Integrating Socio-Digital Skills in the Industry 4.0 era for graduates' employability: An employers' perspective

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Abstract

The technological changes brought by the fourth industrial revolutions heavily impacted business environments and created a perfect storm in the employment market, prompting a need to explore the implications of changes in job demands and skills requirements. The debate remains to focus on graduate skills and employability, increasingly robust competition with experienced and skilful workers, changing skills due to technological changes. Identification of integration of skills is both essential and difficult. Considering that Industry 4.0 is still in Malaysia's early stage, this research intends to elucidate the exact integration of skills in the Industry 4.0 environment. This research adopts a qualitative methodology to explore the employment trend in the Industry 4.0 landscape. A qualitative research method is adopted, considering economies and labour-market experts do not yet know the exact mix or level of skills that particular occupations will demand. The findings revealed that employers value fresh graduates' effort to integrate social and digital skills, leading to greater employability opportunities. The graduates must be able to coherent narrative shows to influence and convince the employer that they possess the right integration of skills to fit the organisation's culture and goals. Future job demands allow graduates to gain employability and compete with experienced candidates in a digital environment. What sets the graduates apart and gives them a competitive advantage is constructing strong socio-digital skills. The graduates must be able to coherent narrative shows to influence and convince the employer that they possess the right integration of skills to fit the organisation's culture and goals.

Keywords: Industry 4.0 skillsets, skills integration, socio-digital skill, graduates employability

I. INTRODUCTION

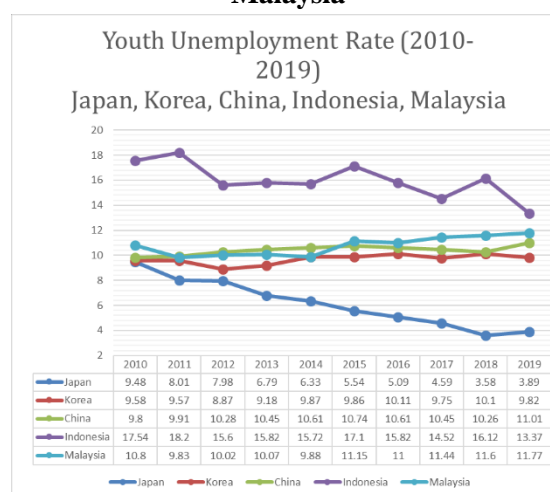The changing trends and the beginning of Artificial Intelligence, Big Data, and the Internet of Things ultimately lead to job demands and skill requirements. Rapid technological changes created a significant gap

between employees' current skills that require new roles with new skills to align with technological advancements (Drath & Horch, 2014). The recent development in Industry 4.0 has shown an increased interest in integrating machine, automation and digital technology in creating new business and products. Industry 4.0 has substantially impacted human employment compared to the first three industrial revolutions, focusing on integrating social and digital changes to create a smarter work environment and technology-enabled development (Caruso, 2018; Rabeh Morrar, Husam Arman, 2018). With the changing technological trend, it is always better to have employees with multiple skillsets, including technical and non-technical skills, to solve problems and create new products and services (Nair et al., 2019). Non-technical skill is associated with personality, attitude, and behaviour rather than formal or technical knowledge (Teng et al., 2019). Previous research defines non-technical skill as an ability related to social and emotional intelligence (Jameson et al., 2016). Technological disruptions caused by new categories of jobs and occupations also demand new sets of skill that will be needed in both current and new professions (Hecklau et al., 2016). The right combination of technical and non-technical skills is crucial for young professionals entering the employment market (Winberg et al., 2020). However, the skills' actual mix and employers' opinions on graduates' employability in Industry 4.0 remain scarce.

Interestingly, economists and labour-market experts also express their concerns to discover the exact mix of skills that particular options will need (Weaver, 2017). Consequently, the purpose of this study is to explore the right mix of skills for the Industry 4.0 job demands, touching the technical and non-technical skills dimensions for graduates' employability. Furthermore, future graduates are of interest because the unemployment rate of the fresh graduates over the years is increasing (Department of Statistics Malaysia, 2020), rapidly changing technology (Oesterreich et al.,

2019) and challenging competition for securing employment in the future (Kaur, 2017).

