UNIVERSITI TEKNIKAL MALAYSIA MELAKA

IMPACT OF THE FOURTH INDUSTRIAL REVOLUTION TOWARDS THE FUTURE OF WORK IN THE ASPECT OF EMPLOYMENT, WORK STYLE, AND BUSINESS

This report is submitted following the requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor of Technology Management and Technopreneurship (High Technology Marketing) with Honours

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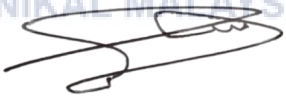
SIGNATURE : 

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DECLARATION OF ORIGINAL WORK

I hereby declare that all the work of this thesis entitled " IMPACT OF THE FOURTH INDUSTRIAL REVOLUTION TOWARDS THE FUTURE OF WORK IN THE ASPECT OF EMPLOYMENT, WORK STYLE, AND BUSINESS" is original done by myself and no portion of the work encompassed in this research project proposal has been submitted in support of any application for any other degree or qualification of this or any other institute or university of learning.

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ABSTRACT

The Fourth Industrial Revolution has contributed to various impacts on the future of work in the aspect of employment, work style, and business. This research is to study the impact of fourth industrial revolution to the future of work. The researcher was determining the relationship between independent variables (4IR technologies, technological advances, and globalization) and dependent variable (future of work). Data were collected from 190 respondents who are working individuals of different industries, particularly customer service, data entry, food preparation, and manufacturing which consist around the Southern region of Malaysia. Statistical Package of Social Sciences (SPSS) is applied to analyze the data collected from the respondents. Several analysis methods had been used in this research which are Cronbach's Alpha analysis, Pearson's Correlation analysis, and Multiple Regression analysis. The results show that 4IR technologies and technological advances had no significant relationship with the future of work while globalization had shown significant impact to the future of work. Furthermore, this study discussed the opportunities and challenges of the Fourth Industrial Revolution to the future of work. Eventually the researcher can conclude that globalization is an important component in fourth industrial revolution in the future of work.

Keyword: fourth industrial revolution, future of work, impact, employment, work style, business, 4IR technologies, technological advances, globalization

ABSTRAK

Revolusi Perindustrian Keempat telah menyumbang kepada pelbagai impak terhadap masa depan pekerjaan dalam aspek pekerjaan, gaya kerja, dan perniagaan. Penyelidikan ini adalah untuk mengkaji kesan revolusi industri keempat kepada masa depan pekerjaan. Pengkaji sedang menentukan hubungan antara pembolehubah tidak bersandar (teknologi 4IR, kemajuan teknologi, dan globalisasi) dan pembolehubah bersandar (masa depan kerja). Data dikumpul daripada 190 responden yang terdiri daripada individu yang bekerja dalam industri yang berbeza, terutamanya perkhidmatan pelanggan, kemasukan data, penyediaan makanan dan pembuatan yang terdiri di sekitar wilayah Selatan Malaysia. Pakej Statistik Sains Sosial (SPSS) digunakan untuk menganalisis data yang dikumpul daripada responden. Beberapa kaedah analisis telah digunakan dalam penyelidikan ini iaitu analisis Alpha Cronbach, analisis Korelasi Pearson, dan analisis Regresi Berganda. Keputusan menunjukkan bahawa teknologi 4IR dan kemajuan teknologi tidak mempunyai hubungan yang signifikan dengan masa depan kerja manakala globalisasi telah menunjukkan kesan yang ketara kepada masa depan kerja. Seterusnya, kajian ini membincangkan peluang dan cabaran Revolusi Perindustrian Keempat terhadap masa depan pekerjaan. Akhirnya pengkaji dapat menyimpulkan bahawa globalisasi merupakan komponen penting dalam revolusi industri keempat pada masa hadapan pekerjaan.

Kata Kunci: revolusi perindustrian keempat, masa depan pekerjaan, impak, pekerjaan, gaya kerja, perniagaan, teknologi 4ir, kemajuan teknologi, globalisasi

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LIST OF ABBREVIATIONS

ABBREVIATION	MEANING
4IR	Fourth Industrial Revolution
AI	Artificial Intelligence
VR	Virtual Reality
IoT	Internet of Things
UIDs	Unique Identifiers
XR	Extended Reality
FT	4IR Technologies
TA	Technological Advances
G	Globalization

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter will discuss about the IMPACT OF THE FOURTH INDUSTRIAL REVOLUTION towards the future of work. The background of study, problem statement, research questions, research objectives, scope and limitation of the study, significant of study and summary will be discussed in this chapter.

1.2 Background of Study

The Industrial Revolution was the transition to new manufacturing processes in Great Britain, continental Europe, and the United States, in the period from about 1760 to sometime between 1820 and 1840. (White et al. 2009) Over the past 70 years, automation and other forms of digitalization have changed the nature of work in Asia and elsewhere. Since 2000, this so-called "Third Industrial Revolution" of computers, Internet communications, robotics, and other digital technologies has enabled globalization and created new wealth by shifting the places, processes, and performers of jobs. Now we see the advent of the "Fourth Industrial Revolution" (4IR), a continuation of the automation of traditional manufacturing and industrial practices that integrates machine learning, artificial intelligence (AI), large-scale machine-to-machine communication, the Internet of Things (IoT), and cyber-physical systems (Schwab et al.2016). The widespread adoption of big data analytics, real-time and predictive analytics, and cloud technology (Karr et al. 2020) underpin 4IR advancements that will again disrupt industries and change the way people live, think, and work.

The main features involved in the Industrial Revolution were technological, socioeconomic, and cultural. The technological changes included the following: (1) the use of new basic materials, chiefly the iron and steel, and (2) the use of new energy sources, including both fuels and motive power, such as coal, the steam engine, electricity, petroleum, and the internal-combustion engine, (3) the invention

of new machines, such as the spinning jenny and the power loom that permitted increased production with a smaller expenditure of human energy, (4) a new organization of work known as the factory system, which entailed increased division of labor and specialization of function, (5) important developments in transportation and communication, including the steam locomotive, steamship, the automobile, the airplane, the telegraph, and the radio, and (6) the increasing application of science to industry. These technological changes made possible a tremendously increased use of natural resources and the mass production of manufactured goods. (Britannica et al. 2022)

The Fourth Industrial Revolution, 4IR, or Industry 4.0, conceptualizes rapid change to technology, industries, and societal patterns and processes in the 21st century due to increasing interconnectivity and smart automation. The term has been used widely in scientific literature, and in 2015 was popularized by Klaus Schwab, the World Economic Forum Founder and Executive Chairman. Schwab asserts that the changes seen are more than just improvements to efficiency, but express a significant shift in industrial capitalism. (Philbeck & Davis et al. 2018) Like previous industrial revolutions, the technological innovations of the 4IR will transform economies and increase productivity. They will also create employment and alter occupations. Asia, home to some of the latest labor-changing innovations, already counts among four of the 10 most automated countries in the world: South Korea, Singapore, Taiwan, and Japan, with China close behind (International Federation of Robotics et al.2020).

The First Industrial Revolution was triggered by the invention of the steam engine in the 18th century, the Second in the 19th century was powered by widespread electrification, and the Third, in the 1960s, was chiefly the product of advances in computing. Although 4IR which is building of the third, is also the product of technological advances, it is uniquely marked by a fusion of technologies that is blurring the boundaries between the biological, the physical, and the digital realms. Machines ‘speak’ to each other through the internet of things, processes respond to intelligence devised by algorithms, and humans engage in real-time ‘conversations’ with mechanical processes through bidirectional interfaces. (Lavopa, Delera et al. 2021)

Online market and labor platforms are creating new opportunities for commerce and employment. Rising consumer demand for consumer goods and technology products has stimulated productivity gains by creating new jobs and offsetting those lost (African Development Bank et al. 2018). Technologies that have driven innovation and economic growth have improved productivity, but "they have also affected income distribution by altering the rate of return on assets, favoring capital over labor, as well as skilled labor over unskilled labor" (Acemoglu et al. 1998).

The future of work is a phrase that is often associated with rapid, transformative change - in work itself, who does the work, and where work is done. Multiple converging forces, including the increasing adoption of technological advances (eg, automation, artificial intelligence, robotics); shifts in demographics; the broadening of the workforce to include a wider array of alternative work arrangements; connectivity; globalization; and empowered consumers will have a profound impact on all industries. Coronavirus (COVID-19) has directly affected and accelerated many future work trends (eg, remote work, expanding employers' role as ''a social safety net'')5 as employers navigate the return to work.6 Collectively, these trends raise important questions about optimal ways in which jobs can be redesigned and how critical business operations will shift. (Johnson et al. 2020)

Apart from that, the COVID-19 pandemic forced many other countries, to enforce an extended country-wide lockdown to ensure social distancing and scale down the potential spread of the virus among the people. This long shutdown of the country made organizations around the world realize that the traditional office culture of face-to-face coordination and communication is not a viable model to run an office during this pandemic. Soon enough, most of these organizations, even if resentfully, closed the physical office infrastructure and started working remotely. It is almost as if we have teleported to another universe where everything runs on a digital system and the traditional way of life is out of fashion. This lockdown is also positively influencing people's attitude towards online shopping, as more and more people are buying their everyday essentials from various online retailers. Managers and leaders of big to small industries and organizations, some of whom were often reluctant to use digital platforms, are learning and adopting digital tools and

technologies to manage and oversee remote work and maximize productivity. (Naim et al. 2020)

This opportunity of continuing office and economic activities during this period of lockdown and social distancing has been made possible by the existing advanced technology and functioning telecommunication infrastructures. People today are realizing that a significant part of the office and economic activities can be done from anywhere with more flexibility, and sitting behind the office desk, direct communication, and physical meetings are not as necessary to do things decently as they were thought. Moreover, going to schools and universities physically to gain knowledge is perhaps also not mandatory. This digital style of working during the lockdown may be considered a forced entry into the fourth industrial revolution (4IR). The 4IR is characterized by a range of new technologies that fuse the physical, digital and biological worlds, changing society as we know it. The 4IR could unwrap endless possibilities for billions of creative and capable people connected by digital devices. By digitizing business and economic operations for all these people, 4IR has the potential to accelerate our economic growth. This global crisis is driving the world to take that leapfrog that many traditional-minded business leaders and directors were unwilling to do until now. This unintentional, unprepared, and forced entry into the framework of 4IR and temporary acceptance of the digital process of remote work may have a long-term impact on the office work culture and economic activities in the post-coronavirus world. (BIGD et al. 2020)

1.3 Problem Statement

The Fourth Industrial Revolution has brought about employees and businesses having to consider the future of work in the aspect of employment, work style, and business. New technology is increasingly being adopted by the worldwide labor market. New technology makes it simpler for businesses to automate regular work, which may disrupt the balance between job duties performed by humans and those performed by robots and algorithms. The Fourth Industrial Revolution has caused employees' skill sets to become irrelevant, resulting in the ambiguity of the skills necessary by employees to survive this revolution. Employees are subjected to varying levels of automation based on their job and the activities they perform. The

world of work will become increasingly complicated due to the loss of millions of jobs. (CHANGE et al 2022)

The Fourth Industrial Revolution (4IR) was already changing many facets of our life before Covid-19, providing both challenges and opportunities. Transformations and disruptions are already occurring within labor markets across the world. People routinely store images and documents in the cloud, our emails remind us to send follow-ups and we can turn on light bulbs with a simple voice command. Over the last twenty years, the use of new technology has caused some roles to disappear while also creating new, previously unheard-of job titles. For example, the rise of online flight comparison sites has drastically reduced the number of physical travel agents, and advancements in mobile technology have made switchboard operators obsolete. On the other hand, technological advancements have also led to the emergence of brand new job titles like app developers, social media marketers, and data scientists. (CHANGE et al 2022)

The 4IR has significant implications for the future of work and skills required in the gig economy. Blockchain technology is set to transform businesses worldwide, which refers to a digital, distributed ledger that keeps a record of all transactions across participating peer-to-peer networks. Therefore, increasingly complex tasks are automated in the 4IR (Autor et al. 2015; Acemoglu & Restrepo et al. 2018; ADB et al.2018). New technologies can displace jobs and also create new jobs and new skills (Autor et al. 2015).

