INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES
HRMARS MANAGEMENT ACADEMIC RESEARCH SOCIETY EXPLORING INTELLECTUAL CAPITAL
www.hrmars.com
ISSN: 2222-6990

A Review on the Talent Development Program towards The Demand of Ir4.0: A Case Study of Universiti Teknologi Malaysia

Sabrinah Adam, Nursyazwani Mohd Fuzi, Mohd Azlan Ab Jalil, Mohamad Hafis Izran Ishak, Mohamad Johanfaqar, Mohd Zain

To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v12-i4/13039 DOI:10.6007/IJARBSS/v12-i4/13039

Received: *06* February 2022*,* ***Revised:*** *10* March 2022*,* ***Accepted:*** *28* March 2022

Published Online: 01 April 2022

In-Text Citation: (Adam et al., 2022)

To Cite this Article: Adam, S., Fuzi, N. M., Jalil, M. A. A., Ishak, M. H. I., Johanfaqar, M., & Zain, M. (2022). A Review on the Talent Development Program towards The Demand of Ir4.0: A Case Study of Universiti Teknologi Malaysia. *International Journal of Academic Research in Business and Social Sciences*, *12*(4), 105–111.

Vol. 12, No. 4, 2022, Pg. 105 – 111

http://hrmars.com/index.php/pages/detail/IJARBSS | **JOURNAL HOMEPAGE**

Full Terms & Conditions of access and use can be found at
http://hrmars.com/index.php/pages/detail/publication-ethics

INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES
HRMARS MANAGEMENT ACADEMIC RESEARCH SOCIETY
EXPLORING INTELLECTUAL CAPITAL
www.hrmars.com
ISSN: 2222-6990

A Review on the Talent Development Program towards The Demand of Ir4.0: A Case Study of Universiti Teknologi Malaysia

Sabrinah Adam[1], Nursyazwani Mohd Fuzi[2], Mohd Azlan Ab Jalil[3,4] Mohamad Hafis Izran Ishak[5], and Mohamad Johanfaqar Mohd Zain[5,6]

[1,2]Azman Hashim International Business School, Universiti Teknologi Malaysia, 81310 Skudai, Johor, Malaysia, [3]Johor Tourism, Johor Tourist Information Centre (JOTIC), 80000, Johor Bahru, Johor, Malaysia, [4]Faculty of Built Environment & Surveying, Universiti Teknologi Malaysia, 81310 Skudai, Johor, Malaysia, [5]School of Electrical Engineering, Faculty of Engineering, Universiti Teknologi Malaysia, 81310, Skudai, Malaysia, [6]HDA Future Tech Sdn. Bhd, Taman Perling, 81200, Johor Bahru, Johor, Malaysia
Email: sabrinah@utm.my

Abstract
The aim of this study is to examine the relationship between talent development programs and the industry demand of the Industrial Revolution 4.0 (IR4.0). The variables consist of talent development (training and education; technical and behavioral competency) as independent variable and demand of IR 4.0 as dependent variable. The survey was conducted among future talents in Universiti Teknologi Malaysia. Total of 105 talents which consist of fresh graduates from Universiti Teknologi Malaysia is taken as the sample of the study. This study adopted quantitative approach using IBM SPSS version 26. The expected findings of this study concluded that talent development, training and education, technical and behavioral competency has a significant impact on the demand of IR4.0. This study may contribute to the educational institutions in aligning talent development programs with the demand of IR4.0.
Keywords: Talent Development, IR4.0, Demand of IR4.0, Universiti Teknologi Malaysia

Introduction

The Industrial Revolution 4.0 (IR4.0) has introduced new inventions and innovations that are integrated with more advanced technology. IR4.0 brought the idea of machines or devices that can be connected and work remotely via an internet network without the need for human involvement that is known as Cyber Physical System (CPS). Nowadays, industries have started to apply the adoption of robotics, automation and digitalization technologies in their business model. This is due to the technologies brought by IR4.0 that may ensure businesses will run smoothly and be able to provide accurate data processing and assessment.