Figure 1 Youth Unemployment Rate in Japan, Korea, China, Indonesia and Malaysia

Youth Unemployment Rate (2010-2019)
Japan, Korea, China, Indonesia, Malaysia

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Japan	9.48	8.01	7.98	6.79	6.33	5.54	5.09	4.59	3.58	3.89
Korea	9.58	9.57	8.87	9.18	9.87	9.86	10.11	9.75	10.1	9.82
China	9.8	9.91	10.28	10.45	10.61	10.74	10.61	10.45	10.26	11.01
Indonesia	17.54	18.2	15.6	15.82	15.72	17.1	15.82	14.52	16.12	13.37
Malaysia	10.8	9.83	10.02	10.07	9.88	11.15	11	11.44	11.6	11.77

Source: The World Bank Data (International Labour Organization, 2021)

All countries contend with unemployment, labour underutilisation, labour income inequality, alongside the rapid transformation of digital technology that introduces new skills in the employment market, providing a new opportunity to skilled young workers (International Labor Organization (ILO), 2020). Looking into the unemployment trend among the youths in Figure 1, developing countries such as Japan, the youth unemployment rate indicates a slight decrement in 2019 with a 3.89% unemployment rate compared to 2018 with a 3.58% unemployment rate. This is probably because Japan is in the high technology sector, offering greater opportunity and access for the youth to secure employment in the digital technology environment since most companies are technological-based. Similarly, with an ASEAN country such as Indonesia, the unemployment rate in 2018 is quite revealing, with 16.12% of the unemployment rate. Interestingly, the unemployment rate in 2019 shows a decreasing trend at the rate of 13.37%. The decline of the unemployment rate is a positive sign that the country is strengthening its economic condition, thus providing greater employment opportunity. Contrary to Malaysia, the unemployment rate has been rising over the past decade, suffering

higher unemployment rates due to the economic crisis (Bridget, 2020). To conclude, youth unemployment due to technological changes and demand negatively impacts the individual economy, leads to low purchasing power, and contributes to a higher poverty rate, negatively impacting national economic growth.

Based on the latest evidence reported, unemployment issues among the graduates in Malaysia have garnered attention in the past few years due to the high production of graduates from numerous higher education institutions, including public and private universities, higher education colleges, tertiary polytechnics, and vocational colleges (Silva et al., 2019). According to Graduates Statistics 2019, the unemployed graduates in 2019 rose to 3.9%, equals 170,300 graduates (Department of Statistics Malaysia, 2020). Employers' significant barriers in hiring graduating students are lack of skills, insufficient qualifications, and inability to adapt to new technologies to perform the task in a working environment (Oesterreich et al., 2019). In addition, graduates' inability to portray a diverse mix of skills is also why employers prefer to hire experienced candidates who already possess multiple skills (Kaur, 2017).

The change of job demands and the shift towards digital technology and automation are also primary factors that cause job losses that require a new position to be filled with technical and non-technical skills (The Star, 2020). In general, looking into the current employment trend with a diverse mix of skill demanded, the graduates' basic skills might raise a critical question of whether local graduates are fully equipped with all the skills required. Therefore, this research intends to explore to what extent socio-digital skills are needed in the Industry 4.0 environment for graduates' employability, exploring the employer's experiences in hiring the graduates in the Industry 4.0 landscape. The subsequent sections of this research will explore the previous literature on the employment trend in Industry 4.0, leading to integrating technical and non-technical skills, exploring the socio-

digital skill needed for Industry 4.0 and future job demands. The literature review culminated in Resource-Based View Theory and Human Capital Theory. Human Capital theory highlighted actual skills that future graduates need to invest in and gain employment opportunity in return. The Resource-Based View Theory supports theory throughout this study, considering the benefit gained from skills developed. Identification of integrated skills will positively impact both organisations and fresh graduates, leading to individual and organisation competitive advantage through employment opportunity.