These opportunities and challenges have now been expedited and intensified as a result of the worldwide epidemic. The coronavirus has catalyzed the global deployment of the fourth industrial revolution. The Fourth Industrial Revolution has brought about change as well as innovation at an extremely unpredictable rate, that is fueled by technological advancements such as artificial intelligence which therefore requires employees to continuously improve their skills to keep up with this Revolution (Marr et al. 2018). The fourth industrial revolution (4IR) stands out for the fact that machines have become active, unlike other industrial revolutions where machines were passive (Schwab et al. 2017). With smart technology becoming more mainstream, people need to consider the impact using this new technology will have on our society and workforce. (CHANGE et al. 2022)

1.4 Research Questions

The researcher determined three research questions in this study:

i. What is the awareness level of Fourth Industrial Revolution among Malaysians?
ii. What are the impacts of the Fourth Industrial Revolution towards the future of work in the aspect of employment, work style, and business?
iii. What are the opportunities and challenges of the Fourth Industrial Revolution to the future of work in the aspect of employment, work style, and business?

1.5 Research Objectives

In this research, there are three research objectives to be figured out:

i. To explore the awareness level of Fourth Industrial Revolution among Malaysians.
ii. To identify and examine the factors that impact Fourth Industrial Revolution to the future of work.
iii. To determine the opportunities and challenges of the Fourth Industrial Revolution to the future of work in the aspect of employment, work style, and business.

1.6 Scope and Limitation of the Study

This research paper is focusing on the impact of the fourth industrial revolution on the future of work in the aspect of employment, work style, and business. This study will be conducted among 384 working respondents of different industries, particularly customer service, data entry, food preparation, and manufacturing from the Southern region of Malaysia. The selected respondents will be chosen randomly. The research will be carried out by distributing questionnaires to the respondents.

The limitation of the study is the inaccurate data from respondents as they were chosen randomly by the researcher. Besides, the researcher experienced a time limitation in conducting the study. The research faced time constraints since the study needed to be completed in a short period.

1.7 Significance of Study

The findings of the study benefited businesses and employees in Malaysia, particularly employees whose jobs are more likely to be affected by the Fourth Industrial Revolution. They will understand the impact of the fourth industrial revolution on the future of work. Besides, academics and practitioners can understand more about 4IR Technologies and the opportunities and challenges of 4IR through this research. In addition, the study provides empirical literature sources to future researchers which carry out a similar topic by adding an existing body of knowledge on the impact of the fourth industrial revolution on the future of work.

1.8 Summary

In conclusion, this chapter has discussed the overview of the study. It discussed the background of the study, problem statement, research questions, research objectives, scope and limitation of the study, and significance of the study. In the coming chapter, the researcher will carry out the literature review of the study. The information will be broader and more understandable.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter will introduce the literature review and relevant theoretical model. The researcher discussed the Fourth Industrial Revolution and 4IR technologies. The literature review is an important element of the report since it provides a summary of the report, as well as theoretical definitions and previous research, in order to support the notion of our title, "Impact of the Fourth Industrial Revolution towards the future of work". As a result, the focus of this report's literature study will be on explaining the notion of each independent variable and its link to the dependent variable. There will be evidence to prove and support the idea of dependent and independent variables in every element of this literature review. In general, the literature review's content will define the fourth industrial revolution as a dependent variable and also the elements that influence this problem as independent variables. There are a total of 3 factors as independent variables in this report which are the fourth industrial revolution technologies, technological advances, and globalization. By reading the relevant kinds of literature, the dependent variables and independent variables were defined. At the end of this chapter, the conceptual framework can describe the concept of this research and develop the hypothesis.

2.2 Fourth Industrial Revolution

The fourth industrial revolution, a term coined by Klaus Schwab, founder and executive chairman of the World Economic Forum, describes a world where individuals move between digital domains and offline reality with the use of connected technology to enable and manage their lives. (Miller et al. 2015) The technological revolution in the modern developing environment in which innovative technologies and trends such as the virtual reality (VR), Internet of Things (IoT), Artificial Intelligence (AI), and Robotics are fundamentally altering the way of living,

working, and relationships to one another, is known as Fourth Industrial Revolution or Industry 4.0 or Industrie 4.0. (Nath et al 2018)

2.2.1 Opportunities of Fourth Industrial Revolution

Some researchers argue that the fourth industrial revolution will shape the future through its impacts on government and business. People have no control over either technology or the disruption that comes with the fourth industrial revolution. However, we can predict the opportunities that come with the fourth industrial revolution: 1) lower barriers between inventors and markets, 2) more active role in the artificial intelligence (AI), 3) integration of different technics and domains (fusion), 4) improved quality of our lives (robotics) and 5) the connected life (Internet). (Xu, David & Kim et al. 2019)

Here, the main concern is that creating new jobs may not be fast enough, so when automation and other systems operated by artificial intelligence replace the existing labor force, the number of existing jobs can be reduced faster than the workforce, so until new jobs are created there would be a significant increase in the unemployment rate. Also, automation and the digital revolution might cause jobs to re-shore from developing countries into advanced economies. The increasing usage of robots in developed countries, as well as new production techniques which demand a sophisticated level of skills, will reduce labor-cost advantages in developing countries. This may lead to the displacement of employment from developing countries to developed countries.

2.2.2 Challenges of Fourth Industrial Revolution

“We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. We do not yet know just how it will unfold, but one thing is clear: the response to it must be integrated and comprehensive, involving all stakeholders of the global polity, from the public and private sectors to academic and civil society.” (Schwab 2015)

2.3. Fourth Industrial Revolution Technologies

The Fourth Industrial Revolution is a way of describing the blurring of boundaries between the physical, digital, and biological worlds. It is a fusion of advances in artificial intelligence (AI), robotics, the Internet of Things (IoT), 3D printing, genetic engineering, quantum computing, and other technologies. (McGinnis et al. 2020)

2.3.1 Artificial Intelligence (AI)

Artificial Intelligence, where the assumption was made "that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it". Artificial Intelligence is "a branch of informatics aiming at realizing cognitive skills such as learning, planning or problem-solving in computer systems using algorithms. (McCarthy et al. 1955).

2.3.2 Internet of Things (IoT)

The internet of things, or IoT, is a system of interrelated computing devices, mechanical and digital machines, objects, animals, or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. (Gillis et al. 2022)

2.3.3 Virtual Reality (VR)

Virtual reality (VR) is a simulated experience that can be similar to or completely different from the real world. Applications of virtual reality include entertainment (particularly video games), education (such as medical or military training), and business (such as virtual meetings). Other distinct types of VR-style technology include augmented reality and mixed reality sometimes referred to as extended reality or XR. (Goode et al. 2019)

2.3.4 Cloud Computing

Cloud computing is the on-demand availability of computer system resources, especially data storage (cloud storage) and computing power, without direct active management by the user. Large clouds often have functions distributed over multiple locations, each location being a data center. (Ray et al. 2018)

2.3.5 Opportunities of Fourth Industrial Revolution Technologies

Increasing trends in artificial intelligence point to significant economic disruptions in the coming years. Artificial systems that rationally solve complex problems pose a threat to many kinds of employment, but also offer new avenues to economic growth. A report by McKinsey & Company found that half of all existing work activities would be automated by currently existing technologies, thereby enabling companies to save billions of dollars and create new types of jobs. (Manyika et al. 2017) For example, driverless cars may modestly replace tax and Uber drivers, but autonomous trucks may radically transform shipping with far fewer jobs for truck drivers.

Subsequently, innovative technologies will integrate different scientific and technical disciplines. Key forces will come together in "a fusion of technologies that is blurring the lines between physical, digital, and biological spheres." (Schwab 2015) This fusion of technologies goes beyond mere combination. Fusion is more than complementary technology because it creates new markets and new growth opportunities for each participant in the innovation. It blends incremental improvements from several (often previously separated) fields to create a product.

2.3.6 Challenges of Fourth Industrial Revolution Technologies

The evolution of global industries in the fourth industrial revolution is both exciting and scary. Life will change with 3D printing, the IoT, and the fusion of technologies. The fourth industrial revolution can raise income levels by allowing entrepreneurs to "run" with their new ideas. It will improve the quality of life for many people around the world. (Jee et al. 2017) Consumers are likely to gain the most from the fourth industrial revolution. “Technological innovation will also lead to a supply-side miracle, with long-term gains in efficiency and productivity. Transportation and communication costs will drop, logistics and global supply chains will become more effective, and the cost of trade will diminish, all of which will open new markets and drive economic growth.” (Schwab et al. 2015)

2.4 Technological Advances

Scientific or technological advancement is the generation or discovery of knowledge that advances the understanding of science or technology. It is the generation or discovery of knowledge; that advances (in large or small increments) the understanding of science or technology within the claimant's knowledge base when reached in keeping with methodologies concurrent with a systematic investigation or search. (SRED et al 2022) The concept of the Fourth Industrial Revolution affirms that technological change is a driver of transformation relevant to all industries and parts of society. (Philbeck et al. 2019) Technological advances are permitting an increasing number of tasks traditionally performed by humans to become automated. Initially, such automation focused primarily on routine tasks (e.g. clerical work, bookkeeping, basic paralegal work, and reporting). However, with the advent of Big Data, artificial intelligence (AI), the Internet of Things, and ever-increasing computing power (i.e. the digital revolution), non-routine tasks are also increasingly likely to become automated. Technological advances are affecting labor markets in many other ways as well. For example, the internet facilitates new and more efficient ways of matching the demand for and supply of labor. (Organisation for Economic Co-operation and Development et al. 2017)

