



The Impact of Society 5.0 and Industrial Revolution 4.0 on Employment and Future Job in Brunei Darussalam

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ABSTRACT

Brunei Darussalam is in transition phase to transform Brunei into Smart Nation with support of Society 5.0 and Industrial 4.0. The society development and technologies has killed millions of jobs, according to Future Job Report 2020, 85 million of peoples globally expected to lost their job and being replace with machine by 2025. This research paper seeks to investigate the impact of human and technology transformation toward employment and future job in Brunei Darussalam. Hence, this article is base on qualitative research method, which based on content analysis on existing literature. Initial finding indicated that, Society 5.0 and IR4.0 has positive and negative impact on current employment such as uncounted of hard skill workers are being replaced by AI, robotics and automation. At the same manners, this transformation has created new job opportunities and change society work-style. The purpose of this study is to acknowledge the impact and to prepare our generation to be future ready. To conclude, human and technological transformation is inevitable event. The study proved, Society 5.0 and IR4.0 has solid effect on current employment and future job.

Keywords: Society 5.0; Industrial Revolution 4.0; Employment Impact.

INTRODUCTION

The concept of Society 5.0 was first introduced by Japan in 2015, it reflects the evolution of society starting with coexistence with nature name hunting society (Society 1.0); followed by Society 2.0 based on agricultural activity;

then Industrial Society (Society 3.0) by promotes industrialization through first industrial revolution on light and heavy industry; after that Information Society (Society 4.0) invention of the computer, internet and information.

Society 5.0 is a super-intelligent society, where it places mankind in the middle of cyberspace and physical space. It is a continuation of Information Society where information is collected and analyze by humans but in Society 5.0 data collected is analyzed by Artificial Intelligent. Society 5.0 is a concept where the integration of humans and technology is utilized to resolve the problems faced by japan (Zengin, Y., Naktiyok, S., Kaygın, E., Kavak, O., Topçuoğlu, E., 2021). Concept Society 5.0 is designed to look after the general welfare of citizens such as health care, mobility, infrastructure, FinTech, and more with help of technologies (Mavrodieva, A.V., Shaw, R., 2020).

At the far end, Great Britain kicked start an industrial revolution by bringing manufacturing and industrial production system in late the 18th century. The revolution has changed the ecosystem in a rural area, from farming society to the adoption of the machine. The second Industrial Revolution witnessed the transition of power sources, the establishment of the railroad, the automatic machine, the invention of the light bulb, and social concepts (Narvaez, R. C., Alomia, P. G. A., Loaiza, B. D. F., Tavera, R. C. A., 2021). Followed by Third Industrial Revolution in the late 20th century, which is also known as the digitalization era. It is the beginning of the information age by the spread of automation and digitalization through the use of the computer, and electronics, the invention of the internet, digital systems, and industrial robotics. As a result, it boosts global industrial development, increases the standard of living, and rise of specialist profession. On the flip coin, it causes pollution, climate change, and sustainability issues (Muhammad, 2019).

Industrial Revolution 4.0 is built on Third Industrial Revolution, it is an extension of the impact of digitalization, computer, and the internet in an unexpected way (Nicholas David, 2016). Yet, there are three reasons why today's transformation is not considered a prolongation of the Third Industrial Revolution but rather the arrival of the new digital age: velocity, scope, and system impact (Klaus Schwab, 2016a). The fourth Industrial Revolution is beyond smart and connected machines and systems. It is a fusion of new technologies and interactions across physical, virtual, and biological space that make the Fourth Industrial Revolution different from others (Klaus, Schwab, 2016b).

The concept of Industry 4.0 is to fully integrate the latest technologies, and rapid development of machines and information to resolve global challenges (Wang, S., Wan, J., Li, D., Zhang, C, 2016). Industry 4.0 is developed on AI,

Big Data, Augmented Reality, Additive Manufacture, Cybersecurity, system integration, Stimulation, Advance Material, Autonomous Robot, Internet of Things (IoT), and Cloud Computing (Lu, Y. 2017). Big Data is a large amount of data is accumulated from various fields including health care, economic, political, academic, and social life (Witkowski, K. 2017). Big Data required a cloud system to store all the information and conduct analysis (Bortolini, M., Ferrari, E., Gamberi, M., Pilati, F., Faccio, M., 2017). Subsequently, IoT is required in the order cloud system and data analysis can work efficiently and accordingly (Trappey, A.J., Trappey, C.V., Govindarajan, U.H., Chuang, A.C., Sun, J.J. 2017). The role of Artificial Intelligent is to manipulate and interpret the data according to the program it is set for (Legat, C., Vogel-Heuser, B., 2017). The result made a great contribution to its field, for instance, inline of business, with such information it eases someone to make a decision making, estimate demand, plan the business strategically and timely. All the datastore needs to be protected by any means by Cybersecurity System. In other words, all Industrial 4.0 pillars are interconnected with one another.