II. LITERATURE REVIEW

A. Employment Trend in the Industry 4.0

Industry 4.0 is constructed based on nine pillars comprising big data and analytics, autonomous robots, simulation, vertical and horizontal system integration, Internet of Things (IoT), Cloud computing, Augmented Reality (AR), and Cyber Security (Erboz, 2018; Silva et al., 2019). The challenges derived from the transformation also lead to opportunities to create a new business model that will lead to new job creation and skills to align with the technology revolution (Lee, 2019). The young graduates must have basic knowledge in digital technologies and, in the meantime, also able to express innovative ideas to create value (The Star, 2020). The employment landscape in Industry 4.0 is expected to emerge in utilising digital platforms, augmenting individuals' potential to explore their values to be employable in the Industry 4.0 era. The rapid evolution in technology leads the business to increase innovation in creating a competitive advantage. To gain competitive advantage, the organisation need to strengthen its internal skills, including human resource. Therefore, employers seek talent to value the business through creativity, contributing to innovative ideas to turn into business revenue (Alshare, 2018).

This research deploys the Resource-Based View and Human Capital Theory as a foundation for this study. The investment in

skill development forms eventually creates individual competitive advantage, increasing the chance for the individuals, especially graduates, to secure employment in the Industry 4.0 environment. Human Capital Theory and Resource-Based View Theory related to skills and competitive advantage are deemed relevant to this study. These reflect the growing demands for a mix of skills to cater to future jobs. For instance, the study conducted by Esho and Verhoef (2020) highlighted that it is crucial to capture how human capital may affect firms' ability to access and deploy human capital. Human Capital theory is mostly used in economic studies to create awareness of the importance of investing in human capital to gain higher income (Wo, 2003). However, Human Capital Theory has been used in economics and human resource management applications. Flores et al. (2020) discovered that it is necessary to upgrade the human force at different levels, such as technical and social, to meet the changes, especially in Industry 4.0. Therefore, Human Capital in Industry 4.0 is expected to be holistic in every aspect, including skills and education. There are substantial studies that focus on higher education roles in creating employability through curriculum development. Jonck (2014) argued that human capital theory emphasises education as a primary economic enabler which only specific on the supply side. Therefore, this study will extend from employers' point of view, as the 'demand' in selecting candidates based on the skills required by utilising Resource-Based View as a supporting theory related to recruiting future graduates in generating employability. Overall, this study will uncover the graduate employment landscape through human capital and resource-based view theory, leading to the identification of integration of skills that graduates must possess and how they may affect employers' hiring decisions.

B. Socio-Digital: An integration of skills for Industry 4.0 and future job demands

Industry 4.0 requires employees to have non-technical skills and knowledge and abilities to use IT technology, interact with modern interfaces, and be aware of IT security (Gehrke, 2015; Lorenz et al., 2015). In the Industry 4.0 environment, non-technical skills such as self-organisation, complex problem solving, and critical thinking are equally important. The skills mentioned have to complement technical skills. The individual must have the ability to use digital technology to solve complex problems and perform multiple tasks simultaneously (Kazancoglu & Ozkan-Ozen, 2018). In the Wall Street Journal, employment experts mentioned that future jobs require employees to tap technical and non-technical skills to perform multiple jobs (Weber, 2019). In their study, Grundke et al. (2015) found that the right mix of skills may create a comparative advantage that may contribute to the national economy through diverse skills development. Integration of skills is related to combining multiple skills to perform jobs (Weber, 2019). Integration of skills are still lacking operational definition since it is relatively new and not discovered yet. However, a recent report discovered a massive integration of skills trends across the United States that require a specific integration of skills, integrating programming skills, and design, data analysis, and marketing (Burning Glass Technologies, 2019).

According to the Wall Street Journal, employers need a capable workforce with new skills in analysing big data and using digital technology to create attractive designs (Weber, 2019). In a study conducted by International Telecom Unions, the people between the age of 19-24 are categorised as 'digital native', which highly interacted with digital technology (International Telecommunication Union, 2013). Therefore, the young generation has a greater opportunity to secure employment since they are constantly live in an era where technology is evolving. In general, Industry 4.0 requires future workers to possess skills to perform jobs in the digital environment. The future workforce's ability to use digital technology and think creatively with excellent communication skills will provide greater employment opportunities, thus positively

impacting the individual economy in salary. The young candidates that are digitally interactive pose a greater advantage to compete with the experienced workers. However, in the Industry 4.0 environment, digital skills alone are inadequate. The young generations must tap social and digital skills to 'stand out from other qualified candidates during the job interview. Therefore, this research intends to explore to what extent socio-digital skills are highly needed in the Industry 4.0 job demands.