2.4.1 Opportunities of Technological Advances

Technological advances are permitting an increasing number of tasks traditionally performed by humans to become automated. Initially, such automation focused primarily on routine tasks (e.g. clerical work, bookkeeping, basic paralegal work, and reporting). However, with the advent of Big Data, artificial intelligence (AI), the Internet of Things, and ever-increasing computing power (i.e. the digital revolution), non-routine tasks are also increasingly likely to become automated. (OECD et al. 2017)

The increasing use of technology will create higher demand for the uniquely human skills that workers gain through years of experience. Job quality could improve as work becomes less routine, repetitive, and tedious. Changing technology could create new jobs and industries, creating opportunities for all workers—not only those who already have IT or engineering backgrounds. Older workers can take advantage of ongoing training options provided by employers, educational institutions, and

training providers to work effectively alongside tech. Technology such as ergonomically assistive technologies and exoskeletons could help older workers and workers with limited mobility stay in the workforce longer, especially those with physically demanding jobs. (Hopwood et al. 2019)

For an employer, incorporating technology into the workplace increases the demand for higher-order cognitive skills, which workers gain the longer they have been in the workforce. This includes skills like critical thinking, collaboration, and change management. Other than IT, the second-highest skillset in demand in the future will be customer service. Then, older adults have often cultivated these skills through decades of experience and can easily help address a growing cross-industry customer service expectation and other emerging needs. Also, automation can be used to reduce the physical demands of many jobs, making it easier for employers to hire and retain workers of all ages while extending work opportunities to those with limited mobility. Apart from that, repetitive/tedious or rote work may be reduced to allow workers to focus on and use their higher-order cognitive skills to help a company succeed. Besides, employers can gain a competitive advantage by optimizing the balance between human and AI responsibilities and identifying the synergies needed to accomplish tasks efficiently and effectively. (AARP International et al. 2022)

2.4.2 Challenges of Technological Advances

With rapid technological advancement, automation will eliminate some jobs previously done by humans in the short term. Without support from employers or the government, people displaced by technology may face extended periods of unemployment. For example, job elimination can happen simultaneously across a company or an entire industry, making it difficult for those displaced by technology to find new jobs, leading to longer unemployment periods and more competition for remaining jobs. Moreover, older workers whose jobs are eliminated may have more difficulty than younger workers finding work due to age discrimination. Ever-evolving technology means that workers will need to continually refine or learn new skills to remain relevant. But affordable training options may be difficult to find and employers may not distribute training opportunities equitably. Workers will need to learn to shift their approach to job interviews and applications and highlight skills that may be formal or informal—classroom-based or workplace-based. Common

automated hiring processes such as algorithmic employee screening (AI) can create age bias if not designed properly and specifically to overcome biases. The digital divide and lack of broadband access prevent some lower-income and rural workers from developing the skills necessary to succeed in a tech-driven work environment.

Whereas, the employer must keep pace with the technological advances, implementing them throughout the organization, and ensuring profitability may require significant investment in capital, human resources, and time. AI bias in algorithms and programming may exacerbate ageism and other discrimination in hiring, leading to the lack of a diverse workforce and, potentially, legal action. To account for continuously changing skill needs and rapidly and regularly shifting work requirements, employers will need to identify cost-efficient ways to ensure that their workers have the skills, abilities, and experience needed to grow and adapt. This will require new, flexible, and multidimensional hiring, training, and internal staffing processes. (AARP International et al. 2022)

2.5 Globalization

Globalization is a term used to describe how trade and technology have made the world a more connected and interdependent place. Globalization also captures in its scope the economic and social changes that have come about as a result. (National Geographic Society et al. 2022) Globalization is the word used to describe the growing interdependence of the world's economies, cultures, and populations, brought about by cross-border trade in goods and services, technology, and flows of investment, people, and information. (Peterson Institute for International Economies et al 2021)

2.5.1 Opportunities of Globalization

Globalization helps boost the spread of technology and innovation. Many countries around the world remain constantly connected, so the knowledge and technological advances travel quickly. Because knowledge also transfers so fast, this means that scientific advances made in Asia can be at work in the United States in a matter of days. Furthermore, globalization allows companies to find lower-cost ways to produce their products. It also increases global competition, which drives prices

down and creates a larger variety of choices for consumers. Lowered costs help people in both developing and already-developed countries live better on less money. (Velocity Global et al. 2020)

Globalization gives all nations access to a wider labor pool. Developing nations with a shortage of knowledge workers might, for example, "import" labor to kickstart the industry. Wealthier nations, on the other hand, might outsource low-skill work to developing nations with a lower cost of living to reduce the cost of goods sold and pass those savings on to the customer. Through globalization, developing nations often gain access to jobs in the form of work that's been outsourced by wealthier nations. While there are potential pitfalls to this, this work can significantly contribute to the local economy. (Stobierski et al. 2021)

2.5.2 Challenges of Globalization

In advanced economies, workers are concerned about job opportunities lost to offshoring and services outsourcing as well as about the increased vulnerability associated with job and income volatility. At the same time, workers in many emerging economies worry about the adverse consequences of trade liberalization, lagging employment opportunities for growing labor forces, and competition from other emerging economies (OECD et al. 2012). Indeed, one additional reason why many emerging economies are experiencing premature deindustrialization is because of their exposure to international trade. A more general concern expressed by workers in all countries (advanced and emerging alike) is that globalization is contributing to increased income inequality and poorer working conditions. (OECD et al. 2017)

2.6 Conceptual Framework

In this research, fourth industrial revolution technologies, technological advances, and globalization as the independent variables while the future of work as the dependent variable.

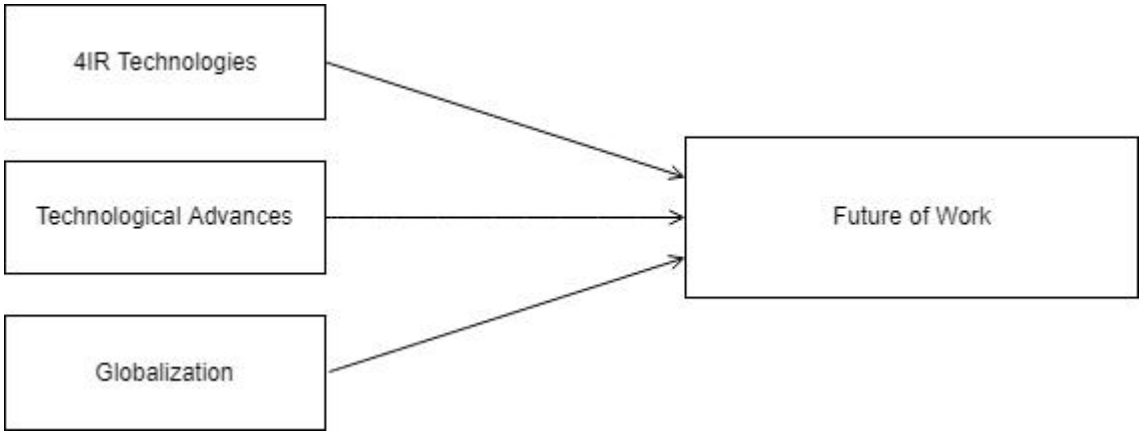

Figure 2.7: Conceptual Framework

2.7 Research Hypotheses

The following are the hypotheses in this study:

i. 4IR Technologies

H0: There is no significant relationship between 4IR technologies and the future of work.

H1: There is a significant relationship between 4IR technologies and the future of work.

ii. Technological Advances

H0: There is no significant relationship between technological advances and the future of work.

H1: There is a significant relationship between technological advances and the future of work.

iii. Globalization

H0: There is no significant relationship between globalization and the future of work.

H1: There is a significant relationship between globalization and the future of work.

2.8 Summary

In this chapter, the researcher have discussed on the impact of fourth industrial revolution towards the future of work in the aspect of employment, work style, and business. The proposed research framework consists of dependent and independent variables. The dependent variable is the future of work. Whereas, the independent variables are 4IR technologies, technological advances, and globalization. Last but not least, the following chapter will be discussed about the research methodology.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the researcher will discuss about the methodologies used to collect the data and information for this research. In the beginning, the explanatory research design is formed to explain the relationship between the variables. The quantitative method is chosen in methodological choice. The data was gathered from primary and secondary data. The coming sections to be discussed are the research location, research strategy, time horizon, reliability and validity and data analysis method. The outcomes of this research can be better evaluated and understood with these research methodology procedures.

3.2 Research Design

Research design is the general plan of how the researcher will go about answering the research questions. It consists of the clear objectives derived from the research questions. And, it specifies the sources from which the researcher intend to collect data, and the way of the researcher purposes to collect and analyse the data. Next, research design discusses the ethical issues and the constraints the researcher will inevitably encounter, for instance, access to data, time, location and money (Saunders et.al, 2016).

There are several of the nature of the research project, which are exploratory, descriptive, explanatory, evaluative or a combination of these. An exploratory study is used to clarify an understanding of an issue, problem or phenomenon. Descriptive research is to obtain an accurate profile of events, persons or situations. An explanatory study is to find out a situation or a problem with the aim of explain the relationships between variables. An evaluative study is more to determine the effectiveness of an organizational or a business strategy, policy, programme, initiative or process.

The researcher chose the explanatory study because it is appropriate to the nature of this research. As the researcher mentioned before, an explanatory study emphasizes the relationships between variables. In this research, it contained three independent variables and one dependent variable. The goal of the research was to determine how 4IR technologies, technological advances and globalization affected the future of work.

3.3 Methodological Choices

There are quantitative, qualitative and mixed methods of methodological choice for research design. Quantitative method is usually using questionnaire for collecting data technique, and graphs or statistics for analyzing data procedure that generates or uses numerical data. While qualitative method is uses interview in data collection technique, and categorizing data in data analysis procedure that generates or uses non-numerical data.

In this research, the researcher uses quantitative method to examine the relationship between the variables. This method uses range of statistical and graphical techniques to measure and analyse the independent variable and dependent variable. Generally, the purpose of quantitative research is to generate knowledge and create understanding about the social world. Quantitative research is used by social scientists, including communication researchers, to observe phenomena or occurrences affecting individuals. (Allen, M, 2017). The researcher is going to reconfirm whether the radical relationship is existed or not as the relationship is already established.

3.4 Primary and Secondary Data Sources

The primary data and secondary data were applied in this research. Primary data are the collected data by the researcher through surveys, interviews, or experiments specifically for the research problems that is being studied (Ghauri et al., 2020). The researcher offers the questionnaires to the respondents. The respondents required to answer the questions based on their attributes (demographic), personality and lifestyle, awareness and knowledge, intentions, motivations, and behaviors.

Secondary data are the data that have been collected by government agencies, market research agencies, firms, or other organization or individuals and which are publicly available (Ghauri et al., 2020). Data from these sources are both cost and time effective. The researcher gained the secondary data from website and library database for selecting appropriate journals, articles, reports, and newspapers as the data sources of this research. In addition, the researcher gained the data from books, such as "The Fourth Industrial Revolution" by Klaus Schwab, and "Research Methods for Business Students" by Saunders, Lewis and Thornhill.

