computers and mobile devices and optimize social media as an essential means of communication. Generation Z is considered newbies in the workplace, and it makes them assigned to tactical or low-value jobs. In addition, they were asked to perform one task at a time, focusing on the quality of the work. However, recent research shows that this group is multitaskers and intends to do more than one task, [22].

Technology plays an essential role in the life of this generation; being raised with smartphones and other digital narratives every day makes them expect things to be fast and instant, [23]. A study by Deloitte revealed that half of this group spent 10 hours a day or more on digital devices. They are close to automation, artificial intelligence, the Internet of Things, and machine learning comes into play, and the tech-powered gig economy and crowdsourcing model introduce attractive alternatives to talent management, [22]. Although they are considered a tech-savvy generation, [17], believed that Generation Z, even though they are growing up surrounded by digital technology, is identified as lacking systematic experience in working with them.

2.2 Digital Readiness

Readiness is a stage of development that describes the tendency, willingness, and readiness to take action. Meanwhile, Digital is defined as the device and application of digital technology. Thus, digital readiness is defined as the tendency and willingness to switch and adopt digital technologies as well as the readiness to create new innovative opportunities by using these technologies to bring individuals, organizations, industries, and countries to achieve their goals faster and with more significant results, [24]. Digital Readiness in the workplace can be defined as the ability to take advantage of the potential of digitization. Businesses may need to end aging business models, invest in innovation, or completely transform their core business to achieve digital readiness, [25].

Digital Readiness refers to the readiness of their people in terms of positive beliefs, knowledge, and skills, and their organizational readiness in terms of abilities such as budget constraints, organizational capacity, leadership, or culture of innovation, for example, to manage the required transformation. There is evidence that digital readiness positively affects enterprise success, and for those matters, organizations must be prepared as well as their managers and employees, [26]. The success of

companies with good digital readiness where employees can create much higher revenues and profitability than companies with lower digital readiness levels, [24].

There are four benefits of Digital Readiness within organizations. The first is to increase organizational agility, the second is to increase competitive advantage, the third is to provide customers with new products and services, and the fourth is to help the better exchange of information for staff and users. An organization can build a digital-ready culture by incorporating changes in the work environment. Moreover, encouraging changes will come from the top down by informing, engaging, and empowering employees to help foster a digital mindset internally

3 Methodology

3.1 Design and Procedure

This research used a quantitative design, where respondents were asked to fill out the questionnaire and provide their assessment of the statements in the questionnaire. The first part of the questionnaire was a brief containing information about the study. Questionnaires were divided into four parts. The first was informed consent, which contains a brief explanation of our research and the respondent's consent to be willing to fill out the questionnaire. The second part was the screening to ensure that the respondents fit our research criteria only. The third part was demographic information such as gender, and educational background. The last part was questions related to digital readiness, which was modified from the assessment of the Global Digital Skill Index conducted by Salesforce, [16].

3.2 Sample and Data Collection

According to the Indonesia Central Bureau of Statistics, in 2020, the Generation Z population in Indonesia was 75.49 million. Based on the Slovin sample calculation, the number of samples required is 387 samples. A convenient sampling method was used in this study.

3.3 Data Analysis

Descriptive analytics was used to analyze the data. The mean value is then classified into the importance level and skill level diagram.

Workplace digital skills are classified as collaborative technology, digital administration, encryption and cyber security, E-commerce and digital trade, and Project management technology

(Figure 2). Workplace digital skills consist of artificial intelligence, coding and app development, collaboration technology, creative design, data science, DB management, analytical, data visualization, digital administrative, digital green/sustainability, digital marketing, E-commerce and digital trade, encryption and cyber security, product management technology, project management technology, sales technology.



Fig. 2: Workplace Digital Skills

Source: [16]

4 Results

4.1 Demographic

In this study, 421 respondents have responded. Only one respondent was not eligible for further analysis. Therefore, the suitable data for further analysis was 420 respondents. The status was students as much as 89%. By gender, 36% were male and 64% were women. Based on education 85% were undergraduate students, 12% were bachelor's degrees, 1% were graduate degrees, and 3% in others. Based on the place of residence, 75% reside in Greater Jakarta. Then, as much as 14% live in Java Outside Jabodetabek, and 11% live in others.