World Economic Forum (2016) noted that social skills are valued more than technical skills. An individual must have social skills to adapt to the working environment (UNESCO, 2015). Industry 4.0 requires social skills, including language skills, communication and networking skills; teamwork, transfer knowledge; and leadership skills (Stief et al., 2019). Hecklau et al. (2016) have explained that social skills may give challenges due to a contrary perspective on social values. For example, the new generation value more flexibility, where they value the importance of work-life balance. However, the organisation has a contrasting perspective for the employee to be 'flexible' in performing tasks as changes in work organisations (Hecklau et al., 2016). Employers are dissatisfied with graduate non-technical skills, including maturity and communication, in which they believe universities developed the skills very well. However, the graduates failed to link the real working environment (Suleman & Laranjeiro, 2018).

Conversely, a study conducted in three Asia pacific regions, enclosed Malaysia, Indonesia, and Australia, found that the Malaysian employers contended with the current university curriculum that does not develop the social skills needed. The conflicting argument significantly affects students' inability to communicate well and lacks critical thinking and problem-solving skills (Verma et al., 2018). Developing social skills is an individual responsibility, in this case, the fresh graduates. Social skills can be developed during the duration of studies through presentations and group projects. However, employers' dissatisfaction with graduates' inability to project social skills into a real working environment resulted in immature behaviour.

Rapid technological changes show a substantial impact on the labour market. Digital skills are significant skills in this new era where new technologies emerge from job creations evolve in job displacement and labour productivity, eventually widening the skills gaps (Sung, 2018). Digitisation has led to significantly increased demand for high-skills individuals who possess digital skills and technical knowledge to perform tasks in a technological environment (Bejaković & Mrnjavac, 2020). Digital skills also described technical proficiency as a part of advanced interface interaction, which involves basic knowledge of hardware, software, specifications, networks, and digital technology elements (van Deursen & van Dijk, 2009). Industry 4.0 focuses on utilising the Internet of Things, where there is a need to have big data analytical skills to extract information from large amounts of data (Ji & Wang, 2017; Vassakis et al., 2018). Digital skills require data analytical skills to identify correlations, understand the business process and draw conclusions, including statistical and general programming language (Lorenz et al., 2015). However, an individual who works with data does not have to be a data scientist. Data analytical skills involve people who can 'use' and 'understand' the process of managing data. Data analytical skills can visualise, gather information, articulate, analyse, solve the problem, and make decisions (Grzybowska & Łupicka, 2017).

As mentioned earlier, the graduates are not necessary to be a data scientist. What is required are individuals who can learn and use digital tools to understand what is behind data and machines (Capone, 2019). Digital skills in the Industry 4.0 landscape comprise five components: information and data literacy, communication, digital content creation, safety, and problem-solving (Bejaković & Mrnjavac, 2020). Interestingly, the graduates' ability to use digital media to create creative content,

information processing, and social networks is crucial and frequently asked during the job interview (Lee, 2019). To conclude, the digital skills demanded in Industry 4.0 often associated with using digital technology to perform the task. However, it does not require extensive knowledge of statistical and programming. Instead, employers are expecting the graduates to have basic knowledge and understanding of operating digital technology.

III.   . METHODOLOGY

The qualitative approach in this study will draw on a phenomenon involving several participants in multiple study sites. The phenomenological approach involves a return to experience to obtain comprehensive descriptions (Clarke Moustakas, 1994). The primary purposes of phenomenology are to reduce individual experiences by describing their universal essence by describing their experience based on the phenomenon (Creswell et al., 2007). This study intends to explore employers experience in hiring graduates based on the current phenomena by considering the current employment trend in the Industry 4.0 landscape as there are changes in job and skills requirements.