Both Industry 4.0 and Society 5.0 use identical technologies, such as artificial intelligence, cyber security systems, big data, the IoT, robots, augmented reality, and cloud computing (Pereira, A.G.; Lima, T.M.; Charrua-Santos, F., 2020). Therefore, mankind and the system are connected in virtual space. AI will analyze the data and give feedback and solution to the physical world. At which, AI can exceed the capability of humans (Hayashi, E., Hayano, N., n.d.). On the other hand, the main difference between Industry 4.0 and Society 5.0 is IR 4.0 finds the easiest way to get the job done while society 5.0 maximizes the number of man-hours required to complete the task. Additionally, Industry 4.0 measure the effectiveness of automated machine, and Society 5.0 with help of machine thereof, look into the productivity of workers (Yusoff, 2018).

Brunei Darussalam is a developing country with half of million people with 5765 square kilometers. In 2008, Brunei announced its long-term development planning 2035, which consists of — educated and highly skilled people measured by the highest international standards; a quality of life that is among the Top 10 nations in the world, and a dynamic and sustainable economy with income per capita within the Top 10 countries in the world. In order to achieve that vision, 13 strategies has been identified namely: (i) Education, (ii) Economy, (iii) Security, (iv) Institutional Development, (v) Local Business Development, (vi) Infrastructure Development, (vii) Social Security, (viii) Environment, (ix) Health, (x)

Religion, (xi) Land Use, (xii) Infrastructure and Info-Communication Technology, and (xiii) Manpower Planning.

The digital transformation trend and the revolution of society cannot be stopped thus, this research paper seeks to answer the combined impact of the latest development of technologies and societal development on job opportunities and job elimination, particularly after placing the human agency at the center of technological advancement. Human skills become invaluable in front on technological advancement and everyone is more favour to technologies. On the other hand, when the current job is replaced by machines, therefore people are a forced to leave their job. When a new job is created hence, it requires a new skill set and a new skill set requires knowledge and knowledge is gain base on the education system. Thus, current education system must be able to provide advance learning in term of skill and knowledge deliver. This question is important to be answered to avoid a spike in the unemployment rate that eventually will increase government spending.

The impact of I.R 4.0 and Society 5.0 not limited to rise in unemployment rate but indirectly effect the type of skill require for the job. The more advance the technology and the society the more skill is require to get the job done. In order to obtain new skill therefore, it depends on how fast people can adapt with new culture. It is undeniable some people are resistance to change, without consider the impact of they course of action such as decrease their purchasing power in short term and will drag them to poverty line in long run. Hence, If the government did not look into these matters then, all the money and time invested will be wasted on something that is no longer needed. The 4th Industrial Revolution and Society 5.0 has created new demand for the job while eliminating some of the jobs at the same time. In long run, both IR4.0 and Society 5.0 bring more benefits and job creation than before. Yet in the process, people have difficulties to adapt with latest development and new job requirement. The ability to identify the type of jobs that are most at risk and the type of jobs that are highly demanded in near future will help the government prepare the infrastructure and training.

Almost every country around the world has adapted to the industrial revolution and Brunei is in the early stage of adopting the latest technological development. Additionally, the latest societal development played a significant role in the advancement of technology. During the New Year's Eve (2019) speech, His Majesty urges the government to participate in the rapid development of technology to create more opportunities and increase productivity. On another occasion, His Majesty emphasized the response to Industrial Revolution and called for all the stakeholders —

public sector, private sector, NGOs, academia, student, and society to come together in mobilizing a knowledge-based nation (Rasidah, 2018). Thus, learning the effect on job creation and job-kill can help the government to prepare for what coming. The need to employ IR4.0 In this regard, the government wanted to transform Brunei Darussalam into Smart Nation.

International Technology Union (ITU) defined Smart Nation as an innovative city that uses technology advancement to improve the quality of life, efficiency and services, and competitiveness, at the same time, ensuring present and future generations concerning economics, social and environmental aspects are meet (ITU, 2000). In Brunei's case, however, Smart Nation is driven by Digital Government, Digital Economy, and Digital Society. This means the government need to equip our society with the necessary skill and knowledge and go beyond enabling connectivity by leveraging digital technologies (Digital Economic Council, 2020).