3.5 Research Location

The researcher is going to conduct this study in the Southern region of Malaysia which consists of two cities, Melaka and Johor. This is because the impact of the fourth industrial revolution towards the future of work is going to be everywhere. The targeted respondents are working individuals of different industries, particularly customer service, data entry, food preparation, and manufacturing. This is to increase generalizability of research findings. In addition, the selected respondents will be chosen randomly.

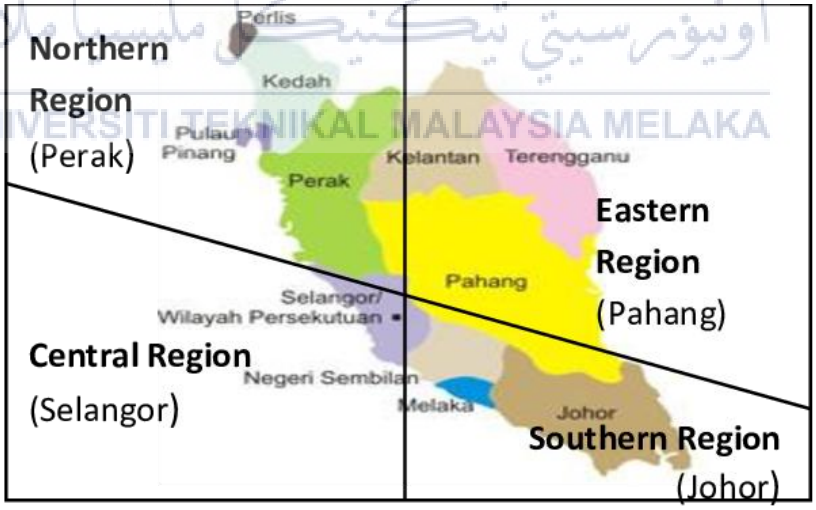

Figure 3.5: Peninsular Malaysia Map divided into regions

Sources: ResearchGate

3.6 Research Strategy

Saunders et al. (2016) stated that research strategy is a plan of how a researcher will go about answering his or her research question. The strategies include experiment, survey, archival and documentary research, case study, ethnography, action research, grounded theory, and narrative inquiry. The survey strategy is selected in this research. It was easy to make data comparison from a sizeable population using questionnaire in survey strategy. It is advantageous that a large amount of information can be collected from a population that is large in size. (Kapur et al., 2018) The researcher also selects archival or documentary research strategy as these sources can be obtained online.

3.6.1 Questionnaire Design

Questionnaires tend to be used for descriptive or explanatory research (Saunders et al., 2016). It provides an efficient way of collecting responses from a large sample prior to quantitative analysis. The researcher conducted the questionnaire through internet (online Google Form), whether the respondents use web or mobile to answer the question.

The questionnaire contains three parts. The first part is about the demographic of respondent, including age, gender, educational level, occupation, and the general way exposed to fourth industrial revolution. The second part is focusing on the independent variables: 4IR technologies (artificial intelligence, internet of things, virtual reality, and cloud computing), technological advances, and globalization. The last part in the questionnaire will be asking about the dependent variable, fourth industrial revolution.

Multiple choice questions and Likert scale are applied in the questionnaire. Likert scale in second part and third part are based on five points rating scale, which 1 represented “strongly disagree”, 2 represented “disagree”, 3 represented “neutral”, 4 represented “agree” and 5 represent “strongly agree”.

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Table 3.1: Five points rating scale by Rensis Likert in 1932

3.6.2 Questionnaire Development and Sources

The following are the items in questionnaire survey and their sources:

No.	Items	Sources
	4IR Technologies	
1	I have heard about Industrial Revolution (4IR).	(Rahman, M. J. 2019)
2	I understand about IR 4.0 and 4IR technologies (Internet of Things, Cloud, Big Data and others).	(Rahman, M. J. 2019)
3	IR 4.0 was a threat to the employees especially to the juniors in job opportunity.	(Rahman, M. J. 2019)
4	There are strategies/plan to implement IR4.0-related technology in my organization.	(Rahman, M. J. 2019)
5	There are mandates to encourage my organization to adapt/embrace/transform IR4.0 related technologies.	(Rahman, M. J. 2019)
6	Our current workforce is capable to adopt IR4.0-related technology.	(Rahman, M. J. 2019)
7	The organization leverages on digital technology for new product innovation (3D Printing, Virtualization).	(Voctech, S 2019)
	Technological Advances	
1	Employees are able to leverage on digital tools for collaboration and remote connectivity.	(Voctech, S 2019)
2	Ideas of digital transformation by employees are encouraged.	(Voctech, S 2019)

3	Digital tools are used for knowledge management and skill enhancement.	(Voctech, S 2019)
4	Digital technology is used to stay in touch with the customers and to solve their challenges.	(Voctech, S 2019)
5	Data inputs from customer usage are used continuously for improving solutions and services.	(Voctech, S 2019)
	Globalization	
1	I have heard about the term globalization before.	(Voctech, S 2019)
2	There is a group of employees who are more influenced by a modern economy and globalization.	(Scarborough, N 2017)
3	The organization has a digital vision to transform because of the new market need.	(Voctech, S 2019)
4	The organization is able to innovate rapidly as per the changing market requirements.	(Voctech, S 2019)
5	I believe human's role in performing work tasks will be minimized due to automation.	(Dijmarescu, I 2020)
6	The rise of workplace automation in different forms has the potential to vastly improve productivity, while increasing efficiency, safety, and convenience.	(Dijmarescu, I 2020)
7	Globalization will create new jobs and additional opportunities will appear on the labour market.	(Dijmarescu, I 2020)
8	There are training plans in place to develop our workplaces' capabilities, skill, and competencies.	(Rahman, M. J. 2019)
	Future of Work	
1	Remote working concepts will be a novelty in	(Gormus, A. 2019)

	future which means the jobs in future will reply on digital processes.	
2	Automation will impact the manufacturing, storage, and transportation industries that are edging toward almost complete automation in the future.	(Gormus, A. 2019)
3	Rapid growth in technological advancements in the workplace will lead to continuous employee training in order to match the development of machines.	(Gormus, A. 2019)
4	There is a high risk of being unemployed or underemployed for lower-skilled workers since low-skill and routine jobs are more likely to be substituted or replaced by automation and robots in the next 10 to 20 years.	(Gormus, A. 2019)
5	With the usage of Industry 4.0 technologies, the spillover effect of increased productivity along an industry's value chain can generate new job prospects in target industries, depending on increasing in demand.	(Gormus, A. 2019)

3.6.3 Sampling

Probability sampling is selected in this research. It is often associated with survey and experiment research strategies. According to Sekaran and Roger (2016), probability sampling can be either unrestricted (simple random sampling) and restricted (complex probability sampling). The researcher chooses simple random sampling as every element in the population has a known and equal chance of being selected as a subject. Simple random sampling is best to use when the researcher has an accurate and easily accessible sampling frame in target population, preferably in electronic format (Saunders et al., 2016).

According to Department of Statistics Malaysia, the current population of Malacca and Johor in 2021 are estimated at 0.94 million and 3.79 million respectively, which makes a total of 4.73 million. Based on the Krejcie and Morgan (1970), he figured out it should have 384 respondents from the sample size of 1,000,000 population. The researcher chose more than 384 respondents stands from working individuals of different industries, particularly customer service, data entry, food preparation, and manufacturing.

Table 3.1

Table for Determining Sample Size of a Known Population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

Note: N is Population Size; S is Sample Size *Source: Krejcie & Morgan, 1970*

Table 3.6.2: Determining sample size of a known population

Source: Krejcie and Morgan (1970)

3.6.4 Pilot Test

Pilot Testing is tested on members of target population to evaluate the reliability prior to their final distribution. Based on Saunders et al. (2016), it is a small-scale trial that allows the researcher to test and comment the questionnaire in order to reduce the problems when respondents respond to the questions and the data recording issue. The pilot test is going to be collected in this study before distributing the questionnaire to the respondents. The researcher will select 30 respondents to

conduct the pilot test. Their feedback and comments will be considered in the final survey questionnaire in this research.

3.7 Time Horizons

There are two types of time horizons: longitudinal studies and cross-sectional studies. Longitudinal studies are the collection of data repeatedly over a long period. While cross-sectional studies are the study that conducted and gathered data only once, it may take days, weeks or months. In this research, the research chooses cross-sectional studies because of the time limitation. The researcher has to complete Chapter 1 to Chapter 5 within ten months. There is only one month of time period to execute the data collection and analysis.

3.8 Reliability and Validity

Reliability and Validity are used to judge the quality of research in the quantitative research in the social sciences (Saunders et al., 2016). Reliability refers to the replication and consistency. Validity refers to the appropriateness of the measures used, the results on accuracy of the analysis, and generalizability of the findings. Internal validity is established in a survey questionnaire where a set of questions showed statistically to be associated with an analytical factor or outcome. While external validity is focused on the questions whether the findings of a research generalised to other relevant settings.

The researcher uses Cronbach's Alpha to measure the reliability of the variables. The range in alpha coefficient is between 0 and 1. When the values of Cronbach's Alpha show more than 0.7 is considered acceptance, more than 0.9 is considered good, and equal or more than 0.9 is considered excellent. While, if the value of Cronbach's Alpha demonstrates less than 0.6 is considered poor and less than 0.5 is considered unacceptable. There is indicated something wrong on the data when the value comes to a negative number.

Cronbach's Alpha Coefficient Range	Strength of Association
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Table 3.8: Cronbach's Alpha Coefficient Range and Strength of Association

Sources: Saunders et al., (2016)

3.9 Data Analysis Method

After the data are obtained through questionnaire, Statistical Package of Social Sciences (SPSS) is applied to analyse the data collected from the respondents. Descriptive analysis, and Pearson's correlation analysis are used in this research.

3.9.1 Descriptive Analysis

Saunders et al. (2016) stated the descriptive analysis is using numerical description and comparison of variables that target on the central tendency and dispersion. The general way to measure descriptive statistic are means, medians, modes, and standard deviation. In this research, descriptive analysis is used to analyze the gender, age, occupation and educational level among the respondents. The raw data is converted in the form that easier to understand for better describe the demographic of respondents.

3.9.2 Pearson's Correlation Analysis

Pearson's Correlation analysis will be used in this research to compute the linear relations intensity between the dependent variable and independent variables. Pearson's correlation coefficient is between -1 to +1 represent perfect negative and

perfect positive correlations. Meanwhile, the value of 0 represents no association correlation (Saunders et al., 2016).

