EMPLOYEE ACCEPTANCE TOWARDS INDUSTRIAL REVOLUTION 4.0 AMONGS HALAL SMALL MEDIUM ENTERPRISE IN PENANG

By

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DECLARATION

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ABBREVIATION	TITLE PAGE	
MITI	Ministry of International Trade and Industry Malaysia	4
DOSM	Department of Statistic Malaysia	4
SME	Small Medium Enterprise	6
CAGR	Compound Annual Growth Rate	10
PIHEC	Penang International Halal Exhibition and Convention	11
PERDA	Penang Regional Development Authority	18
IR 4.0	Industrial Revolution 4.0	20
MV	Mediating Variable	21
PE	Performance Expectancy	21
EE	Effort Expectancy	21
BI	Behavioural Intension	21
IV	Independent Variable	23
DV	Dependant Variable	23
IS	Information System	42
IT	Information Technology	45

RFID	Radio Frequency Identification	47
EDI	Electronic Data Interchange	48
UTAUT	Unified Theory of Acceptance and Use of Technology	52
TPB	Theory Planned Behaviour	55
TRA	Theory Reasoned Action	55
FC	Facilitating Condition	58
SI	Social Influence	59
EA	Employee Acceptance Towards Industrial Revolution 4.0	72
MOA	Memorandum of Agreement	177
MOU	Memorandum of Understanding	177

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ABSTRACT

National Fourth Industrial Revolution Policy is a strategic initiative recently introduced by the Malaysian government. The aim of this initiative is to transform industrial manufacturing through digitalisation and the exploitation of new technologies' potential. An Industrial Revolution 4.0 (IR4.0) production system is more flexible and enables the production of individualised and customised products. The aim of this research is to test the applicability of the Unified Theory of Acceptance and Use of Technology (UTAUT) in relation to employees' intention to accept IR 4.0. In the context of this research, the UTAUT variables of performance expectancy and effort expectancy are examined to test their relationships with employees' acceptance of IR 4.0 in Malaysia, with behavioural intention acting as a mediator. A total of 337 questionnaires were distributed among Small and Medium Enterprises (SMEs) in Penang Halal industry. This research includes three proposed hypotheses, and the Statistical Package for the Social Sciences (SPSS) version 27 was used to analyse the data. The results allow the researcher to conclude that employees are ready to accept the current wave of new technology such as Radio Frequency in Identification (RFID) and Artificial Intelligence (Al) and Industrial Internet of Things. The results clearly demonstrate that all hypotheses receive positively when it comes to every single hypothesis that were previously tested which is independent variable performance expectancy and effort expectancy, mediating variable behavioural intention and dependant variable employee acceptance towards industrial revolution 4.0 amongst halal Small and Medium Enterprises (SMEs) in Penang. It shows that effort expectancy and performance expectancy play a major roll-on employee behavioural intention and behavioural intention being important to employee to accept the advancement of new technology. Finally, the company can gain knowledge on how employee would accept the transformation of new technological advancement.

Keyword: Unified Theory of Acceptance and Use of Technology; Small Medium Enterprise; Industry 4.0; Radio Frequency Identification

ABSTRAK

National Fourth Industrial Revolution Policy merupakan inisiatif strategik yang diperkenalkan oleh kerajaan Malaysia baru-baru ini. Matlamat inisiatif ini adalah untuk mengubah pembuatan industri melalui pendigitalan dan eksploitasi potensi teknologi baharu. Sistem pengeluaran Revolusi Perindustrian 4.0 (IR4.0) adalah lebih fleksibel dan membolehkan pengeluaran produk individu dan tersuai. Tujuan kajian ini adalah untuk menguji kebolehgunaan Teori Penerimaan dan Penggunaan Teknologi Bersepadu (UTAUT) berhubung dengan hasrat pekerja untuk menerima IR 4.0. Dalam konteks kajian ini, pembolehubah UTAUT bagi jangkaan prestasi dan jangkaan usaha diperiksa untuk menguji hubungan mereka dengan penerimaan pekerja terhadap IR 4.0 di Malaysia, dengan niat tingkah laku bertindak sebagai pengantara. Sebanyak 337 borang soal selidik telah diedarkan dalam kalangan Perusahaan Kecil dan Sederhana (SME) dalam industri Halal Pulau Pinang. Penyelidikan ini merangkumi tiga hipotesis yang dicadangkan, dan Pakej Statistik untuk Sains Sosial (SPSS) versi 27 digunakan untuk menganalisis data. Hasilnya membolehkan penyelidik membuat kesimpulan bahawa pekerja bersedia menerima gelombang teknologi baharu semasa seperti *Radio Frequency in Identification (RFID)* dan *Artificial Intelligence (Al) dan Industrial Internet of Things.* Hasilnya jelas menunjukkan bahawa semua hipotesis diterima secara positif apabila ia datang kepada setiap hipotesis tunggal yang sebelumnya telah diuji iaitu jangkaan prestasi pembolehubah bebas dan jangkaan usaha, pengantaraan niat tingkah laku berubah dan penerimaan pekerja pembolehubah bersandar ke arah revolusi industri 4.0 di kalangan SME halal di Pulau Pinang. Ia menunjukkan bahawa jangkaan usaha dan jangkaan prestasi memainkan peranan utama dalam niat tingkah laku pekerja dan niat tingkah laku adalah penting kepada pekerja untuk menerima kemajuan teknologi baharu. Akhirnya, syarikat boleh mendapatkan pengetahuan tentang bagaimana pekerja akan menerima transformasi kemajuan teknologi baharu.