This study will elicit the experiences and the opinions of industry experts in the human resource and management field actively involved in hiring candidates for their organisations. The organisations were selected based on the business's nature that incorporates Industry 4.0 in its business operations. This study chooses virtual interviews with a semi-structured interview question design. The pandemic of covid-19 has affected the way qualitative data is collected. The Movement Control Order (MCO), being implemented as a preventive measure to control the spread of Covid-19 disease, restricted the data collection activities, forcing the researcher to turn to virtual interviews. The rationale of having a face-to-face interview is to capture immediate responses to opinions and to be able to track non-verbal cues while expressing an opinion (Yin, 2014). A semi-structured interview is a

set of predetermined questions on a specific topic that guides the interviewer to ask questions systematically, in chronological order (Lune & Berg, 2017). Simultaneously, it allows the interviewer more flexibility in probing for more answers and further clarifications. A semi-structured interview is a technique designed to trigger the participant's perspectives on a study topic (Guion et al., 2011). The rationale for selecting semi-structured interviews as the study instrument is that they pose an advantage of getting answers related to the experience aligned to the study objective, study question, and the nexus between particular events and actions (Lune & Berg, 2017).

In Malaysia, the Industry 4.0 national policy is relatively new. In 2018, the Malaysian government launched it by the Ministry of International Trade and Industry that focuses on digital transformations in manufacturing and related services sectors (Clarke Moustakas, 1994). Therefore, this study intends to explore the integration of skills explicitly needed in the manufacturing and service sectors. The participants are selected from industries related to the manufacturing and services sector that have started to apply Industry 4.0 features in their business operations.

Interview informants replicate the methodology implemented by Jonbekova (2015), which select employers involved in recruitment and graduation selection. This study adopted the criterion used by these authors due to employers' credibility with experience in recruitment and selection of graduates, thus providing advantages in identifying differences and graduation unemployment reasons. Jonbekova (2015) also highlighted that employers were selected in a way that allowed the identification of differences in the existence, types, and reasons for skills mismatch by sector, type of institutions, and location.

Table 1-	Key informant's profile	
Organisation	**Position**	**Industry/Sector**
Participant 1	Head of the department, human	Manufacturing/construction

	resource	
Particip ant 2	Chief executive officer	Services/finan ce technology
Particip ant 3	Assistant manager	Services/airlin e services
Particip ant 4	Human resource executive	Services/airlin e services
Particip ant 5	Human resource executive	Manufacturin g/ food manufacturin g
Particip ant 6	Human resource executive	Services/clou d technology

Table 1 shows the key informant's profile. The participants from employer or industry personnel comprised CEOs, senior managers, and HR managers with a broad knowledge of recruitment and selection challenges. The sector will comprise manufacturing and service sectors that operate the business in various industries such as construction, finance technology, transportation, and telecommunications. Before the virtual interview, the interviews were arranged through phone calls and a Google Calendar were sent for confirmation. Since the participation is voluntary, the participants were given an option to conduct a virtual interview with any digital platforms such as Zoom Meeting, Google Meet or Webex. The duration of the virtual interviews is between 45 minutes to 1 hour. The interviews are recorded for further analysis using NviVo Software.

IV. . RESULTS AND DISCUSSIONS

A. *Socio-Digital Skills Mapping*

Figure 2-Socio-Digital Skills Mapping

DOMAIN	ELEMENT	PARTICIPANTS					
		PARTICIPANT #1	PARTICIPANT #2	PARTICIPANT #3	PARTICIPANT #4	PARTICIPANT #5	PARTICIPANT #6
SOCIAL SKILLS	Business Communication	•			•	•	•
	Coordinating with Others	•	•	•	•	•	•
	English Language Skill	•	•	•	•	•	•
	Emotional Intelligence	•	•	•	•	•	•
	Negotiation Skills	•		•			•
DIGITAL SKILLS	Analytical Skill (Big Data)		•		•		•
	Basic understanding of IoT		•	•	•		•
	Cloud Computing			•	•	•	
	Digital Literacy	•	•	•	•	•	•
	Social Media Skill	•		•			

Figure 2 indicates the demand for skills highly needed in the Industry 4.0 landscape according to employers' perspectives. The majority of the participants reach a consensus agreement that the graduates lack skills, leading to graduates' inability to secure employment during the job interview. Therefore, this research intends to explore the right integration of skills needed to cater to Industry 4.0 job demands. A similar pattern can be seen from the responses to whether the participants actively recruit fresh graduates. The majority of the participants will consider hiring fresh graduates, provided they possess skills integration. The demands of skills are varied, depending on the sector that the organisation serves.