Society 5.0 and IR4.0 can be utilized in social life and industry. Society 5.0 and IR4.0 have a greater impact both on industry and social life. Thus, this article seeks to investigate the impact of adopting IR4.0 in modern society in the industry, especially how Society 5.0 and IR4.0 affect the current employment and future job. This research is focus on Brunei Darussalam as the focal point of discussion to calculate and measure how far Society 5.0 and IR4.0 will affect Brunei and what needs to be prepared. Unemployment issues are the main challenges elsewhere around the world including in Brunei. Brunei has been fighting to lower the unemployment rate since oil was found in Seria. Technological advancement and digital transformation should assist one country to tackle national issues. Despite its advantages— increase production with low cost, there were also some issues and challenges with adopting these new technologies. Since the rise of the Industrial Revolution, many people were fearful of losing their job as technology replace workers and create technological unemployment (Frey, C.B., 2017). According to World Economic Forum, around 65 percent of students and undergraduates today will hold a dream job that does not even exist yet (Scott, M.L., Fisch, K., 2016). Khan and Tessa (2017) predict that 12 percent of digital skills were required in upcoming years. By which, it will replace one-third of today's skill set.

Even before adapting IR 4.0 and Society 5.0, Brunei held the highest unemployment rate in ASEAN countries with 9.3 percent in 2017 compared to in 2014 with only 6.9 percent. The unemployment rate from 2014 to 2017 has increased by 2.4 percent (DEPS). In Addition, Brunei has the highest youth unemployment across ASEAN at 28.4 percent (Rasidah, A.B., 2019). This number is expected to increase every year if these matters are not taken

seriously. Yet there is no issues without a consequences, the study how that, unemployment person has more courage to carry out criminal activity compare to employment person. Unemployment not only increase the crime rate but increase the relapse case from 85 people in 2011 to 98 people in 2013. In 2015 report, 35 percent of the prisoner are relapse case, some offender has been in and out of prison for more than 8 times (Khai Zem, 2015).

Today with the assistance of Super Smart Society, it creates additional value for society. The demand for skilled workers changing, hence, an organization will continuously experience the skill gap. According to recent economic research, approximately 40 percent of workers are required to learn a new skill in the next six months (Anna Kahn, 2021). Thus, these factors will block Brunei from achieving its Vision 2035 and meeting Sustainable Development Goal (SDG) if not managed properly. Digital transformation is an inevitable situation, the technological transformation has changed the way products are made and changed the nature of work across all industries and occupations. Technological advancement is highly beneficial in developed countries, as results businesses become more competitive but it causes an increased unemployment rate due to the high level of automation (Nafchi, M.Z., Mohelská, H., 2018). There is a direct relationship between unemployment and automation — more manufacturing automation, a higher unemployment rate (Leonhard, G., 2017). On the other hand, the latest technology will lead to the creation of a new line of work therefore, new demand of skill set and competency is required. Klaus highlighted that, there are at least five impacts of industry 4.0 — economy including employment, businesses, government, society, and individuals (Klaus, 2016b).

In Brunei's case, the national unemployment rate will increase significantly when companies start employing IR4.0 if the government has not prepared for it. Since the adaptation of IR4.0 is still fresh hence, the government need to prepare strategic planning in term of (i) Education system (ii) Public policy to encourage the development IR4.0 and Society 5.0, (iii) social support such as training, series of talk, seminar, roadshow etc, and (iv) Rule and regulations. This is to ensure the development of Industry 4.0 and Society 5.0 is in line with Brunei Vision 2035. As the purpose of IR4.0 is to serve Brunei to achieve its long-term planning.

RESEARCH METHODOLOGY

Research methodology is what limits the researcher from going beyond the research objective. The design of the research is intended to provide an appropriate framework for conducting a study, especially for the researcher

and broadly for the readers. It is a blueprint for the research which comprises the entire process of a study (Mohd, Ghani, A., Noryanti, Muhammad, Suriya Kumar a/l V Sinnadurai, 2012). Subsequently, the design of every research help researcher achieves the research objective (Onyukwu, O.E., 2019).

Therefore, to achieve the objective of this research, the author employs context analysis. Context analysis is part of the qualitative research method, widely used since the 18th century and commonly used in health studies in recent years (Hsieh, H.-F., & Shannon, S.E., 2005). Content analysis is a research technique to establish the validity of a certain concept or text (Busch, C., De Maret, P. S., Flynn, T., Kellum, R., Sheri Le, Meyers, B., Matt Saunders, White, R., Palmquist, Mike., n.d.). In this study, provide content analysis of the impact of Society 5.0 and Industrial Revolution 4.0 on current employment and future job in Brunei Darussalam. This study will help the government to determine the course of action to prevent or lessen the impact.