Kata kunci: Penerimaan Teori Bersatu dan Penggunaan Teknologi; Perusahaan Kecil Sederhana; Industri 4.0; Pengenalan Frekuensi Radio

CHAPTER 1:

INTRODUCTION

1.1 Background of Study

The new slogan for the international economic integration technical sector is Industries 4.0. It is including the full value chain from product development to delivery of goods and services. The design's creators appear to have a firm grasp on the system's engineering (hardware and software), but the human component appears to be overlooked (Abdullah, D. B., Abdullah, M. Y., & Salleh, M. A. M., 2017). People are engaged in our environment in a variety of ways, such as members of a team of application developers, professional organizations and purchasers of manufactured items. Through a revamped arbitration proceedings, it can be seen that each individual involved in the process's wants and specifications should have been included in system (Tjahjono, B., Esplugues, C., Ares, E., & Pelaez, G., 2017). A mediator serves as a mechanism, assisting people involved in communicating their wishes and desires. The result of the process's establishment of possession obtained through acknowledgement. Through this approach, it enables society to highly satisfactory and manage the evolution and application of the industrial paradigm 4.0 (Kusumawati, A., & Riskinanto, A., 2019).

The fourth industrial revolution, unlike the preceding three (18th, 19th, and 20th centuries), would be increases the occurrence, automated, and

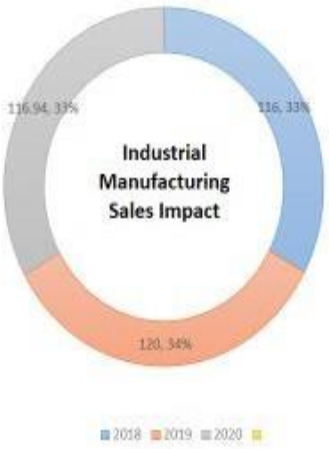
interdependently regulated (Salleh, N. H. M., Abd Rasidi, N. A. S., & Jeevan, J., 2020). The industrial attained performance in the first industrialisation predominantly using machinery and equipment driven by water and steam, as well as massive manpower (Brettel, M., Friederichsen, N., Keller, M., & Rosenberg, M., 2014). Secondly, operations became slightly more difficult due to the use of electricity-powered machinery, mass production, and labour division (Salleh, N. H. M., et al., 2020).

Across the span of recorded history, mankind has been confronted with a number of catastrophic technology advancements that have resulted in societal rearrangement. The three industrial revolutions of the last 200 years, as well as the agricultural revolution that gave rise to complex society in the first place, are the most visible of these. We appear to be at the beginning of the fourth industrial revolution. Artificial intelligence, big data, 5G, the internet of things, nanotechnology, gene editing, and other rapidly evolving technologies, when combined, promise to reshape the world more dramatically than any previous revolution. These new technologies will be implemented in the framework of societal arrangements that arose from earlier revolutions, as well as the unresolved issues that these revolutions caused.

The third industrial revolution saw the introduction of electronics and information technology (IT), which increased the complexity of the manufacturing process while also automating it. These three industrial revolutions undoubtedly influenced the economics of their respective countries. For example, their respective contribution from the manufacturing sector, particularly in European countries where GDP is 17 percent and 32 million jobs are created. Additionally, the examples can be seen through the changes of the industrial landscape of factories and activity in physical environments, as well as improvements in living conditions (Krishnan, R., Cook, K. S., Kozhikode, R. K., & Schilke, O., 2021).