Participant 1 and Participant 5 in the construction and food manufacturing industry focused on social skills compared to digital skills. The participant's response in the manufacturing sector is perhaps a little surprising, given that the manufacturing sector highly relies on automation. However, it is more likely that employers expect the graduates to have excellent Digital literacy in using application software such as Microsoft Word and Microsoft Excel. Employers also expect future graduates to have excellent social media skills to interact with potential clients and conduct marketing activities.

Contrary to service sectors, the integration of skills trends in emerging across various sectors comprising finance technology, airline services, and software solutions. For example, Participant 2, in the financial technology sector, puts high attention on performing the task with

the interference of socio-digital skill. The employers expect the graduates to work in a team with excellent communication skills in English, high emotional intelligence paired with a basic understanding of working with IoT applications, analysing big data, and, importantly, impressive digital literacy.

Participant 3 that work in the airline industry, highly relies on digital technology, moving towards full utilisation of digital technologies such as Big Data and IoT in their business operations. However, the participant expresses his concerns on the importance of having excellent communication skills in English, which the failure of the candidates to speak fluently will not be considered for employment. Interestingly, the organisation values young graduates the most since the young candidates are more tech-savvy, thus performing the digital environment task.

Even though Participant 4 serves a similar sector to Participant 3, there are slight differences in skills requirements. Participant 4, during the virtual interview session, often highlighted the importance of integrating business communication and analytical skills. His department is highly dependent on analytical data to forecast future project plan in ensuring the project is executed within the time frame. The forecasted data then will be presented in the meeting for collective decision making. Therefore, business communication skills are deemed important in presenting the forecasted data and considering the project's actual deployment cost.

Finally, participant 6 is a technologically based organisation that offers software and security solution for the business client; in this case, an organisation specialising in cloud computing and web development. The participant's response to the current employment trend in the Industry 4.0 landscape is mesmerising. The participant has been attempting to hire fresh graduates who can integrate social and digital skills and allocate them to the real working environment. However, participant 6 often echoed that most current employee and young candidates cannot integrate socio-digital skills

and always lack either one of the skills. For example, they possess data analytical skills; however, the lack of communication and negotiation skills makes it difficult to secure contracts with potential clients due to the inability to provide information on business products.

All the participants representing their organisations have extensive experience in hiring candidates, recognising the employment trend. The employers calling the young candidates to be career-ready by preparing themselves with socio-digital skills are commonly used in various positions. Even though young candidates pose different educational backgrounds, there is an urge to develop social skills and basic digital skill knowledge before entering the employment market. The skills possessed by fresh graduates are a tangible asset that can give employers values in generating revenues and gaining a reputation, which will benefit both organisation and future graduates at many levels.

B. Socio-Digital Skills: An employers' perspective

Socio-digital skills are related to the ability to communicate and, in the meantime, use digital technology to perform a specific task. In the Industry 4.0 environment, the organisation in the early development stage or high technology reliance organisation, the employers combine these two skills to align with business strategy and organisation goal. In creating an organisation's competitive advantage, the organisation must have abundant internal resources, including advances in technology and a capable talent pool. In addition, the high technology system needs human skills to operate. Therefore, the employer demanded capable talent that could use digital technology and pose impressive social skills to interact with business clients and colleagues.