Correlation Coefficient Value (*r*)	Direction and Strength of Correlation
-1	Perfectly negative
-0.8	Strongly negative
-0.5	Moderately negative
-0.2	Weakly negative
0	No association
0.2	Weakly positive
0.5	Moderately positive
0.8	Strongly positive
1	Perfectly positive

Figure 3.9.2: Value of the correlation coefficient

Sources: Saunders et al. (2016)

3.9.3 Multiple Regression Analysis

Multiple regression analysis as a statistical tool that allows the researcher to assess the strength of the cause and effect relationship between three independent variables and one dependent variable (Saunders et al., 2016). In this research, the researcher needs to understand the relationship between the independent variables (4IR technologies, technological advances, globalization) toward the dependent variable (future of work). The multiple regression analysis helps the researcher to determine the independent variables with the greatest impact on the dependent variable. The following is the equation of multiple regression analysis:

Equation of MRA: $Y = a + bX1 + cX2 + dX3$

Where:

Y = Dependent Variable (Future of Work)

a = Constant value or Intercept

b = Influence of X1 (4IR Technologies)

c = Influence of X2 (Technological Advances)

c = Influence of X2 (Globalization)

X1, X2, X3 = Independent variables

3.10 Summary

To sum up, this explanatory research is required the offer survey questionnaire to the respondents. 384 respondents from the Southern region of Malaysia is required to answer the questionnaire through Google form. This research using cross-sectional time studies which the data collected only once. The pilot test will be going to be conducted before the questionnaire is giving out to the respondents. Besides, the researcher refers to the secondary data sources from online journal, articles, and reports and book. Cronbach's Alpha is used to measure the reliability of the variables. After obtaining the data, the researcher needed to analyse them using descriptive analysis, and Pearson's correlation analysis. The following data analysis and discussion will be discussed in Chapter 4.

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

In this chapter, the results of the research conducted using quantitative approach were discussed. The data collected by questionnaires involving working individuals of different industries, particularly customer service, data entry, food preparation, and manufacturing which consist around the Southern region of Malaysia. This will identify what the Fourth Industrial Revolution is, and then analyze the main impacts of the Fourth Industrial Revolution to the future of work in the aspect of employment, work style, and business, and finally determine the opportunities and challenges of the Fourth Industrial Revolution to the future of work in the aspect of employment, work style, and business..

After that, the data analysis was followed by hypothesis testing, Descriptive Analysis, and Pearson Correlation. The data analysis is tested based on 384 respondents from the Southern region of Malaysia with a questionnaire of 4 sections which is Section A for demographic and general information, Section B for technological advances, Section C for 4IR technologies and Section D for globalization.

The validity of questionnaires had been tested through a pilot test involving 38 respondents to ensure that there are no mistake or errors occur in the questionnaire. It is necessary to understand the potential error and weakness in the questionnaire before distributing the actual survey. Some modification was made to ensure proper grammar and spelling. During the pilot test and reliability test, Cronbach's Alpha was also recorded.

4.2 Pilot Test

Pilot test also known as pretest was organized based on 30 questionnaires with a sample size of S = 384. The sample of the test sample should be a population of 10%

of the actual sample size. The purpose of the pilot test is to determine if the questionnaire is correct to capture the required data as expected. Therefore, the effectiveness of the pilot test and the reliability of the questionnaire can be tested. For pilot testing, check internal reliability by using Cronbach's Alpha.

Table 4.1: Reliability Statistic of Variables

Source: SPSS Output

Variable	Cronbach's Alpha	N of Items
4IR Technologies	0.829	7
Technological Advances	0.937	5
Globalization	0.917	8
Future of Work	0.936	5

Table 4.2: Reliability Statistic of Overall Pilot Test

Source: SPSS Output

Cronbach's Alpha	N of Items
0.933	25

Table 4.1 below showed that since all of Cronbach's Alpha is bigger than 0.7, therefore all variables can be concluded that the items have relatively internal consistency. The Cronbach's Alpha for the 4IR Technologies is 0.944 measured by 7 items. Next, the Cronbach's Alpha for the Technological Advances is 0.908 measured by 5 items. And the Cronbach's Alpha for the Globalization is 0.896 measured by 8 items. Lastly, the Cronbach's Alpha for the Future of Work is 0.936 measured by 5 items. To conclude, all having good correlation within items of each variable.

According to table 4.2, the Cronbach's Alpha coefficients of overall variables are 0.933, which was excellent with 25 of the number of items. Hence, it can be concluded that the items have relatively internal consistency.

4.3 Reliability Test

Cronbach's Alpha is used to determine the internal consistency or average correlation of items for each of independent variables which are cause important, congruence between company's products and cause, cause proximity and length or frequency of support. Nunnally (1978) has pointed out that 0.7 is an acceptable reliability coefficient, but sometimes lower thresholds are used in the literature.

Table 4.3: Reliability Statistic of All Variables

Source: SPSS Output

Variable	Cronbach's Alpha	N of Items
4IR Technologies	0.837	7
Technological Advances	0.954	5
Globalization	0.937	8
Future of Work	0.944	5

Table 4.4: Reliability Statistic of Overall Variables

Source: SPSS Output

Cronbach's Alpha	N of Items
0.941	25

Based on Table 4.3, since the Cronbach's Alpha is greater than 0.7, all variables can be concluded that the items have relatively internal consistency. The Cronbach's Alpha for the 4IR Technologies is 0.837 measured by 7 items. Then, the Cronbach's Alpha for the Technological Advances is 0.954 measured by 5 items. Next, the Cronbach's Alpha for the Globalization is 0.937 measured by 8 items. Lastly, the Cronbach's Alpha for the Future of Work is 0.944 measured by 5 items.

According to table 4.4, the Cronbach's Alpha for the overall variables is 0.941 measured by 25 items and which is greater than 0.7. Hence, it can be concluded that the items have relatively internal consistency.

4.4 Validty Test

Validity test has been conducted in this research. There are 30 items are included in the questionnaire. Hence, the internal validity can be observed in this pilot test which determines the relationship between the dependent variable and independent variables.

4.5 Descriptive Data Analysis

A descriptive analysis is used to analyze the demographic background of respondents which includes gender, age, employment status, education level, number of advertisement views, and types of fast food mostly dealt with. It provides a brief overview of the sample and the measured output. The SPSS output presents the frequency, percent, valid percent, and cumulative percent.

4.5.1 Age Group

Table 4.5: Age Group of Respondents

Source: SPSS Output

1. Age Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 - 23	70	36.8	36.8	36.8
	24 - 29	63	33.2	33.2	70.0
	29 - 34	22	11.6	11.6	81.6
	Above 35	35	18.4	18.4	100.0

	Total	190	100.0	100.0	

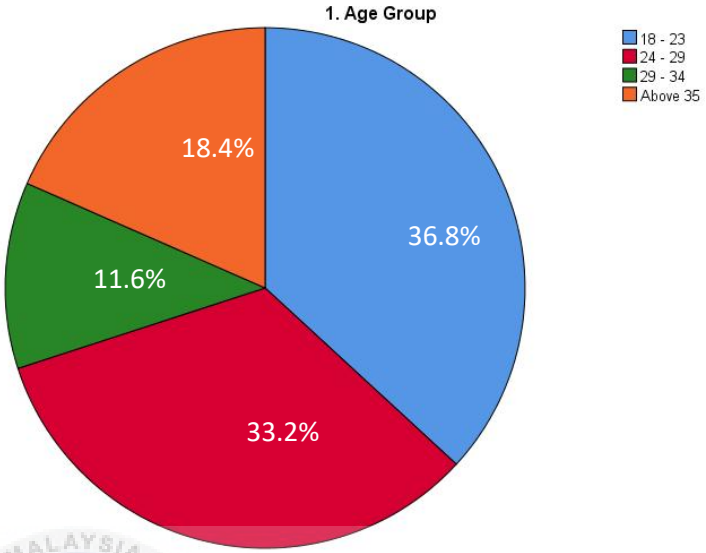

Figure 4.1: Age Group

Table 4.5 shows the age range of respondents are 18 years old to 35 years old above. It is apparent that majority of respondents were aged 18 to 23 years old (36.8%). The next followed by 24 to 29 years old which around 63 respondents (33.2%), 12 respondents of above 35 years old (18.4%), and only 3 respondents were aged 29 to 34 years old above which is 11.6%.

4.5.2 Gender

Table 4.6: Gender of Respondents

Source: SPSS Output

2. Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	102	53.7	53.7	53.7
	Male	88	46.3	46.3	100.0

Total	190	100.0	100.0	

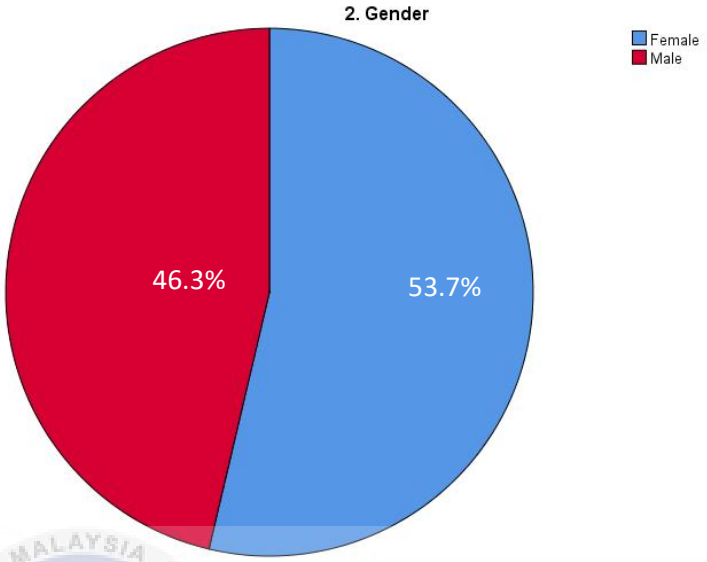

Figure 4.2: Gender

Table 4.6 shows the gender of 190 respondents involved in this research. There are 102 female respondents which are 53.7% and 88 male respondents which are 46.3%. The majority of respondents are female.