Content analysis is identical to historical research, library research, documentary research, and secondary data analysis, where the data is not collected from people directly. Instead, the data is collected from existing literature such as articles, journals, newspapers, government publications, pictures, and videos for purpose of analysis (Ashutosh, A., Dr. Manoj, K. D., Prof. S. N. Singh, 2017). Identify the type of data needed is the first phase in content analysis followed by the data collection. In this paper, the data is collected from His majesty's speech, government publications, books, journals and articles, and public articles. Analyzing the data is the second process in content analysis before we can conclude the finding. The data presented therefore, the author put into three category analysis— (1) the development of technology, (2) the unemployment trend, and (3) the possible impact of the development of technology. The author then will interpret the data base on research code of conduct and will elaborate the significant effect on employment and future job.

Today, thanks to technology, the way of obtaining data are far easier than before due to the digitalization era and information society. Most of the data are available freely on the internet, people can find it in pdf files as e-document, e-report, e-news, and others. These advanced technologies have benefited the researcher's time to collect data. In this research, however, the article and journal are the main references and the data is collected from various channels and publishers. Nonetheless, government publication is one of the core data in this paper to determine Brunei's position in Society 5.0 and Industrial Revolution 4.0 and where it heading to.

DISCUSSION

In 2019, Brunei started to adopt Industrial Revolution 4.0 and transform Brunei into Smart Nation. Today, we can find various strategic planning from different ministries and Government Link Companies (GLC) moving toward digitalization. Strategic planning is a road map of what the government want to achieve in the next 5 years. The government has established BAHdigital under Digital Economics Council to support the Smart Nation Directive. BAHdigital functions to empower everyone to capitalize on the 4th Industrial Revolution. They work alongside individuals and companies to encourage the development of new ideas and businesses in the digital advancement worldview. During World Telecommunication and Information Society Day 2021, Ministry of Transport and Info-communications he mentions that, Brunei are actively implement the development of digital technologies namely on cybersecurity, big data, Internet of Things, AI and 5G (Borneo Bulletin, 2021).

With digital transformation, our dream job might change in the next 5 years due to more industries coming in with different opportunities. Nonetheless, unemployment is one of the main concerns and toughest issues to tackle globally. Effortless action has been taken to lower the unemployment rate and the issues with unemployment. It is impossible to balance labour supply and labour demand. It is due to several reasons such as voluntarily unemployment— some people willingly quit their job and some people choose to be unemployed. Thus, it challenges the government to disburse social welfare equally.

Looking back at the history of unemployment in Brunei, in 2017, Brunei recorded the highest unemployment rate among ASEAN countries at 9.3%. Even though the unemployment rate decreased in 2018 and 2019 to 8.7% and 6.8% respectively yet Brunei holds the highest unemployment rate in Southeast Asia. In 2020 unemployment rate increase by 0.6%. What is more, youth unemployment rate between 15-24 years old is increased from 28.9% to 29.9% in 2017-2018 then it drops drastically in 2019 before it rose back in 2020 (Department of Economics and Statistics, 2021).

IR4.0 and Society 5.0 moreover, give significant effect on unemployment. As nature of work evolve and skill required for a job change it prolong the length of unemployment. The possibility unemployed person gets their first job is getting lesser and lesser. Subsequently, the absence of job pushes unemployed person to the poverty line. On this account, it will increase government spending especially in arrange program i.e series of talk to motive them, training program to increase their value and what not.

The long-term unemployment may result a mental health problem and lose their confident level. Someone share a story on how being unemployed could affect someone's mental health. he mentions the current situation where his brother was fired from the job instead of being transferred to a different department. As they are not coming from a well-off family, it eventually will increase their financial burden. Additionally, they have other siblings who are also unemployed and frustrated after thousand of rejections. Bear this in mind, its cause other family member becomes stressed and one's into depression

Structural and frictional unemployment are major challenges that contribute to high unemployment rate in Brunei. Structural unemployment refers to mismatch between the skill set possess by the job seekers and the skill set demanded for the job (McConnell C. R., Brue S. L., and Macppherson D. A., 2010). In 2017, 36.7% of unemployment are those from tertiary and technical and vocational education training (TVET). While in 2018 record a significant increase by 3.6% made it to 40.3%. The number started to decline in 2019 and 2020 with 38.8% and 37.4% respectively. Asian Development Bank (2020) highlighted unemployment among tertiary and TVET graduates indicates mismatch in labour market — supply and demand; skill and qualification possessed by jobseekers does not match with skills and qualifications demanded in industry. What really concerning is the number of unemployed people among primary student is rising and unemployment rate among secondary school is fluctuate and increase in 2020 to 53.4%.