"For the sales and marketing team, they must know how to use social media platform to communicate with a potential customer to give information about our current and future projects for the 'visibility and marketing

purposes. They must have good writing skills to attract attention from the client." (Employer 1)

"As I have mentioned before, we have our digital platform to communicate with each other, which is 'Workplace' that functions like Facebook. We highly depending on the platform to share information and ensure everyone receives the same information. The digital system for our passengers was developed to gain customer's experience and ease of use. Our team must know how the digital system works to assist the passengers." (Employer 3)

During the virtual interview, the employers have been asked what position require the integration of skills. The employer highlighted that the sales and marketing team require social and digital skills. The employer stress that verbal communication is crucial in communicating with potential clients. Digital skills are needed to create an organisation's visibility in the construction business, using social media platforms such as Facebook to interact with potential clients and disseminate information on company projects. The researcher found that digital skills are used to communicate and share information based on the virtual interview session. However, require good communication skills digitally. The fresh graduates' written communication skills are shaped up at the university level, but there seem to be issued in graduates' ability to respond to social media content ethically. This problem was highlighted during the virtual interview, as the employers felt that responding to comments and inquiries in social media is unattainable at the universities. Employers' assess these skills during the recruitment process. Having good written communication skills in the digital environment is a prescribed trait for the graduates as the potential clients need concise information and feel appreciated. Overall, written communication skills in a digital platform is a plus point for the graduates to survive in the interview session. Eventually, graduates can develop persuasive communication skills, which lead to greater job opportunities.

"We need people with good literacy in using the computer. For my department, we want people who can use Microsoft Excel to project the production schedule. We often face production issues that will affect production and logistic. They must know how to solve the issues and communicate with our business customer." (Employer, 5).

"We need people with basic knowledge of cloud computing and web development with good communication skills to convince our business client. They also must have negotiation skill to secure a contract that will benefit the company and at the same time considering the business client's budget." (Employer 6)

"Even though we are an IT solution provider, of course, communication is very important. Everyone has to work closely together, and we need to interact with the business clients." (Employer 6)

"Our company we have practice digitisation, especially in a communication system, name workplace, an internal social platform that works like Facebook, to update on our task. We highly utilise the cloud-computing system for training purposes. We highly rely on IoT technology to perform our task. Our team heavily relies on a digital system to handle passengers." (Employer 3)

The implications of digital technology being available at the technological-based organisation have made it necessary for the graduates to possess passable skills in generic applications, such as Microsoft Office and cloud computing, to help perform tasks. Besides, the increasing use of software such as Oracle in managing inventory and project scheduling may require graduates to possess basic technical knowledge on using the software. On the other hand, coordinating with others is deemed essential as it leads to greater work performance.

"We value people who can communicate and work in a team. Our nature of job needs us to work in a team, as we are the project-base team. We perform a task based on a task assigned. We work with different people to perform different task. It is very important to

communicate well in a team to provide direction. Miscommunication in a team is a disaster." (Employer 4)

Communication among team member is important in our company. When an issue arises, all the team hold the responsibility to solve a particular issue. For example, when one team member is on leave, the other team members are responsible for handling cases and handling their disputes. We need them to have excellent writing skills for an administrative position as they need to create proposals to secure contracts or tender with the government." (Employer 1)

"We want our staff to be able to express opinions and be open enough to ask questions because that is how we learn something new every day. We also need people who can work in a team. If they can't fit with the team, you may be the best person, but if you make people in your team quit, then it's not good." (Employer 2)

The majority of employers value candidates who can coordinate with others, especially when working in a team. During the virtual interviews, the employers demanded the future graduates work in a team and create workable solutions to solve particular issues. Employers put attention to the ability to work in a team and avoiding conflicts in the workplace. The candidates' ability to avoid conflicts and work in a team leads to better coordination and collaboration, impacting working performance. Therefore, future graduates need to convince employers to manage conflicts and work in a team during the job interview. Graduates can demonstrate the ability to coordinate with others through many examples of group projects and activities during the universities. Employers value personal qualities that can positively impact the working environment and also social cohesion among the workers. Conclusively, integrating socio-digital skills, as a finding of this research, provides a unique dimension to the graduates' skills.

To conclude, the Industry 4.0 environment's socio-digital skills are highly important for current and future job demands. Their testimonials indicate that socio-digital skills are crucial in creating the organisation's competitive advantage by strengthening internal efficiency based on the employers' interview. The future graduates also can create individual competitive advantage by increasing the effort to upskilling their socio-digital skills. The organisation moving towards digital technology seems to utilise a digital platform to ensure system integration is linked with the internal system and customer interface to ensure the business operation runs smoothly. Therefore, the digital platform's use to strengthen communication flow internally will influence its efficiency to deliver satisfactory customer service to the passengers and business client.