4.5.3 Educational Level

Table 4.7: Educational Level of Respondents

Source: SPSS Output

3. What is your highest level of education?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelors or equivalent	125	65.8	65.8	65.8
	College	35	18.4	18.4	84.2

	Diploma	16	8.4	8.4	92.6
	Doctoral or equivalent	4	2.1	2.1	94.7
	High School	7	3.7	3.7	98.4
	Masters or equivalent	3	1.6	1.6	100.0
	Total	190	100.0	100.0	

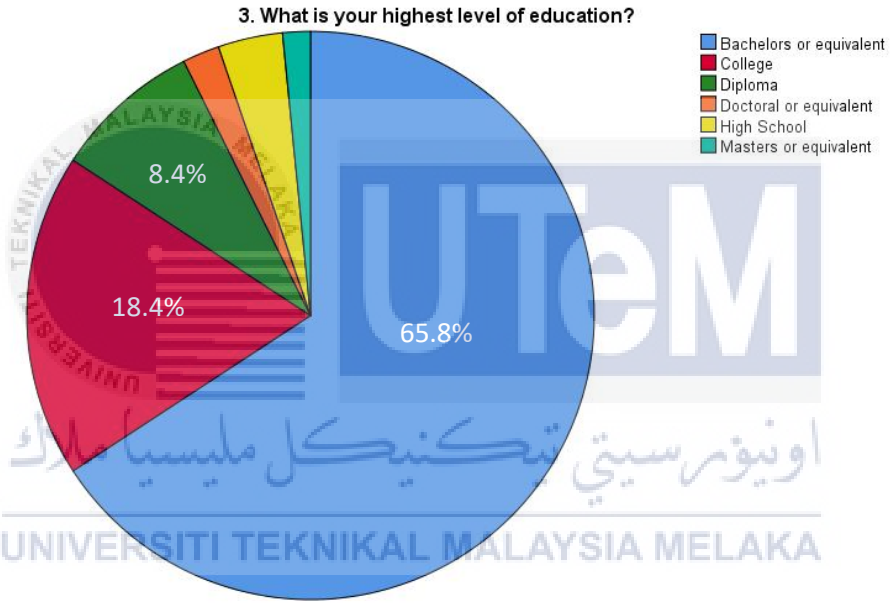

Figure 4.3: Educational Level

Table 4.7 shows the educational level of 190 respondents. The educational level starts from Bachelors or equivalent and Masters or equivalent. The majority of respondents have Bachelors or equivalent which is 125 respondents (65.8%). The next followed by College level which is 35 respondents (18.4%), 16 respondents from Diploma level (8.4%), 7 respondents from High School level (3.7%), 4 respondents from Doctoral or equivalent level (2.1%), and only 3 respondents are Masters or equivalent level (1.6%).

4.5.4 Experience Level

Table 4.8: Experience Level of Respondents

Source: SPSS Output

4. Which best describes your experience level?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Executive	68	35.8	35.8	35.8
	Manager	26	13.7	13.7	49.5
	Managerial business roles: Marketing Manager, Product Manager, Project Manager, Finance manager, Human resources manager	24	12.6	12.6	62.1
	Operational roles: Marketing specialist, Business analyst, Human resource personnel, Accountant, Sales representative, Customer service representative, Administrative assistant	40	21.1	21.1	83.2
	Operations and Production	11	5.8	5.8	88.9
	Other	21	11.1	11.1	100.0
	Total	190	100.0	100.0	

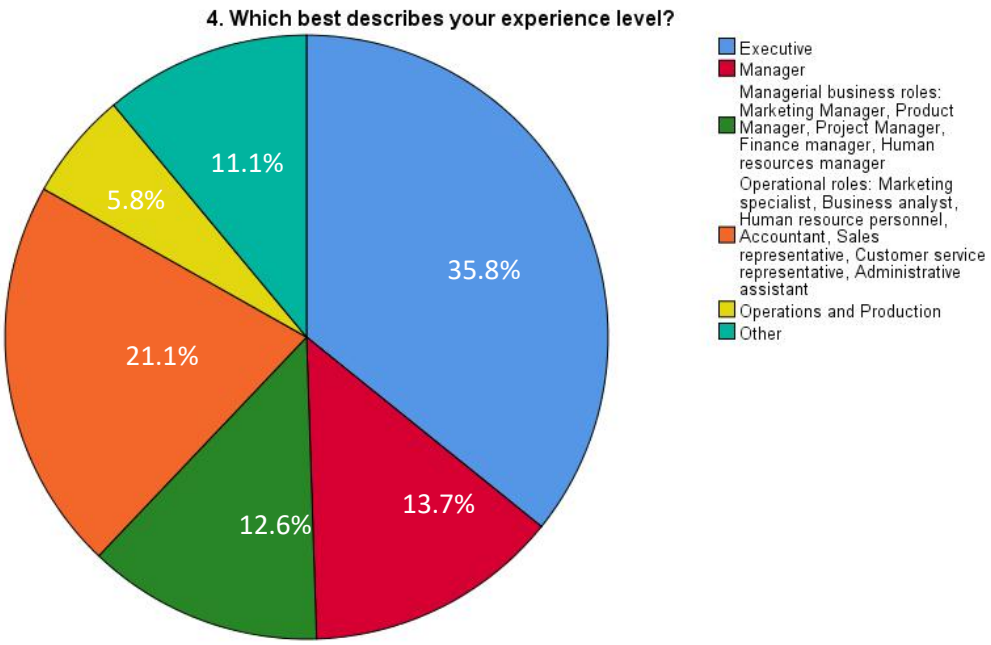

Figure 4.4: Experience Level

Table 4.8 shows the experience level of 190 respondents. The experience level comprised from Executive, Operational roles: Marketing specialist, Business analyst, Human resource personnel, Accountant, Sales representative, Customer service representative, Administrative assistant, and other. The majority of respondents consists of executives which is 68 respondents (35.8%). The next followed by Operational roles: Marketing specialist, Business analyst, Human resource personnel, Accountant, Sales representative, Customer service representative, Administrative assistant which is 40 respondents (21.1%), 26 respondents are Managers (13.7%), 24 respondents are Managerial business roles: Marketing Manager, Product Manager, Project Manager, Finance manager, Human resources manager (12.6%), 21 respondents chosen other (11.1%), and only 11 respondents are from Operations and Production (5.8%).

4.5.5 Years in Current Position/Industry

Table 4.9: Years in Current Position/Industry of Respondents

Source: SPSS Output

5. How long have you been working in the current position/industry?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	107	56.3	56.3	56.3
	3-4 years	36	18.9	18.9	75.3
	5-10 years	20	10.5	10.5	85.8
	More than 10 years	27	14.2	14.2	100.0
	Total	190	100.0	100.0	

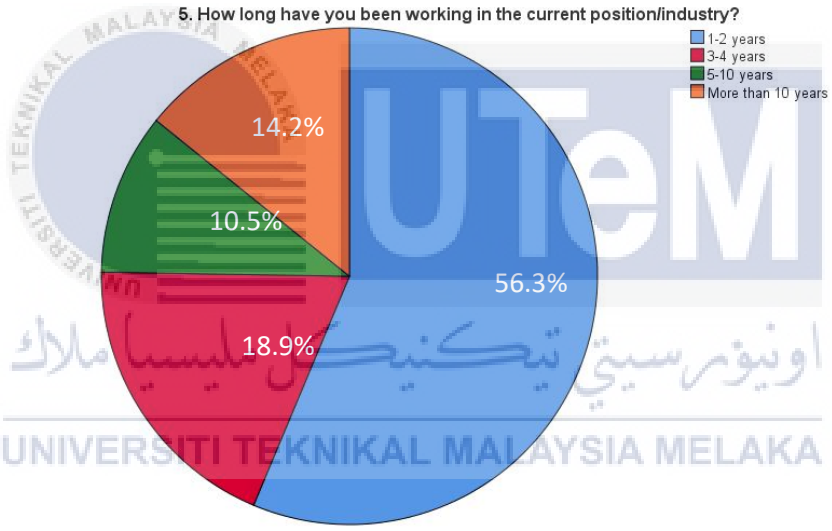

Figure 4.5: Years in Current Position/Industry

Table 4.9 shows years in current position/industry of 190 respondents. The range is from 1 to 2 years to more than 10 years. The majority of respondents worked in current position/industry for 1 to 2 years which is 107 respondents (56.3%). The next followed by 3 to 4 years working in current position/industry which is 36 respondents (18.9%), 27 respondents worked more than 10 years (14.2%), and only 20 respondents worked 5-10 years in current position/industry (10.5%).

4.6 Descriptive Statistics on Independent Variables

The descriptive analysis is used to analyse the independent variables which were 4IR Technologies, Technological Advances, and Globalization in this research. The central tendency measurement was conducted. The mean, medium, and mode of variables is identified by descriptive analysis.

4.6.1 Independent Variables: 4IR Technologies

Table 4.10: Respondents' Perception of the 4IR Technologies

		1	2	3	4	5	6	7
N	Valid	190	190	190	190	190	190	190
	Missing	0	0	0	0	0	0	0
Mean		4.15	3.98	2.81	3.80	4.07	3.82	4.13
Median		4.00	4.00	3.00	4.00	4.00	4.00	4.00
Mode		5	5	3	4	5	4	4
Std. Deviation		.977	.992	1.122	.915	.998	.950	.894

Source: SPSS Output

**. Mode: 1 = Strongly Disagree; 2 = Disagree, 3 = Neutral; 4 = Agree; 5 = Strongly Agree

From Table 4.8, the mode showed that the respondents strongly agree with question 1, 2, and 5. The next followed by question 4, 6, and 7 with mode agree. Lastly, the respondents least agree with question 3.

4.6.2 Independent Variables: Technological Advances

Table 4.11: Respondents' Perception of the Technological Advances

Source: SPSS Output

		1	2	3	4	5
N	Valid	190	190	190	190	190
	Missing	0	0	0	0	0
Mean		3.97	4.05	4.05	4.01	4.09
Median		4.00	4.00	4.00	4.00	4.00
Mode		4	4	4	4	4
Std. Deviation		.964	.933	.933	.917	.901

**. Mode: 1 = Strongly Disagree; 2 = Disagree, 3 = Neutral; 4 = Agree; 5 = Strongly Agree

From Table 4.11, the respondents did not strongly agree with any question in technological advances section. However, with a mode of 4, they agree with all questions 1 to 5.

4.6.3 Independent Variables: Globalization

Table 4.12: Respondents' Perception of the Globalization

Source: SPSS Output

		1	2	3	4	5	6	7	8
N	Valid	190	190	190	190	190	190	190	190
	Missing	0	0	0	0	0	0	0	0
Mean		3.97	3.97	3.94	4.03	3.99	4.22	4.08	3.98
Median		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Mode		5	4	4	4	4	5	4	4
Std. Deviation		1.018	.964	1.050	1.051	1.013	.999	1.049	1.026

**. Mode: 1 = Strongly Disagree; 2 = Disagree, 3 = Neutral; 4 = Agree; 5 = Strongly Agree

From Table 4.12, the mode showed that the respondents strongly agree with question 1 and 6. Whereas the respondents agree with the rest questions with a mode of 4=Agree.

4.7 Descriptive Statistics on Dependent Variable

4.7.1 Dependent Variable: Future of Work

Table 4.13: Respondents' Perception of the Future of Work

Source: SPSS Output

		1	2	3	4	5
N	Valid	190	190	190	190	190
	Missing	0	0	0	0	0
Mean		3.78	4.18	3.78	3.98	4.39
Median		4.00	4.00	4.00	4.00	4.00
Mode		4	4	4	4	4
Std. Deviation		.728	.384	.728	.613	.489

**. Mode: 1 = Strongly Disagree; 2 = Disagree, 3 = Neutral; 4 = Agree; 5 = Strongly Agree

Based on Table 4.13 above indicated the perception of the future of work among 190 respondents. The respondents agree with all of the questions in this section with a mode agree.