Even though one of Industry 4.0's primary foundations is an autonomous system, some people have felt intimidated and are hesitant to accept the shift. They are concerned about robots which take over human duties. Low-skilled labour would be gradually take over by automation in the following years, and employees were concerned about any of this shift in the business (Abidin, N. F.
N. Z., Hasbolah, H., Mohamed, N., Khadri, R. R. R. D., Sidek, S., & Wan, W. M. Y., 2022). Those people did not actually view it that way though they believe machines will eventually replace humans in the job and they really do not comprehend the industry's need for skilled professionals. Students should be taught about Industry 4.0 beginning in primary education by educating them the principles of coding and software design in the classroom. These knowledge and expertise will prepare them for the Industrial Revolution 4.0 and offered them with employment opportunities (Prisecaru, P., 2016).

According to a recent study conducted by Zakaria, F. A., Daud, R., Ayu, H. M., Tomadi, S. H., Salwani, M. S., & Kadir, M. R. A., (2017)., it shows that performance' is commonly recognised as scientific terminology for evaluating an organization's commitment in order to meet some degree of organisational direction. As claimed by Bonney, S. (2015), the business performance evaluated through the achievement of company's objectives. Despite the fact that there are other indicators to monitor market performance. The most popular indicator used to evaluate market performance is volume which commonly used by many Halal hub throughout the world. However, there is a drawback when using data transmission capacity as a market evaluation metrics which are global economic flows which focused on performance (Tanaka, A., Takehara, T., & Yamauchi, H., 2006).



Department of Statistics Malaysia 2020 DOSM

Figure 1.1

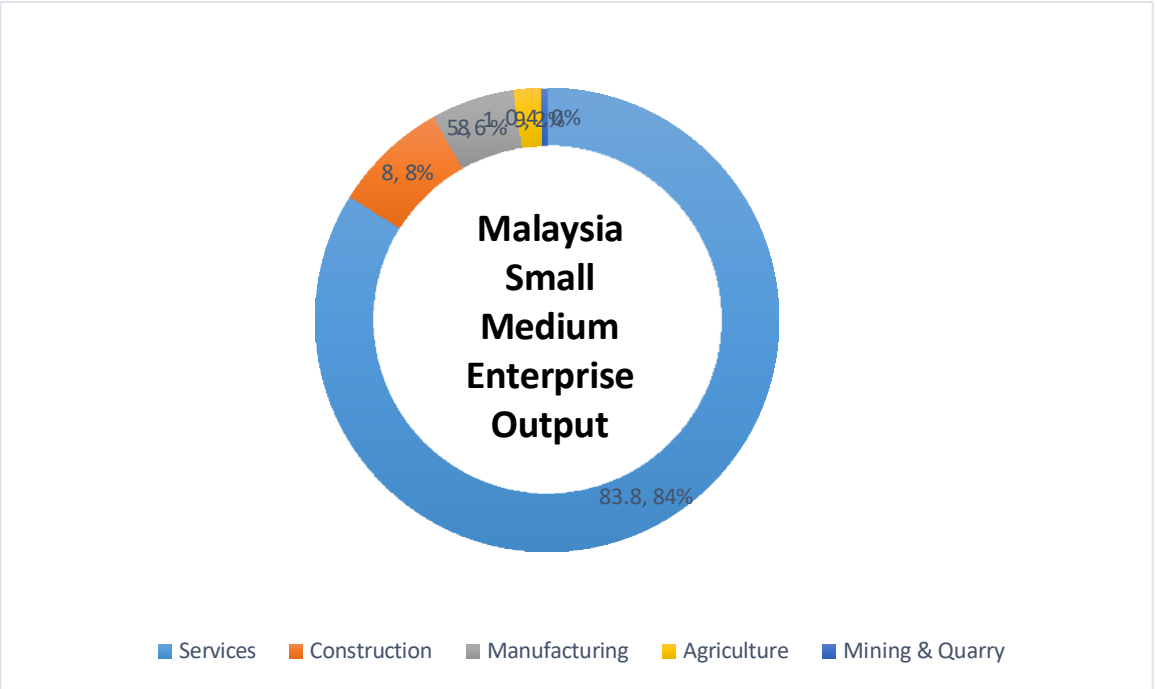
Industrial manufacturing Sales from Department of Statistics Malaysia 2020.