The presence of new technologies such as Artificial Intelligence (AI), Big Data and Internet of Things (IoT) has created a new job scope and caused a stir in the labor market (Penzion et al., 2017). As these technologies are more advanced compared to the technologies from the previous industrial revolution, thus, this may lead to a change in the demand of the labor market. This is due to high-skilled talents being needed to be able to develop and operate these technologies.

In 2020, most countries have been affected badly by the outbreak of the Covid-19 pandemic. Governments started to impose lockdowns as a measure to minimize the spreading and physical contact. This has caused most of the economic sectors unable to operate normally and most of the companies are forced to retrench their workers as they are unable to pay their wages. This has resulted in a large number of people losing their jobs (Webb et al., 2020).

Despite the pandemic of the Covid-19 outbreak, the new technologies that emerge from IR4.0 have continued to offer job opportunities to the society. The transformation brought by IR4.0 has opened up a new type of industry where technology startups started to provide services such as software solutions, e-commercial platforms and apps development (Rajnai & Kocsis, 2017). Thus, this type of tech industry may require talents that are knowledgeable in IR4.0 and have skills in developing and managing the technologies as IR4.0 will keep transforming and changing the world (Adam et al., 2021).

As the job profile keep evolving from the revolution, highly competent talents are in demand. However, in this current situation, it seems that most of the graduates and working professionals are not competent enough to fill in the demand of IR4.0 (Ismail & Hassan, 2019). Thus, this leads to a shortage of talents that can manage the IR4.0 technologies. Most of talent development initiatives failed to match the industry demand (Yu & Tam, 2016). To match talent with the industry demand IR4.0, talent development needs to be analyzed and improvised to ensure that it is aligned with the IR4.0 requirements.

Literature Review

The Demand of Industrial Revolution 4.0 (IR4.0)

The term IR4.0 refers to the changes in the value chain process of the industry (Alhosai et al., 2021). Those changes have kept changing and become more advanced with the emerging technologies from the first revolution and have provided a better procedure in the value chain process. Besides that, IR4.0 has initiate and opens up new jobs creation and new services such as applications development and e-commerce platform (Halili et al., 2020). This new jobs creation emerges as a result of the development of new services and products. All this technologies keep changing at a fast pace, however, there is still insufficient of talents that has the abilities to keep up with this changes. Rajnai & Kojcis (2017) in their study predicts that the transformation of this IR4.0 will give a huge opportunities in the labor market however may also present risks and challenges.

Talent Development

In general, talent may be defined as a group of people who are in the minority of a population yet have greater levels of intellect and specialized abilities than other people (Yu & Tam, 2016). Talent also can be referred to as a person's mastery of skills and knowledge in a certain field of study. The abilities and skills that these talents master are usually possessed from training or they are among the gifted talents. These talents are considered valuable to the economic development of a country.

The concept of talent development has arisen as a method for cultivating inventive and competent talent for a society's long-term viability. Talent development can be defined as the development of certain innate qualities into skills that determine expertise or knowledge in a specific occupational sector (Gagne, 2004). Besides, it is also can be referred to the planning, selection and implementation of several approaches in order to ensure there is a balance supply and demand of talents (Garavan et al., 2011).

The effectiveness of talent development is based on how the gifted are mined and fostered, as well as how they are put in fields and places where they may successfully contribute to the progress of society by employing their intellect and specific abilities. Apart from that, it is known that talent development plays a vital role in talent management (Scullion & Collings, 2011).

A study of talent development in Macao shows that there are still deficiencies in the talent development program as there is still a mismatch of talent for the industry demand (Yu & Tam, 2016). The shortage of local talents in Macao has become a concern on their economic growth. Mohamed & Gururajan (2018) conducted a study by applying a literature review approach on talent development. Most previous researchers believed that talent development is essential in the growth of the economy (Wu, 2016; Bradley, 2016; Kamal, 2017). Thus, education institutions play an important role in making the talent development program more successful.

Training and Education

In Macao, training on talent development is introduced to improve the skills among the local working professionals (Yu & Tam, 2016). Training policies have been implemented to ensure that talent development programs become fruitful in educating these talents and abilities to fulfill the industry demand. Garavan, Carbery & Rock (2011) state that talent development approaches such as training give a positive impact on the development of skills among talents. Intensive training able to improve talent skills and expertise on IR4.0.