4.8 Pearson Correlation Coefficient Analysis

In Chapter 3, the researcher stated that Pearson's Correlation is used for data analysis. Pearson's Correlation Coefficient (r) is a statistical tool to measure the strength of the linear relationship between dependent variable and independent variables. It is used

to assess the strength of relationship between the data variables (Saunders et al., 2016). Table 4.14 showed the guidelines of Pearson's Correlation Coefficients.

Table 4.14: Pearson's Correlation Coefficient

Source: Sauders, Lewis, and Thornhill, 2016

Pearson's Correlation Coefficient (R-values)	Interpretation
±0.70 to ±1.0	Very strong relationship
±0.40 to ±0.69	Strong relationship
±0.30 to ±0.39	Moderate relationship
±0.20 to ±0.29	Weak relationship
±0.10 to ±0.19	No relationship

Table 4.15: Pearson Correlation Coefficient Analysis of All Variables

Source: SPSS Output

Correlations

		4IR Technologies	Technological Advances	Globalization	Future of Work
4IR Technologies	Pearson Correlation	1	.692**	.825**	.007
	Sig. (2-tailed)		.000	.000	.926
	N	190	190	190	190
Technological Advances	Pearson Correlation	.692**	1	.734**	.026
	Sig. (2-tailed)	.000		.000	.718
	N	190	190	190	190
Globalization	Pearson Correlation	.825**	.734**	1	-.093

	Sig. (2-tailed)	.000	.000		.202
	N	190	190	190	190
Future of Work	Pearson Correlation	.007	.026	-.093	1
	Sig. (2-tailed)	.926	.718	.202	
	N	190	190	190	190

**. Correlation is significant at the 0.01 level (2-tailed).

From Table 4.15, the independent variables in this research are 4IR technologies, technological advances, and globalization while the dependent variable is future of work. The correlation value for the 4IR technologies was 0.007 with a significant level 0.926 ($p>0.01$). This showed that there was no relationship between 4IR technologies and future of work and the correlation between these two variables is not statistically significant. Next, the correlation value for the technological advances was 0.026 with a significant level 0.718 ($p>0.01$) and the correlation between these two variables is not statistically significant. There is also no relationship between technological advances and future of work. This also showed that the correlation between these two variables is not statistically significant. Third, the correlation value for globalization was -0.093 with significant level 0.202 ($p>0.01$). There was a no relationship between globalization and the future of work and the correlation between these two variables is not statistically significant.

4.9 Multiple Regression Analysis

Multiple regression analysis is used to measure the significant relationship between independent variables (4IR technologies, technological advances, globalization) and dependent variable (future of work). It is a statistical tool to measure the relationship of strength of a cause and effect between independent variables and dependent variable.

Table 4.16: Model Summary of Multiple Regression Analysis

Source: SPSS Output

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.205[a]	.042	.027	.53164

a. Predictors: (Constant), Globalization, Technological Advances, 4IR Technologies

Table 4.14 showed the model summary that illustrates the relationship between the independent variables and dependent variable. The correlation coefficient value (R) is 0.205. This showed that there was a moderate correlation between the variables. Next, the coefficient of determinant, R square showed value of 0.042 which means that the future of work were affected by independent variables with 4.2%. The other 95.8% was the other factors which are not involved in this research. The adjusted R square showed 2.7%.

Table 4.17: ANOVA Analysis

Source: SPSS Output

ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.317	3	.772	2.732	.045[b]
	Residual	52.572	186	.283		
	Total	54.889	189			

a. Dependent Variable: Future of Work

b. Predictors: (Constant), Globalization, Technological Advances, 4IR Technologies

Table 4.17 showed the F-test value was 2.732 with a significant level 0.045. The significant level was lower than 0.05 thus the researcher can conclude that there is a significant relationship between independent variables (4IR technologies,

technological advances, and globalization) and dependent variable (future of work). The null hypothesis would be rejected as the significant level of regression model is below 0.05.

Table 4.18: Coefficient of Multiple Regression Analysis

Source: SPSS Output

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.966	.221		17.944	.000
	4IR Technologies	.167	.101	.216	1.659	.099
	Technological Advances	.104	.068	.165	1.518	.131
	Globalization	-.248	.088	-.392	-2.831	.005

a. Dependent Variable: Future of Work

Table 4.18 showed the beta value of independent variables which was 4IR technologies (FT) 0.167, 0.104 for technological advances (TA) and -0.248 for globalization (G). Based on ascending order, the least significant of beta value was globalization, then came with technological advances and 4IR technologies have the most significant beta value. The linear equation of Multiple Regression Analysis (MRA) was Y = a + bX1 + cX2, thus Future of Work = 3.966 + 0.167FT + 0.104TA - 0.248G

4.10 Hypothesis Testing

Hypothesis 1

H0: There is no significant relationship between 4IR technologies and the future of work.

H1: There is a significant relationship between 4IR technologies and the future of work.

Accept H0

Table 4.16 showed the result of coefficient of multiple regression analysis. The significant value of 4IR technologies toward the future of work is 0.099. Therefore, there is no significant relationship between 4IR technologies and the future of work as the significant value is more than 0.05. The null hypothesis (H0) is accepted and alternative hypothesis (H1) is rejected.

Hypothesis 2

H0: There is no significant relationship between technological advances and the future of work.

H1: There is a significant relationship between technological advances and the future of work.

Accept H0

Table 4.16 showed the result of coefficient of multiple regression analysis. The significant value of technological advances towards the future of work is 0.131. Therefore, there is no significant relationship between technological advances and the future of work as the significant value is more than 0.05. The null hypothesis (H0) is accepted and alternative hypothesis (H2) is rejected.

Hypothesis 3

H0: There is no significant relationship between globalization and the future of work.

H1: There is a significant relationship between globalization and the future of work.

Table 4.16 showed the result of coefficient of multiple regression analysis. The significant value of globalization towards the future of work is 0.005. Therefore, it proves that there is a significant relationship between globalization and the future of work as the significant value is less than 0.05. The alternative hypothesis (H3) is accepted and the null hypothesis (H0) is rejected.

4.11 Summary

In Chapter 4, the researcher has analysed the data collected from the respondents. All of the data was analysed by SPSS software ver. 26.0. The researcher imported the data into SPSS and used reliability analysis for pilot test, descriptive analysis, Pearson's Correlation Coefficient analysis, Multiple Regression analysis and ANOVA analysis. The data outputs showed the relationship between independent variables and dependent variable. The result showed that the 4IR technologies and technological advances have no significant relationship with the future of work while globalization has a significant relationship with the future of work. In next chapter, the researcher will discuss about the results outcome, limitation and recommendation of the overall research.

CHAPTER 5

DISCUSSION, RECOMMENDATION AND CONCLUSION

5.1 Introduction

In this chapter, the researcher discussed the conclusion of the overall result. The summary of the findings will be explained. The summary of the findings is elaborated in the first section of this chapter while the justification of the research objectives is explained in the second section. The third section has discussed the limitation of the study and last, and the fourth section is described the recommendations for future study.

5.2 Summary of the Findings

The researcher finished the data analysis of the demographic variables. The total number of respondents was 190 and the demographic background provided by them included age, gender, educational level, experience level, and years in the current position/industry. From the data output, the majority of respondents were female. The major age range of respondents was 18 to 23 years old. For educational level and experience level, most of the respondents had bachelor's degrees and are of executive level. For years working in current position/industry, the majority of respondents worked 1 to 2 years in their current position/industry.

In Pearson's Correlation Coefficients analysis, the correlation analysis and the relationship between three independent variables and one dependent variable had been tested. The independent variables were 4IR technologies, and technological advances while the dependent variable was the future of work. There was no relationship between 4IR technologies, technological advances, and globalization with the future of work.

In the Multiple Regression analysis, the relationship between independent variables and dependent variables had been determined. The correlation coefficient value (R) showed that there was a moderate correlation between the variables. Based on ANOVA analysis, the researcher can conclude that there is a significant relationship between independent variables as the significant level of the regression model is below 0.05. For the hypothesis testing, the 4IR technologies and technological advances have no significant relationship with the future of work. Thus null hypothesis (H0) is accepted. On the other side, there is a significant relationship between globalization and the future of work. Thus the alternative hypothesis (H3) is accepted.

5.3 Discussion of Findings

The data analysis results showed there is no positively impact between 4IR technologies and technological advances with the future of work. However, there is a positively impact between globalization and the future of work.

RO1: To explore the awareness level of Fourth Industrial Revolution among Malaysians.

Sutcliffe and Bannister (2020) stated that the 4IR includes 3D printing, advanced materials, artificial intelligence (AI), robotics, bio-technologies, drones and autonomous vehicles, energy capture, storage, and transmission, blockchain, Geo-engineering, internet of things (IoT), neurotechnologies, new computing technologies, advanced sensor platforms, virtual, augmented and mixed reality.

Lau (2021) carried out a study which showed people are lacking awareness or clarity of 4IR is one of the challenges that can harness the transformation and adoption process. It proved that the mode showed in Table 4.12 that the respondents understand more about globalization compared to 4IR technologies and technological advances. Hence, the SPSS output showed there is no significant result between 4IR technologies and technological advances and the future of work because of the technological ignorance of people. Thus, the hypothesis testing is rejected.

The researcher is suggested to place this part on demographic background, to have a clearly sight on the awareness level of 4IR. Based on the demographic background of the respondents, most of the respondents are between 18 to 23 years old, and most of them are of executive level of experience. It means that they as the young generation are more approachable to internet.

RO2: To identify and examine the factors that impact Fourth Industrial Revolution to the future of work.

In the context of a changing world of work, the Fourth Industrial Revolution (4IR) has gained interest in science and practice during the past years (Calitz et al., 2017; Coetzee, 2019; Mayer, 2019; McClure, 2018; Moraka & Jansen van Rensburg, 2015; van Rensburg et al., 2019). The latest research within the context of the 4IR has emphasized that workplaces will, more than ever, be driven by digitalization, smart solutions, extensive systemic networks, global interconnections and a continuous information trade (Spath et al., 2013). From Table 4.12, the mode showed that the respondents understand more regarding the globalization. The next followed by 4IR technologies and technological advances. In Chapter 2, the researcher had mentioned that the 4IR technologies and technological advances are more likely to impact the future of work in the aspect of employment, work style, and business. However, the SPSS output showed there is no significant result between 4IR technologies and technological advances and the future of work because of the positive response from globalization. Thus, the hypothesis testing is rejected. The researcher is suggested to place this part on demographic background, to have a clearly sight on the awareness level of 4IR.

The researcher concludes that the respondents understand more about globalization than 4IR technologies and technological advances. Based on the demographic background of the respondents, most of the respondents are between 18 to 23 years old, and most of them are of executive level of experience. It means that they as the young generation are more approachable to internet.

RO3: To determine the opportunities and challenges of the Fourth Industrial Revolution to the future of work in the aspect of employment, work style, and business.