Figure 1.1 shows the effects of Malaysia's overall manufacturing revenues from 2018 to 2020. It can be seen that the revenue of manufacturing industry are significantly increased for 2018 and 2019 and experienced declined in early 2020 due to the outbreak Corona Virus (Covid-19).

Our country is making strides approaching Industry 4.0 where Malaysian Ministry of International Trade and Industry (MITI) presented Industry 4.0 National Action Plan as it aims to help enterprises and manufacturers in the nations advance. Theoretically, it aids local firms to enhance efficiency, effectiveness, and standard, as well as developing new ability and expertise among the workforce. According to MITI, Malaysia is in the middle of Industry 2.0. Align with the constant development, it transformed to Industry 3.0 and introduced to robotics. As claimed by Abdullah et al., (2017), low performance level caused by lack of understanding

and awareness about Industry 4.0. In addition, lack of competence and capabilities lead to poor performance level.

The changes of manufacturers' potential to generate significant production productivity and efficiency gives implication towards the revenue of domestic production. As stated by Stamp, J., & Clemons, D. (2021), Covid-19 offered new opportunities as the depending towards technological application which replaced human interaction. Due to the exploration of IR4.0 align with global development, it is a need for Malaysia to get prepare in facing the changes. According to Malaysia's former Prime Minister during Budget presentation in 2018, Effendi Mohamad, Nor Akramin Bin Mohamad, Mohamad Ridzuan Jamli, Muhamad Arfauz A Rahman, Tan Yon SHERNI (2019) stated IR4.0 has become a major reference which become the focus of the government. This remark demonstrates IR4.0 as the global phenomenon which poses current challenges towards every sector in the country accepted in Malaysia. As a result, the country's shift must match changes in digital transformation in order to make sure Malaysia remain competitive and relevant in the twenty-first century (Adamik, A., 2020).



Department of Statistics Malaysia 2020

Figure 1.2:

Malaysia Small Medium Enterprise Output from Department of Statistics Malaysia in 2020

Figure 1.2 shows Malaysia Small Medium Enterprise Output in 2020. It shows that services industry covering 83.4% for overall SME output in 2020. The manufacturing output is around 6% for overall SME output in 2020. The researcher aims to find on how applicability towards new era of industrial revolution 4.0 of worker in order to make more output towards their company (DOSM, 2022).

The Government are allocated around RM 210 million from 2019 to 2021 to support the transition and migration to Industry 4.0. Malaysia Productivity Corporation will carry out Readiness Assessments to assist up to 500 Small Medium Enterprises (SMEs) to migrate to Industry 4.0 technologies. Industry 4WRD Readiness Assessment (Industry 4 WRD-RA) is a comprehensive programme to help the firm to assess their capabilities and readiness to adopt

Industry 4.0 technologies and its processes. Small and medium-sized enterprises (SMEs) must be given special attention in Malaysia's transformation because they account for the majority of manufacturing companies (97%) and contributes significant impact towards employment (42%). As can be seen, major manufacturing companies looks for the advantages and dangers to implement Industry 4.0. Malaysian SMEs appear to be hesitant to take the plunge. Despite Industry 4.0's immense economic potential, SMEs in the industry tend to neglect it.

In fact, manufacturing output support the larger industries that produce semiconductors and embedded processors. Nowadays, there are more than 3000 SME Company are registered in Penang. There are more 500 company Small Medium Industries in Penang. Besides, the growth of the manufacturing industry gives impact on how people develop their talents and build their wealth.

Small and medium-sized businesses in Malaysia are actively support the economy. As can be seen, a lot of people dare to take the risk in setting their own business. In 2020, Penang recorded a negative of 2.1% as opposed to a negative of 3.8% in 2019. The Services sector, which registered a negative 5.7%, had an impact on this decline (2019: 5.5 percent). The main causes of the losses involved lodging, food and beverage production, and wholesale and retail trade. Additionally, a decline in real estate involving business services as well as transportation and storage gives impact towards the expansion of the sector. On the other hand, the growth in electrical, electronic and optical sector in 2020 leads better performance of manufacturing sector as it undergoes increment by 2.8%. (2019: 2.7 percent). The impact of the economic slump in Penang has been mitigated by the sector's strong expansion. Besides that, the significant increase in manufacturing industry leads to outstanding performance within the sector. The rise of affluent Muslims in Nations with a Muslim majority and nations with a Muslim minority has accelerated the growth of halal marketplaces, particularly halal products and services. By 2050, the halal market is expected to increase at