Frictional unemployment occurred due to asymmetric information. For instance, employer did not disclose all the information to the employee especially during the interview particularly job scope and salary. For that reason, people whom employed tend to quit their job and look for better job opportunities. Study from Dr Diana Chong (2009) approximately 57 per cent of the sample are frictional unemployment and 74 per cent of the sample had been out of job for more than 6 months and normally related to frictional unemployment.

The rapid change in technologies and digitalization has changed our work style. Some people see the advancement of technologies and society advancement as an advantage to collaboration between humans and technology to enhance the workplace. While some people see it as the possibility of losing their job by being replaced by machines and robots. Yet we need to analyze how the invention of technologies and societal revolution change the future of employment.

The 4th Industrial Revolution has led advance countries into the next era thru good collaboration between humans and machines. Industry 4.0 is introduced

to facilitate the employee to be more effective and efficient while society 5.0 put the human in the middle of technology. Technology transformation pushes down the cost of production and increases creativity and innovation. Industry 4.0 particularly AI, analyzes a large amount of unstructured data to provide a realistic solution. This not only saves time to process the data but improves accuracy and quality analysis beyond mankind's capacity, as a result, good decision making (Clementine Roy, 2018).

The rise of factory automation does not necessarily mean more people will become jobless. Robots and automation reduce the interaction of humans with a physically dangerous job and restructure the line of work needed. Most factories will close employment opportunities on the ground level but not in highly automated factories, where it opens another opportunity at the same industry and different levels such as design, monitoring, service, and training the machine (Bork Henrik, 2018). The capacities of humans working with technology such as predictive analytics assist an organization to uncover patterns and predict future event based on presented data often view as valuable information. Most countries have adopted predictive analytics to understand and forecast which talent and skill will be most needed and which talent and skill will be least needed and able to identify who will leave and when (The ASEAN Foundation, 2020).

The collaboration between humans and technology requires specific skills and talent. Therefore, to fully benefit from the implementation of any technologies, one will need to hire people with such talent who know how to use the latest technology (Clementine Roy, 2018). People who can adapt to technology as the concept of society 5.0 suggested, will remain in their current job or even be promoted to others but those left behind are required to re-skill and up-skill to make them marketable. World Economic Forum (2020) has listed jobs will rise in the next five years, here are the top 10 on the list: — (1) Data Analysts Scientist (2) AI and Machine Learning Specialist (3) Big Data Specialist (4) Digital Marketing and Strategy Analysts (5) Process Automation Specialist (6) Business Development Professional (7) Digital Transformation Specialist (8) Information Security Specialist (9) Software and Application Developers (10) IoT Specialist. According to Future Job Report (2020), (1) Digital Transformation Specialists (2) Information Security Analysts (3) Internet of Things Specialists (4) FinTech Engineers (5) Devops Engineer (6) Database and Network Professionals, these are additional job roles emerging in the nearest future

While, (1) Data Entry Clerk (2) Administrative and Executive Secretaries (3) Accounting and Bookkeeping and Payroll Clerk (4) Accountants and Auditor

(5) Assembly and Factory Workers (6) Business Service and Administration Manager (7) Client Information and Customer Services Workers (8) General and Operation Manager (9) Mechanics and Machinery Repairs (10) Material Recording and Stock-keeping Clerk — top 10 type of job will be effected and decrease in demand in next five years. While Future Job Report (2020), add two more that will be affected— (1) Human Resources Specialist (2) Bank Tellers and Related Clerks. These are the list of jobs highly affected by industry 4.0 and Society 5.0, different scenarios in developing countries where agriculture, factories, and manufacturing are the sources of employment. With the adaptation of technologies and machinery number of workers demanded will reduce.

In short term, IR4.0 and Society 5.0 seem to have a negative impact on employment and future job. Both IR4.0 and Society 5.0 has a significant effect on labor market and socio ethical dimension (Soukupová, N.; Adamová, M.; Krninská, R., 2020). The study shows that the development of technology speed up business productivity in term of the number of products produce over time but did not fuel job growth. Almost all the top 10 most risky jobs are at risk in Brunei case if the government and businesses employ the 4th Fourth Industrial Revolution. Human capital seem to be the greater challenge in advance technology and society. This indicates that society's skill set did not coup with technological development. When society evolves with technology, it would not be a surprise if some skilled jobs consider semi-skill labour while some of the semi-skill labour considered unskilled labour. When a new industry grows, people need to adapt to new job requirements and new skill sets. Sometimes it is not about a lack of job opportunities but people are lacking to master new skill sets.