Lau (2020) identified nine major challenges than can harness the transformation and adoption process; (1) inadequate high skilled talent, (2) lack of education and training to widen talent readiness, (3) job security, (4) lack of awareness or clarity of 4IR, (5) dependency on outside talent, (6) employer's readiness, (7) negative attitude of future talent towards changes, (8) the potential of emigration of highly trained or qualified talent, and (9) strong resistance towards new changes and technologies.

Whereas, Mayer (2020) indicated technological advances as the 'new possibilities of connectivity' can bring creativity into work. Next, employees and organizations can experience freedom and meaningfulness from work helped by technology in 4IR setting. Furthermore, with regard to the organizational and workplace context, creativity can be defined as 'the perceived opportunity to utilize creative skills and abilities on the job'. McGrath and McManus (2020) have pointed out that goals should frame the technology as business opportunities and digitalization should be advanced through discovery driven approaches. Corfe (2018) also identified that the use of 4IR technologies provides significant opportunities to improve productivity levels in the workforce.

5.4 Limitation of the Study

The researcher planned to complete the research at home due to the Covid-19 epidemic. It is difficult to find additional respondents to fill in the questionnaire, and the questionnaire was occasionally ignored by the respondents after the researcher distributes it via social media or email. Based on the sample size and demographic data, the researcher was expected to find 384 responses. Unfortunately, only 190 respondents took part in this research. The accuracy and consistency of the data may be less accurate. The researcher's last limitation was the data accuracy. As the awareness level of fourth industrial revolution among the respondents was low, they do not quite understand about 4IR and its technologies. Hence, this will reduce the accuracy of data analysis and have an impact on the data output.

5.5 Recommendation for the Future Study

This research is about the impact of the fourth industrial revolution on the future of work in the aspects of employment, work style, and business. There are some suggestions and recommendations from the researcher to people who conduct a similar study. All of the suggestions are to improve future research.

A large sample size and population are required in this research. People today are constantly exposed to technologies. As a consequence, 384 respondents and above are necessary to improve the accuracy and precision of future data results. Furthermore, the researcher in the future research should seek for the young generation as respondents, with ages ranging from 18 to 23 years old because they are the individuals who interact with technology the most rather than the elderly.

The researcher is suggested to separate the respondents into different categories in future research such as the town, rural or urban. This is because advanced technologies are more likely to congregate in towns and urban compared to rural areas. People in rural areas may be less attached to technology, therefore their responses to the questionnaire may differ. This step is necessary to generate accurate data results.

Following that, the researcher in the future study can use the qualitative method to carry out the research. The qualitative methods include interviews or experiments. This method allows the researcher to gather specific information and direct responses from the respondents. Sometimes the researcher can get feedback out of the questionnaire. This results in the researcher will be able to provide additional explanation and discussion in the research. Last but not least, the researcher proposed to put the questionnaire regarding the 4IR technologies and technological advances into the demographic background of the respondents, in order to delve further into the awareness level of the fourth industrial revolution (4IR).

5.6 Conclusion

In conclusion, most of the respondents and their companies heard about 4IR and understand its technologies, and also working to adapt IR4.0 related technologies.

Besides, most of the respondents have positive perception on technological advances in their companies. Third, globalization will affect the future of work. For the hypotheses testing, as the 4IR technologies and technological advances have no significant relationship with the future of work, thus null hypotheses (H0) are accepted. Subsequently, there is a significant relationship between globalization and the future of work, thus the alternative hypothesis (H3) is accepted. The findings of the study will benefit businesses and employees in Malaysia, particularly employees whose jobs are more likely to be affected by the Fourth Industrial Revolution.

At the end of this chapter, the researcher explained the summary of the findings, limitations, and recommendations of the study. In the summary of the findings, the researcher concluded the result based on data analysis and discussion in Chapter 4. For the limitation, the researcher listed out the problem facing in this research such as sample size and population, time limitation, and accuracy of data collection. For the recommendation, the researcher was giving suggestions to make the future study more perfect. The recommendation included a large sample size, background of the respondents, and using qualitative methods.

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APPENDIX A

(Gantt Chart)

1. Gantt Chart of Final Year Project (FYP) 1

WEEK/ ACTIVITIES	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
FYP talk									MID SEMESTER BREAK							
Search for FYP topic																
Meeting with supervisor																
Topic discussion																
Title confirmation																
RO & RQ Construction																
Submission Chapter 1																
Submission Chapter 2																
Submission Chapter 3																
First draft of FYP 1																
Submission of FYP 1																
Presentation 1																
Revised of FYP 1																

2. **Gantt Chart of Final Year Project (FYP) 2**

Task / Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Constructing of Questionnaire															
Revised for Questionnaire															
Questionnaire Distribution															
Data Collection															
Data Analysis															
Chapter 4 – Analysis and Discussion															
Revised Chapter 4															
Chapter 5 – Conclusion and Recommendation															
Revised Chapter 5															
Final Edit FYP report 2															
FYP Presentation 2															
FYP Report Submission 2															

APPENDIX B

(Questionnaire)

IMPACT OF THE FOURTH INDUSTRIAL REVOLUTION TOWARDS THE FUTURE OF WORK IN THE ASPECT OF EMPLOYMENT, WORK STYLE, AND BUSINESS

Hello, my name is Tan Thung Leng and I am a final year student at FPTT (BTMM), Universiti Teknikal Malaysia Melaka (UTeM). I am conducting a study on "

IMPACT OF THE FOURTH INDUSTRIAL REVOLUTION TOWARDS THE FUTURE OF WORK IN THE ASPECT OF EMPLOYMENT, WORK STYLE, AND BUSINESS". This survey is part of a study conducted to complete the Final Year Project (FYP) for the subject BTMU FINAL YEAR PROJECT II. Your participation will greatly contribute to the outcome of the study. I would greatly appreciate your time and help in participating in this survey.

The purpose of this is to investigate the IMPACT OF THE FOURTH INDUSTRIAL REVOLUTION TOWARDS THE FUTURE OF WORK IN THE ASPECT OF EMPLOYMENT, WORK STYLE, AND BUSINESS. The researcher would be grateful if the respondents are able to complete the form below. Any information obtained for this study that can be identified as yours will be kept confidential and will be used for academic purposes only. Thank you..

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(not shared) Switch account

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SECTION A: DEMOGRAPHIC AND GENERAL INFORMATION

The questions in this section list some related information about your profiling. Please choose the appropriate answer for your response.

1. Age Group *

- 18 - 23
- 24 - 29
- 29 - 34
- Above 35

2. Gender *

- Male
- Female

3. What is your highest level of education? *

- High School
- Diploma
- College
- Bachelors or equivalent
- Masters or equivalent
- Doctoral or equivalent
- Other:

4. Which best describes your experience level? *

- Executive
- Manager
- Operations and Production
- Executive-level positions: CEO, COO, CFO, CMO, CTO
- Managerial business roles: Marketing Manager, Product Manager, Project Manager, Finance manager, Human resources manager
- Operational roles: Marketing specialist, Business analyst, Human resource personnel, Accountant, Sales representative, Customer service representative, Administrative assistant
- Other:

5. How long have you been working in the current position/industry? *

- 1-2 years
- 3-4 years
- 5-10 years
- More than 10 years

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SECTION B: 4IR Technologies

This section is the statements that reflect your perception of

4IR Technologies. Please select your answer in the appropriate space to demonstrate the extent of your agreement with each statement by using the Likert scale as below.

1. I have heard about Industrial Revolution (4IR). *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

2. I understand about IR 4.0 and 4IR technologies (Internet of Things, Cloud, Big Data and others). *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

3. IR 4.0 was a threat to the employees especially to the juniors in job opportunity. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

4. There are strategies/plan to implement IR4.0-related technology in my organization. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

5. There are mandates to encourage my organization to adapt/embrace/transform IR4.0 related technologies. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

6. Our current workforce is capable to adopt IR4.0- related technology. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

7. The organization leverages on digital technology for new product innovation (3D Printing, Virtualization). *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

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SECTION C: Technological Advances

This section is the statements that reflect your perception of the Technological Advances . Please select your answer in the appropriate space to demonstrate the extent of your agreement with each statement by using the Likert scale as below.

1. Employees are able to leverage on digital tools for collaboration and remote connectivity. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

2. Ideas of digital transformation by employees are encouraged. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

3. Digital tools are used for knowledge management and skill enhancement. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

4. Digital technology is used to stay in touch with the customers and to solve their challenges. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

5. Data inputs from customer usage are used continuously for improving solutions and services. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

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SECTION D: Globalization

This section is the statements that reflect your perception of the 4IR Technologies. Please select your answer in the appropriate space to demonstrate the extent of your agreement with each statement by using the Likert scale as below.

1. I have heard about the term globalization before. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

2. There is a group of employees who are more influenced by a modern economy and globalization.

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

3. The organization has a digital vision to transform because of the new market need. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

4. The organization is able to innovate rapidly as per the changing market requirements. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

5. I believe human's role in performing work tasks will be minimized due to automation. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

6. The rise of workplace automation in different forms has the potential to vastly improve productivity, while increasing efficiency, safety, and convenience. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

7. Globalization will create new jobs and additional opportunities will appear on the labour market. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

8. There are training plans in place to develop our workplaces' capabilities, skill, and competencies. *

Strongly Disagree
1 ○
2 ○
3 ○
4 ○
5 ○
Strongly Agree

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SECTION E: Future of Work

This section is the statements that reflect your perception of the

Future of Work. Please select your answer in the appropriate space to demonstrate the extent of your agreement with each statement by using the Likert scale as below.

1. Remote working concepts will be a novelty in future which means the jobs in future will reply on digital processes. *

Strongly Disagree

1 ○

2 ○

3 ○

4 ○

5 ○

Strongly Agree

2. Automation will impact the manufacturing, storage, and transportation industries that are edging toward almost complete automation in the future. *

Strongly Disagree

1 ○

2 ○

3 ○

4 ○

5 ○

Strongly Agree

3. Rapid growth in technological advancements in the workplace will lead to continuous employee training in order to match the development of machines. *

Strongly Disagree

1 ○

2 ○

3 ○

4 ○

5 ○

Strongly Agree

4. There is a high risk of being unemployed or underemployed for lower-skilled workers since low-skill and routine jobs are more likely to be substituted or replaced by automation and robots in the next 10 to 20 years. *

Strongly Disagree

1 ○

2 ○

3 ○

4 ○

5 ○

Strongly Agree

5. With the usage of Industry 4.0 technologies, the spillover effect of increased productivity along an industry's value chain can generate new job prospects in target industries, depending on increasing in demand. *

Strongly Disagree

1 ○

2 ○

3 ○

4 ○

5 ○

Strongly Agree

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Thank you for filling the questionnaire!

I sincerely thank you for your invaluable time and participation for this questionnaire; I assure you that your information shall be kept confidential. Thank you!

Any queries please address to:

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