a rate of 15% per year, reaching USD 30 trillion. It means the annual halal international market is about USD 2.1 trillion and expanding at amount of USD 500 billion (Centre for Excellence in Islamic Finance, 2016). SME Corp. Malaysia was established on May 2, 1996, as a business formed underneath Ministry of International Trade and Industry (MITI) to aid small and medium sized enterprises (SMEs) with infrastructure development, monetary incentives, consulting services, economic integration, and perhaps other initiatives. The purpose of the Small and Medium Industries Development Corporation (SMIDEC) is produce resourceful and dependable Malaysian Small medium industries to remain competitive in the global.

National SME Growth Council (NSDC) was founded in 2004 aims to guarantee that Malaysia's small and medium enterprises are altered in a holistic and consistent manner (SMEs). With that, it contributes to world's most populous legislation body for SMEs in Developing Countries to develop new ways for SME across all industries, coordinate SME strategies and interventions by tiers of government, attract the potential collaborative relationships, and maintain adequate development of the economic and financial growth of Small and Medium Enterprise development initiatives. In terms of the goals of NSDC, it aims to improve monetary aid, corporate forecasting, management consulting, communication, coaching, and marketing unification. In addition, comprehensive Small and Medium Business Database able to track SMEs' growth across all economic sectors. In 2007, NSDC decided to establish a highly specialised institution to design encompassing policies and programmes for SMEs, as well as to prepare firms across all related Ministries and organisations. To hold the responsibility, SMIDEC was entrusted and on October 2, 2009, it was rebranded as SME Corporation Malaysia which known as SME Corp. Malaysia. Nonetheless, on April 8, 2019, NSDC was rebranded the National Entrepreneur and SME Development Council (NESDC) to highlight the rising importance of SME Corp throughout the economic growth of the country.

Nowadays, Muslim millennial live a modern lifestyle while adhering to their faith. They are increasingly declaring their values online as businesses scramble to meet their requirements. The halal industry has grown to include a wide range of products and services, including food, non-food, financial, service, and lifestyle offers (Azam, M. S. E., & Abdullah, M. A., 2020). Due to the advancement of technology, it leads the current generation towards technologically savvy as they have good competency to use mobile apps for communication and other purposes.

In terms of Malaysia's halal landscape in 2017, the Muslim - friendly market generated approximately 7.5 percent of the nation's gross domestic product. The halal industry's comprehensive approach to Malaysia's Gross Domestic Product (GDP) indicates that the government has succeeded to maximize its capabilities as kind of a Muslim majority country. Additionally, the halal market has been constantly raised demand and being recognized as a source of income and employment, it become the main focus to evaluate the growth of the halal industry in Malaysia. It will begin with a definition of the halal industry. The following section will focused on the halal industry in general, followed by an overview of the halal sector in Malaysia and how it affects the economy.

Table 1.1:

Malaysian Halal economic growth statistic (Fly Malaysia 2021)

Sector	The amount of spending or assets (2018) and its expected growth in 2024		
	2018	2024	CAGR

Halal Food	1.37 trillion	1.97 trillion	6.3%
Islamic Finance	2.52 trillion	3.47 trillion	5.5%
Halal Travel	189 billion	274 billion	6.4%
Modest Fashion	283 billion	402 billion	6.0%
Halal Media and Recreation	220 billion	309 billion	5.8%
Halal Pharmaceutical	92 billion	134 billion	6.5%
Halal cosmetic	64 billion	95 billion	6.8%

Source: Halal World Economic Forum 2018

The table shows the consumption on halal products which can be used as a metric of how far the halal business has progressed around the world. According to Dinar Standard's World economic forum's global Islamic Report 2019/2020, global expenses on halal products is expected to expand at a Compound Annual Growth Rate (CAGR) of 6.2 percent from 2018 to 2024. From 2018 to 2024, the table below displays the predicted growth of global expenditure or assets in six main economic sectors. In 1974, the Research Centre for Islamic Affairs Division began granting halal certificates, beginning off the growth of the halal business in Malaysia. This country has acknowledged the importance and potential of the halal business over time. Malaysia portrayed strong desire to be the leading country in the halal business (Halal Industry Development Corporation, 2006).