V. CONCLUSION

Despite the disruption of technology that Industry 4.0 brings and how it impacts change in job demands, technology changes offer new graduates new opportunities to the employment market. The graduates need to recognise the skill demanded before they graduate and find possible solutions to gain as many opportunities to upskill and benefit from the disruption of technologies. The disruption brought by Industry 4.0 were explored through employer's perceptions.

As the fresh graduates make their way to real-world work, it is crucial to explore the right integration of skills needed to fulfil the IR4.0 job demands. This research revealed noteworthy findings. First, socio-digital skills indirectly emerge in most of the organisation. They adopted effective management strategies by hiring capable talent that is multi-tasking, creating a competitive advantage in their sector and enhancing their organisation's reputation. Second, employers' demand for socio-digital skills aligns with the current industrial era that utilises automated machine and digital technology. Even though the service sector does not heavily rely on automation machine, digital technology such as artificial intelligence, the Internet of Things, and Cloud Computing are widely used to support other businesses by providing digital solution and services to

business and commercial client. Therefore, an integration of socio-digital skills deems to be crucial. Finally, the socio-digital skills demanded are highly needed by the majority of employers in various departments and positions. This is proof that digital skills are not specifically for specific positions and background of studies but also applicable across various fields and positions. Therefore, the future graduate must be fully equipped with a basic understanding of digital skills despite the different programs enrolled. The overall findings show that future graduates have the opportunity in the employment market in the Industry 4.0 era. What sets the graduates apart and gives them a competitive advantage is constructing strong socio-digital skills. The graduates must be able to coherent narrative shows to influence and convince the employer that they possess the right integration of skills to fit the organisation's culture and goals. In other words, the future graduates that can develop and portray the requisite skills during the interview are more likely to experienced employability upon graduation.

The findings that most employers value people with socio-digital skills appear to be in both technology and human interaction. The human aspect indicates that the universities, government agencies, and organisations play an important role in integrating socio-digital skills. From the findings discussed in this research, skills integration identified will help various stakeholders develop a successful plan by highlighting the exact socio-digital skill required for a better employment opportunity. Particular university ceases to focus on English language skills throughout their whole semester, yet the graduates cannot use the language professionally. Social skills can be enhanced by developing a stronger sense of professionalism in the curriculum. Digital knowledge can be developed through business entities, and industries support by lending resources for hands-on experience since the universities focus on theoretical and abstract knowledge. Developing young minds through real-life working exposure will help future

graduates construct and reconstruct their identity to match the industry needs.

On the other hand, the government can support the stakeholders' mission by creating initiatives and escalate expenditure to the impactful, centralised program to targeted groups, in this case, the future graduates. In reality, higher education institutions, government and organisations should be in a negotiated relationship that will contribute to the successful development of graduates' employability. In general, the socio-digital skill serves as a tool for stakeholders such as the future employer in Industry 4.0, government and higher institution to facilitate a conducive employment platform by focusing on critical socio-digital skills and solving the current employment issue. Identifying the right integration of skills will provide a strong competitive advantage to both employers, and fresh graduates, followed by boosting the Malaysian economy through job offers and a sense of responsibility towards society.

This research examined the integration of skill demanded by employers in the Industry 4.0 environment, focusing on the manufacturing and service industry. However, methodologically, our participants are not large; it has several limitations. First, since Industry 4.0 implementation is relatively new in Malaysia, this research only focused on the manufacturing and service industry sectors. This is because the Malaysian government closely focused on the growing sector that heavily impacted the national economy. Also, since different job positions have distinct skill needs, the results may be unique, depending on the job roles and responsibilities. For example, a project engineer may need technical skill and differ from human resource personnel since different roles 'see' specific skill needs from a different perspective. Therefore, there is a need to explore other sector's involvement in hiring fresh graduates, considering the specific job profiles.

VI.   ACKNOWLEDGEMENT

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