4.2 Digital Experience

From the analysis, it was found that 1% of respondents have used gadgets since they were at the age of <3 years and 4% of respondents have used gadgets since 3-5 years old. Then 57% of respondents started using gadgets at the age of 5-12 years old. There were 38% of respondents have used gadgets since the age of > 12 years.

The result revealed that 44% of respondents spent time 5-8 hours per day. Around 39% of respondents spent time using gadgets > 8 hours per day. The respondent claimed that from the total hour screening time, they spent 70% on other than school activities and assignments. Based on gadget types, 52% of respondents claimed that the mobile phone category was the first and most frequently used

gadget. Then the second gadget was laptops (47%). Ipad was the third gadget (49%). The computer was the fourth gadget (36%)

4.3 Digital Readiness

4.3.1 Workplace Digital Skills

Figure 3 showed that in the digital skill workplace, Generation Z was ready for three digital skills, which were Collaboration Technology, Digital administration, and Creative Design. Their self-assessment claimed that they considered those three digital skills were important and at the same time they claimed that they had very good skills in those. Then the unpreparedness of Generation Z was in 3 digital skills, namely Encryption and cyber security, Coding and app development, and Sales technology. They claimed that those three skills are important but they did not have a very good skill on those three.

Figure 3 also showed that Artificial Intelligence skills (such as VR, Chatbot, and Face ID) resulted in the majority of respondents feeling that these skills were essential on a scale of 7.79, and their skill level was intermediate with a scale of 6.07. For Coding and app development skills (such as Bootstrap, jQuery, Angular, and Code Igniter), the majority of respondents felt that these skills were essential with a scale of 7.27 and their skill level was quite low with a scale of 4.99. Then the Collaboration Technology skills (such as ZOOM, WhatsApp, LINE, Microsoft Outlook, Google Docs, and Google Sheets) resulted in the majority of respondents feeling that these skills were critical with a scale of 8.66 and their skill level was the advanced scale of 9.33. Creative Design skills (such as typography, adobe creative, and Canva) resulted in most respondents feeling that these skills were essential on a scale of 7.73, and their skill level was advanced with a scale of 8.5. Then, on Data Science, Database Management, and analytical skills (such as data analytics, statistics, machine learning, and calculus & algebra), the majority of respondents felt that these skills were essential on a scale of 7.88, and their skill level was intermediate with a scale 6.



Fig. 3: Workplace Digital Skills

Data visualization skills (such as Tableau, Qlik, and Microsoft powerBI) resulted in the majority of respondents feeling that these skills were essential with a scale of 7.59, and their skill level was intermediate with a scale of 5.46. In Digital Administrative skills (such as Google Docs, PowerPoint, Excel, planner, and notes), the majority of respondents felt that these skills were essential with a scale of 9.17, and their skill level was intermediate with a scale of 8.36. Then the Digital Green/sustainability skills (such as Paperless Office, Cloud Computing) resulted in the majority of respondents feeling that these skills were essential on a scale of 7.78, and their skill level was intermediate with a scale of 5.74.

For the E-Commerce and digital trade skills (such as SEO, copywriting, editing, marketplace, and trading via the company website) resulted in the majority of respondents felt that these skills were essential on a scale of 8.3 and their skill level was intermediate with a scale of 8.3. 6.25. The Encryption and cyber security skills (such as SQLNinja and Nmap) resulted in the majority of respondents feeling that these skills were essential with a scale of 7.09, and their skill level was quite low with a scale of 4.59. In Product Management Technology (Slack) skills, most respondents feel

these skills were essential with a scale of 7.59, and their skill level was intermediate with a scale of 5.26. For Project Management Technology (Trello) skills, most respondents feel they were essential on a scale of 7.54, and their skill level was intermediate with a scale of 5.36. The last one on Sales Technology skills (such as salesforce work) resulted in the majority of respondents feeling that these skills were essential on a scale of 7.34, and their skill level was quite low with a scale of 5.16.