Technical and Behavioural Competencies

Competency is defined as an individual's capacity to utilize, apply, and display a set of associated awareness, knowledge, skills, and attitudes to successfully complete activities and duties, as assessed by the needed standards (Ismail & Hassan, 2019). This is because competency has an impact on an individual's work responsibilities and, as a result, their ability to complete the job scope, which is generally divided into two categories: technical and behavioral.

A study conducted by Alhosai et al (2021) found that both technical and behavioral competencies are important for talents to be acquired in order to place themselves in the IR4.0 demand. Behavioral competencies such as decision making, analytical skills and problem-solving skills are important due to the complexity of the working environment of IR4.0 will increase. Apart from that, a study conducted in the manufacturing industry shows that communication skill is also crucial to be acquired by talents in industry 4.0 in order to be able to help the company to enrich networking (Stasiak & Sujanova, 2020).

Behavioral competency is crucial, however, technical competency is more important to be acquired in industry 4.0. Technical competency enables talents to apply and manage IR4.0 technologies effectively and efficiently. Technical competencies such as IR4.0 knowledge, programming, IT skills and digital tools skills are skills that are needed by talents and can help talents to be able to do job responsibilities diligently (Sakuneka et al., 2019).

Research Framework

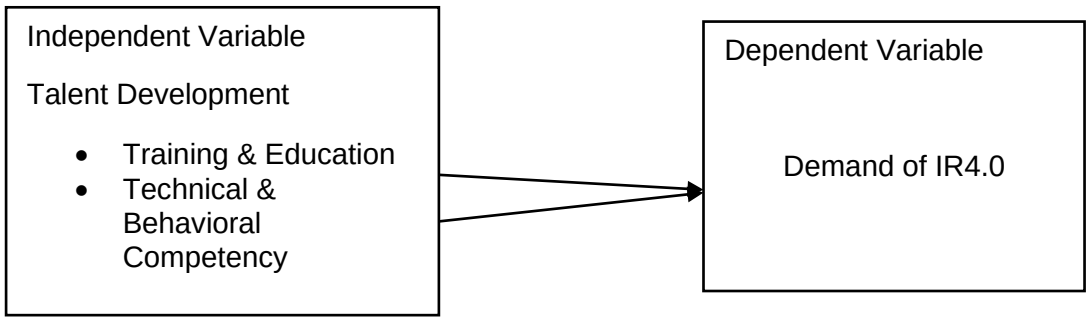

Figure 1 Research Framework

Figure 1 above is the research framework for this study. This research framework shows the talent development and the demand of IR4.0. The independent variables for this study consist of talent development and the dependent variable are the demand of IR4.0. This research framework is applied and adapted based on several previous researches. Talent development focuses on developing certain skills and expertise among selected talent. The strategy of talent development needs to be thoroughly monitored and arranged. A great strategy of talent development will able to create high skill talents and fulfilled the demand of IR4.0.

The demand of highly skilled and knowledgeable talent will increase as most of the industry sector will implement IR4.0. Thus, training and education need to be improved in order to be aligned with the demand of IR4.0. Transformation in training and education may create a highly educated talent that has been equipped with IR4.0 competencies (Rajnai & Kocsis, 2017). Yu and Tam (2016) in their study stated that training and education is one of the crucial elements in determining the success of talent development and will give a significant impact on the industry demand.

Alhosani et al (2021) construct a research framework where technical and behavioral competencies give a significant impact on industry 4.0. Both technical and behavioral competencies is important in the development of talents skill.

Research Methodology

The data collection method applied in the study is the quantitative approach. Simple random sampling was used as the sampling method. A number of 105 talents were taken as the sample size of the study from the total population of Universiti Teknologi Malaysia. A set of questionnaires was adapted from the previous studies and distributed among the sample size through Google Form. Statistical Package for Social Science (SPSS) software version 25 is used to analyze the data that has been collected from the questionnaire.