In the future, it is not IR4.0 and Society 5.0 that create new jobs but a new job is build on IR4.0 and Society 5.0. For instance, the internet existed way before the 4th Industrial Revolution, in fact, the 4th Industrial Revolution was built on the internet, and the same scenario applies to employment opportunities. Today, some people would dream to become social media influencers, food reviews, food critics, and YouTubers which people would not imagine social media can make a living. Nonetheless, the future of jobs sometimes can be unpredictable and there is a number of jobs are not resulting in a job loss but instead, strengthen the position of the job e.g teacher, with IR 4.0 and ability to use it, people outside the country can participate any module without physically present in a lecture hall, the lecturer can send the notes via email, and deliver information as convenient as possible.

On the other hand, IR4.0 and Society 5.0 create a remote working environment with help of technology. As technology goes advance, it smooth how people doing their work, hence it creates flexibility doing daily task. Furthermore, it gives freedom to work either working at home or at office or anywhere at given time. This give better work life balance for the employee to balance work and family.

Today in event of the Covid-19 pandemic it accelerates the process of automation in developing countries, now everything can be done through the internet. According to World Economic Forum (2020), 85 million jobs will be displaced by automation in the next 5 years. The study has also shown that, in the next five years, the task will be divided between humans and machines roughly equally. The development of technologies has to kills uncounted skill, resulting from a skill gap between humans and machines. Therefore, International Labour Organization (2020) proposed human center agenda for the future of work. This can be achieved by increasing investment in human capital such as establishing an effective lifelong learning system as a platform for a continuous process to acquire new knowledge and skill (reskill and upskill) throughout their lifetime. There are four skill categories to prepare the youth for the future job — workforce readiness, soft skill, hard skill, and entrepreneurship skill (Deloitte, 2018).

Undoubtedly, the future of work will become more challenging beyond our imagination. Besides having high skills, the education system played a vital role to fill the gap between the skills demanded by the job and the skill possessed by jobseekers. Unfortunately, Brunei among other countries in ASEAN +6 countries has no National Industry 4.0 Strategic plan nor targeted sector for national industrialization plan (ILO, 2019). This challenge needs to be tackled to minimize the impact.

CONCLUSION

The challenges and issues with unemployment change over time. In this era, Industry 4.0 and Society 5.0 are the main challenges that need to be addressed. The government needs to prepare a course of action to diminish the impact of Industry 4.0 and Society 5.0. The whole government approach will provide strategic planning and ensure the long-term development plan of 2035 are achieved.

Finding shows, that the working lifestyle changed when Germany introduce Industry 4.0. The fear of losing a job is real as automation takes over the human task. In the same manner, Industry 4.0 has created more job opportunities. With Society 5.0, it forces the technology to work together

with a human by placing the human at the center of development. Yet, it requires a degree of skill set, talent, and certain education attainment before a human can work with technology side by side.

The future of tomorrow starts today, the government has the legitimate power to direct the country in any direction. To prepare our youth to be future-ready, first, increase the collaboration between stakeholders and the Ministry of Education (MOE) to restructure the education system that will provide the students will skill and become more employable in the future. Furthermore, the issuance of policy will strengthen the development of the fourth industrial revolution. The governments need to prepare a roadmap for the skill needed in the future. To add, stakeholders and society are required to work together to achieve the vision of 2035.

REFERENCES

- Anna, K. (2021). Companies can reskill and upskill their current people via continuous learning, allowing them to personalize their careers like a playlist. Retrieved from https://www.ey.com/en_hr/workforce/how-technology-can-engage-hearts-and-minds-to-drive-business-transformation.
- Ashutosh, A., Manoj, K. D. & S. N. Singh. (2017). Content analysis: A research technique in field of library and information science. *Journal of Information Management*. Vol.4(1) pp. 97-118. Retrieved from https://splpjim.org/wp-content/uploads/2017/10/9_V411_97_118.pdf.
- Asian Development Bank. (2020). *Asian development outlook*. Retrieved from <https://www.adb.org/sites/default/files/publication/575626/ado2020.pdf>
- Borneo Bulletin. (2021). Riding the digital technology wave. Retrieve from <https://borneobulletin.com.bn/riding-digital-technology-wave-2/>
- Bork, H. (2018). Automotive manufacturing requires human innovation. Retrieved from www.rolandberger.com/nl/Point-of-View/Automotive-manufacturing-requires-human-innovation.
- Bortolini, M., Ferrari, E., Gamberi, M., Pilati, F., & Faccio, M. (2017). Assembly system design in the industry 4.0 era: A general framework. *IFAC Paper Online*. DOI.org/10.1016/j.ifacol.2017.08.1121