4.3.2 Everyday Digital Skills

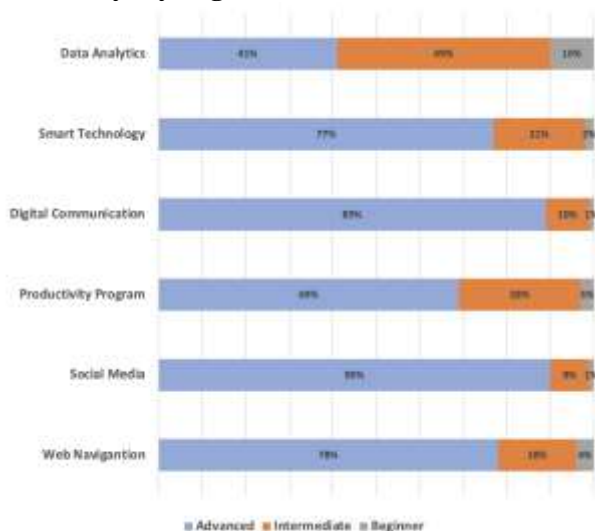


Fig. 4: Everyday Digital Skills

Figure 4 showed that in the everyday digital skills section, most of Generation Z has readiness at the Advanced level for social media and digital communication, 90 and 89% respectively. Then the unpreparedness of Generation Z is in the Data Analytics and Productivity Program skills, with 41% and 69% claiming they had advanced levels in the skill.

Figure 4 also shows that in the Web Navigation skill (such as browsing and searching), 78% of the respondents are at the Advanced level, 18% are at the Intermediate level, and only 4% of the respondents are at the Beginner level. On Social Media skills (such as Instagram, Twitter, YouTube, Facebook, LINE, WhatsApp, TikTok, and Telegram,) 90% of the respondents are at the Advanced level, only 9% of respondents are at the Intermediate level, and only 1% are at the Beginner level. As for the Productivity Program skills (such as Evernote, Google Drive, Google Calendar, Mendeley, Todoist, Dropbox, and Grammarly), 69% of the respondents were at the Advanced level, 28% were at the Intermediate level, and only 3% were at the Beginner level.

On Digital Communication skills (such as LINE, Telegram, WhatsApp, E-mail, ZOOM, Microsoft Teams, and Google Meet), as many as 89% of the total respondents were at the Advanced level, and only 10% of respondents were at the Intermediate level and only 1% only those at the Beginner level. Furthermore, for Smart Technology skills (such as WIFI, VPN, Android, IOS, Bluetooth, and Tethering), 77% of the respondents are at the Advanced level, 21% are at the Intermediate level, and only 2% are at the Beginner level. Then, finally, on the Data Analytics skill, 41% of the respondents were at the Advanced level, 49% were at the Intermediate level, and 10% were at the Beginner level.

5 Discussion

Generation Z is a technologically literate generation. Generation Z is the first generation born in the world of internet-connected technology. Generation Z has become accustomed to technology or digital media. This is proven from the results of this study that they also know technology since the age of < 12 years. What's more, this study also shows that Generation Z spends time 'playing' with technology for an average of 5-8 hours per day, [14].

The results showed that Generation Z has ready for 3 *workplace digital skills*, *Collaboration Technology*, *Digital administration*, and *Creative Design*. The first was in *Collaboration Technology* skills, Generation Z considered that these *skills* were very important with the *skill* level they have was *advanced*. *Collaboration technologies* for example are ZOOM, Whatsapp, LINE, Microsoft Outlook, Google Docs, Google Sheets, etc. Generation Z feels that they are quite *ready* to use *collaboration technology* because as obtained from demographic data, Generation Z on average uses *gadgets* from the age of < 12 years and spends time using *gadgets* above 5 hours per day which results in them getting used to using *collaboration technology* platforms. The second Generation Z is used to use those platforms to complete their school tasks and work. This is also supported by research conducted by [27], that as many as 78% of students use Google Docs to write papers in groups or when they collaborate. On the other hand, 80% of students use Microsoft Word for individual work, and 13% percent use it for group work. The dynamic is the same for all millennials, Microsoft Word for individual work, Google Docs for collaborative work

Another thing that causes them to feel *more ready* for the use of *collaboration technology* is the

COVID-19 Pandemic. The COVID-19 pandemic has forced a change in habits from offline to online-based activities that require communication and working with teams virtually using platforms such as Microsoft, Google Classroom, virtual classroom platforms such as video conferencing, namely Google Hangouts Meet, Zoom, Slack, Cisco, WebEx, [28]. A survey conducted by the *Global Web Index* also found that more than 80% of Generation Z in the US and UK say they are consuming more content since the COVID-19 outbreak, with online TV and video broadcasts (YouTube, TikTok) being the primary medium across all generations and genders, gen Z is no exception, [29].