Discussion

The finding of the study clearly found that talent development, training and education and technical and behavioral competencies give a positive impact on the demand of IR4.0. This finding can be supported by Ismail and Hassan (2019); Ellahi et al (2019) where they found that technical competency is important in fulfilling the demand of IR4.0. Apart from that, assessment of the current talent development program is important in order to be able to fulfill the demand of IR4.0.

Conclusion

To conclude, the presence of IR4.0 has led to the termination of several traditional job positions making people lose their job due to automation and digitalization. However, on the bright sight, IR4.0 can be seen to offer society with a new job opportunity. Thus, education institutions, government and policymakers need to develop a strategic plan in order to provide a balanced supply and demand of talents in the industry 4.0. Talent development programs need to be monitored and improvised in order to be aligned with the emerging technologies brought by the revolution. It is recommended for this research to be extended further in the future as the research on IR4.0 talent development is still new. Future researchers need to study on other variables that may enhance the effectiveness of talent development programs. Lastly, this study may give a contribution to the industry by giving an insight on how talent development impacts the industry demand of IR4.0.

Acknowledgement

This research was supported by HDA Future Tech Sdn. Bhd. and Research Management Centre of Universiti Teknologi Malaysia through Industry Grant (R.J130000.7655.4C505).

References

Adam, S., Fuzi, N. M., Ishak, M. H. I., Jalil, M. A. A., & Zain, M. J. M. (2021). Talent Development Program Towards Enriching Future Ready Industry Revolution 4.0 in Johor. *International Journal of Academic Research in Business and Social Sciences*, *11*(11), 238 – 244.

Ellahi, R. Z., Khan, M. U. A., & Shah, A. (2019). *Redesigning Curriculum in line with Industry 4.0,* Procedia Computer Science, 151, 699-708.

Garavan, T. N., Carbery, R., & Rock, A. (2012). Mapping Talent Development: Definition, Scope and Architecture. *European Journal of Training and Development*, *36*(1), 5-24.

Gagne, F. (2004). Transforming Gifts Into Talents: The DMGT As A Development Theory. *High Ability Studies*, *15*(2), 119-147.

Halili, S. H., Sulaiman, S., Sulaiman, H., & Razak, R. (2021). Embracing industrial revolution 4.0 in universities. *IOP Conference Series: Materials Science and Engineering*, 1088(1), 012111. https://doi.org/10.1088/1757-899x/1088/1/012111

Ismail, A., & Hassan, R. (2019). Technical Competencies in Digital Technology towards Industrial Revolution 4.0. *Journal of Technical Education and Training*, 11. 10.30880/jtet.2019.11.03.008.

Mohammed, A., Hafeez-Baig, A., & Gururajan, R. (2019). A Qualitative Research To Explore Practices That Are Utilised For Managing Talent Development In The Higher Education Environment: A Case Study In Six Australian Universities. *Journal of Industry-University Collaboration*, 1. 24-37. 10.1108/JIUC-02-2019-003.

Matar, H., Ahamat, A., & Ismail, N. (2021). Industrial Revolution 4.0 (IR 4.0) Competencies: A Literature Review Of Manufacturing Industry. *Journal of Legal Studies Education*, 24, 123.

Pinzone, M., Fantini, P., Perini, S., Garavaglia, S., Taisch, M., & Miragliotta, G. (2017). Jobs and Skills in Industry 4.0: An Exploratory Research. *APMS*.

Rajnai, Z., & Kocsis, I. (2017). *Labor market risks of industry 4.0, digitization, robots and AI. 2017 IEEE 15th International Symposium on Intelligent Systems and Informatics (SISY).*

Stasiak-Betlejewska, R., & Sujanová, J. (2020). Value engineering in the workers' competences shaping. In Conference Quality Production Improvement–CQPI, 2, 40–149.

Sakuneka, T., Marnewick, A., & Pretorius, J-H. (2019). Industry 4.0 competencies for a control systems engineer, 1-6. 10.1109/TEMSCON.2019.8813717.

Scullion, H., & Collings, D.G. (2011). Global Talent Management, Routledge.

Webb, A., & McQuaid, R., & Rand, S. (2020). Employment In The Informal Economy: Implications Of The COVID-19 Pandemic. *International Journal of Sociology and Social Policy*, 40. 10.1108/IJSSP-08-2020-0371.