- Busch, C., De Maret, P. S., Flynn, T., Kellum, R., Sheri Le, Meyers, B., Matt Saunders, White, R., Palmquist, Mike. (n.d.). An introduction to introduction. Retrieved from <https://writing.colostate.edu/guides/page.cfm?pageid=1305&guideid=61>
- Cerita Kedai Kopi. (2020) Mental health issues among the unemployed. *Borneo Bulletin*.
- Clementine Roy. (2018). Industry 4.0: The role of humans in applying new technologies. Retrieved from <https://insights.bridgr.co/industry-4-0-the-role-of-humans-in-applying-new-technologies/>
- Daniela Matovcikova. (2017). Industry 4.0 as the culprit of unemployment. *IWKM*. pp.71-78. Retrieved from http://www.cutn.sk/Library/proceedings/km_2017/PDF_FILES/09_Matovcikova-71-78.pdf
- Department of Economics and Statistic. (2021). Youth unemployment. Retrieved from <http://www.deps.gov.bn/SitePages/Youth%20unemployment.aspx>
- Department of Economics, Planning and Development, Ministry of Finance and Economic Brunei Darussalam. (n.d). Retrieved from: <http://www.depd.gov.bn/SitePages/Total%20unemployment.aspx>
- Digital Economic Council. (2020). Digital economics masterplans 2025. Retrieved from <http://www.mtic.gov.bn/DE2025/documents/Digital%20Economy%20Masterplan%202025.pdf>
- Diana, C., & Roger, L. (2009). A study of unemployment issues among registered job seekers in Brunei Darussalam. Brunei Darussalam: Centre for Strategic and Policy Studies.
- Frey, C. B. (2017). The future of employment: How susceptible are jobs to computerization? *Technological Forecast and Social Change*. Vol. 114. pp. 254-280. DOI.org/10.1016/j.techfore.2016.08.019
- Hayashi, E., Hayano, N., (n.d.). Japan. Retrieved from <https://www.ibanet.org/MediaHandler?id=62940f3f-8c4a-4951-8473-51d746fcec96>
- Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, Vol.15(9), pp.1277–1288. DOI:10.1177/1049732305276687
- International Technology Union. (2000). Smart sustainable cities at a glance. Retrieved from <https://www.itu.int/en/ITU-T/ssc/Pages/info-ssc.aspx>

- Khan, N., & Tessa F. (2017). New skills now: inclusion in the digital economy. Retrieved from https://www.accenture.com/t20171012t025413z__w__in-en/_acnmedia/pdf-62/accenture-new-skills-now-report.pdf
- Khai Zem Mat Zaini. (2015). Life After Jail: A Constant Struggle. *The Brunei Times*. Retrieve from: <https://btarchive.org/news/national/2015/11/30/life-after-jail-constant-struggle>
- Klaus Schwab. (2016a). The fourth Industrial Revolution: what it mean and how to respond. Retrieved from <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>
- Klaus Schwab. (2016b). The fourth industrial revolution. Switzerland: World Economic Fourm.
- Legat, C., & Vogel-Heuser, B. (2017). A configurable partial-order planning approach for field level operation strategies of PLC-based industry 4.0 automated manufacturing systems. *Engineering Application of Artificial Intelligent*. Vol.66. pp. 128-144. doi.org/10.1016/j.engappai.2017.06.014
- Leonhard, G. (2017). Technology vs. humanity. UK; Fast Future Publishing.
- Lu, Y. (2017). Industry 4.0: A survey on technologies, applications and open research issues. Vol.6 pp. 1–10. doi.org/10.1016/j.jii.2017.04.005.
- Manpower Planning and Employment Council. (2019). *5th Meeting (1/2019)*. Brunei
- Mavrodieva, A.V., & Shaw, R. (2020). Disaster and climate change issues in Japan's Society 5.0—A Discussion. *Sustainability*. Vol.12(5). pp.1893-1910. doi.org/10.3390/su12051893.
- McConnell C. R., Brue S. L., & Macppherson D. A. (2010). *Contemporary Labor Economics* Ninth (E.d) America: Mc Graw-Hill Irwin
- Mohd Ghani, A., Noryanti, Muhammad, & Suriya Kumar a/ V Sinnadurai. (2012). *Research Design & Data Analysis in Sosial Science Research*. Darul Makmur: University Malaysia Pahang Pahang.
- Muhammad Imran Kunalan. (2019). Demystifying and riding the tide of Industrial Revolution 4.0. Retrieved form <http://www.ipa.gov.bn/Shared%20Documents/ir40/IR%204.0%20Brunei%20Session%202.pdf>
- Nafchi, M. Z., & Mohelská, H. (2018). Effects of Industry 4.0 on the labor markets of Iran and Japan. *Economies*. Vol.6(3) pp. 39-52. doi.org/10.3390/economies6030039