In *Digital Administrative* skills (Google Docs, power points, excel, planner, notes, etc.) Generation Z considers these *skills* very important with the *skill* level they have *intermediate*, this is because platforms such as Google Docs and Microsoft are platforms that they often use since entering the world of education to the world of work. Generation Z is used to using the platform to complete their schoolwork and work tasks. Generation Z uses Google Docs, Slides, and Sheets or Microsoft Office 365 to collaboratively edit presentations and documents. This platform has allowed Generation Z to complete group tasks and made Generation Z comfortable with distance learning and working from home, especially since the COVID-19 pandemic. In short, Generation Z uses technology for instant and independent learning, communication, and collaboration, [30].

In Creative Design skills (typography, adobe creative, canvas, etc.) Generation Z considers these *skills* are very important with the skill level they have advanced, this is because according to [31], experts say Generation Z prefers YouTube because it offers a personalized, immersive, [31], video-centric user experience (UX) with fewer distractions than Facebook. The average Generation Z prefers something visual, compared to previous generations who prefer something in the form of text. Then the *Creative Design skills* in Generation Z are increasing because today's applications are increasing in number and are easy to use such as Canva, and Adobe. Generation Z prefers visual content over text because it is easier and more useful for them to use. Nearly half of Generation Z say they watch YouTube for three hours or more every day, according to data from GenHQ. Since most grew up in digital media, Gen Z confidently navigates visually oriented digital interfaces, [31].

Then the unpreparedness of Generation Z is in 3 digital *skills: Encryption and cyber security, Coding*

and app development, and Sales technology. Generation Z feels that these three *skills* are important with the skill level they have as a *beginner*. This results in them feeling unprepared for the *skill* because they have never learned it and it is irrelevant to the field. According to [32], a digital native, Generation Z has shown almost no interest in pursuing IT jobs. According to the CompTIA report, much of Generation Z's disinterest in IT is mainly due to their lack of understanding of the field. This is especially the case in schools, with some saying that their schools do not provide information about IT work.

In the *everyday digital* skills that researchers have gained from the results of the questionnaire, Generation Z feels unprepared for *Data Analytics* skills because they have never learned them and most of them think these *skills* are difficult to understand and learn. Whereas according to [33], Data Analytics will be a big element of the company in the future. Having the skills needed to work with data is not only valuable but it's all a must. The importance of Data Analytics skills will only become more important in the future as more and more industries and businesses jump in.

6 Conclusion

Generation Z is a technologically literate generation. Generation Z is the first generation born in the world of internet-connected technology. Generation Z has become accustomed to technology or digital media. This study showed that Generation Z has many skills in Workplace Digital and Everyday Digital. This is because they used digital gadgets quite early in their life. Online and digital have been important parts of their life.

Gen Z claimed that they had good skills in Collaboration Technology, Digital administration, Creative Design, Social Media, and Digital Communication. But they felt that they are lacking Data Analytics, Productivity Program Encryption and cyber security, Coding, and app development, and Sales technology. Those skills that are lacking mostly require specific education are the ones that they feel they are lacking. This study showed that Generation Z in Indonesia somehow is quite ready to work in the digital world. Digitalization is already embedded in their daily life.

The contribution of this study is that as Digital Naïve Generation, Gen Z is not necessarily having enough skills to navigate digital transformation.

6.1 Limitation of the Study and Future Research Recommendation

This study only depicts the digital readiness of Generation Z. This study did not research the reasons behind each situation. Therefore, a qualitative study can be recommended for future research to deeper study the insight. This study did not see a relationship between demographic information to readiness. Future studies to seek the factors influencing digital readiness would be beneficial.

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