- Narvaez Rojas, C. Alomia Peñafiel, G.A. Loaiza Buitrago, D. F., & Tavera Romero, C. A. (2021). Society 5.0: A Japanese concept for a super intelligent society. *Sustainability* 2021, 13, p. 6567. doi.org/10.3390/su13126567
- Nicholas David. (2016). What is the Fourth Industrial Revolution? Retrieved from <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>
- Onyukwu, O. E. (2019). *Research Design*. Retrieved from <https://www.researchgate.net/publication.332653343>
- Pereira, A. G., Lima, T. M., & Charrua-Santos, F. (2020). Industry 4.0 and Society 5.0: Opportunities and threats. *International Journal Recent Technology Engineering*. Vol.8(5) pp.3305-3308. DOI:10.35940/ijrte.D8764.018520
- Rasidah Abu Bakar. (2018). HM calls on universities to partner with industry, commercialise academic research. *The Scoop*. Retrieved from <https://thescoop.co/2018/08/29/hm-calls-on-universities-to-commercialise-research-to-spur-economic-growth/>
- Rasidah. (2019). Sultan calls for remedies to unemployment, sluggish economy. *The Scoop*. Retrieved from: <https://thescoop.co/2019/03/07/sultan-calls-for-remedies-for-unemployment-sluggish-economy/>
- Roller, Margaret R. & Lavrakas, Paul J. (2015). Applied qualitative research design: a total quality framework approach. New York: Guilford Press.
- Saadia Zahidi. (2020). The job of tomorrow. Switzerland: World Economic Forum.
- Scott, M. L., & Fisch, K. (2016). The future job. The future of job and skill (1-4). Retrieve from <https://reports.weforum.org/future-of-jobs-2016/chapter-1-the-future-of-jobs-and-skills/#view/fn-1>
- Soukupová, N., Adamová, M., & Krninská, R. (2020). Industry 4.0: An employee perception (case of the Czech Republic). Vol. 68(3), pp.637–644. <http://doi.org/10.11118/actaun202068030637>
- The ASEAN Foundation. (2020). The future of work across ASEAN: Policy prerequisites for Fourth Industrial Revolution. Retrieved from https://asiafoundation.org/wp-content/uploads/2020/02/The-Future-of-Work-Across-ASEAN_summary.pdf
- Trappey, A. J., Trappey, C. V., Govindarajan, U. H., Chuang, A. C., & Sun, J. J. (2017). Review of essential standards and patent landscapes for the Internet of Things: A key enabler for Industry 4.0. *Advance*

- Engineering Informatics*. Vol.33. pp.208-299.
doi.org/10.1016/j.aei.2016.11.007
- Wang, S., Wan, J., Li, D., & Zhang, C. (2016). Implementing smart factory of Industrie 4.0: An outlook. *International Journal of Distributed Sensor Network*. Vol.12(1) doi.org/10.1155/2016/3159805
- Witkowski, K. (2017). Internet of Things, big data, Industry 4.0—Innovative Solutions in Logistics and Supply Chains Management. *Procedia Engineering*. Vol.182, pp.763–769.
doi.org/10.1016/j.proeng.2017.03.197
- World Economic Forum. (2020). Future of job survey 2020. Retrieved from http://www3.weforum.org/docs/WEF_Future_of_Jobs_2020.pdf
- Yusoff, A. (2018). Industry 4.0 vs Society 5.0. Retrieved from <https://aziyatiusoff.com/2018/08/31/industry-4-0-vs-society-5-0>
- Zengin, Y., Naktiyok, S., Kaygın, E., Kavak, O., & Topçuoğlu, E. (2021). An investigation upon Industry 4.0 and Society 5.0 within the context of sustainable development goals. *Sustainability*. pp. 2682-2698. doi.org/10.3390/su13052682