Halal Industry Development Corporation become the part of the Ministry of Economic Affairs as it responsible to supervise the overall growth of Malaysia's halal business (Halal Development Corporation Global, 2021).

Malaysian government become the backbone for the halal industry. It can be seen obviously in Halal Industry Master Plan (HIMP) 2008-2020. Its primary purpose is to improve as Malaysia become the leader in world halal centre. The program's purpose is to turn Halal together into potential determinant of economic development (MITI).Malaysia also hosts the Considered one of the main annual festivals in the halal industry are Malaysia International Halal Showcase (MIHAS) and World Halal Forum (WHF). Both have instrumental values in developing the nation's economic standing perhaps as worldwide benchmark or even commercial base towards the growing commercial halal industry from 2003 (Visit Malaysia, 2020).

Besides, the state administration is also attempting to organise more events to increase socioeconomic activity related to and through the halal market in the state by organizing an event such as Penang International Halal Expo and Conference (PIHEC). Penang International Halal Expo and Conference (PIHEC) is a premier international Halal convention that brings together the most forward- thinking minds to map the next dynamics as well as growth area towards the global Halal eco - system. It brings forward the most active Halal business owners and conglomerates for positive organizational culture throughout all boundaries. The state government offers subsidies to business owners who encourage halal trade and halal certification.

Penang State Government has launched initiatives to boost the economy as it supports the business community. By increasing online opportunities through the introduction of Penang E-Mall under Shopee as well as a boost of RM500,000, and perhaps to strengthen businesses and encourage smaller SMEs to start their e-commerce. Penang E-Mall, which was launched last year resulting from a partnership between Penang Halal International (PHI) and Shopee Malaysia to support small and medium enterprises (SMEs) affected by the movement control

order (MCO) which generated a staggering RM583 million in sales for six months (Buletin Mutiara, 2021).

Furthermore, the construction of Halal Park is a complex comprising small and large businesses developed based shared land with the objective of preserving the muslim - friendly brand's image which demonstrates Malaysia's effort about becoming the worldwide halal centre. Halal Park got a total of 14 Halal Malaysia (Halmas) around Malaysia between 2010 and 2017, resulting in a total investment of MYR 13.27 billion. Halmas is an accreditation awarded to a Halal Park operator who has successfully completed HDC Designated Halal Park development's requirements and criteria. In this regard, the only selected categories, such as cattle and livestock farming, supplements, specialized highly processed, pharmacology and nutritional supplements, cosmetology and hygiene products, and halal components, are eligible for government benefits from the Malaysian government (HDC Global 2021). For a 60 - year lease, industrial land at Penang Science Park's Food Zone is for sale at a reasonable price of RM50.00 per square feet (indicative price only, subject to negotiation. Penang State is open to strategic, specialised, value-added, and high-tech industry investments. Established enterprises and well-known brands have selected Food Zone in North Penang Science Park as their preferred site to grow (PIHEC, 2022).

Besides, there is several incentives that state government give to Penang Halal entrepreneur especially small medium entrepreneur to use Halal Park as their site for business.

Halal Park Players

- A complete income tax exemption on capital expenditures for ten years, or a five-year income tax exemption on export sales.

- The exclusion of sales tax and import duties on raw materials used in the creation and manufacture of halal-promoted goods.

- A dual exemption for expenditure paid to retrieve highest standards of quality like Hazard Analysis and Critical Control Point (HACCP), Good Manufacturing Practice (GMP), Codex Alimentarius (FOA & WHO food guidelines), Sanitation Standard Operating Procedures and rules on compliance with export markets like fresh produce and greater transparency from farm to consumer.

Halal Logistics Operations

- A five-year period of complete income tax exemption or a five-year period of complete income tax exemption on capital expenditures.

- According to current laws, equipment, components, and machinery utilised directly in cold room operations are exempt from import duty or even sales tax.

From 2010 to 2018, the number of Malaysian halal exports increased gradually. However, it reduced due to unstable economy condition which related to palm oil business. According to Hani Sofian Alias (The Malaysian reserve, 2019), the revenue in 2018 going down compared to previous years. From 2014 to 2018, the value of Malaysia's Halal exports is shown in the graph below.

Figure 1.3

Malaysia Halal Export Value 2014 – 2018 (Fly Malaysia 2021)

Figure 1.3 shows regardless of the fact that halal exports climbed in 2017. Halal shipments contributed less to Malaysia's overall trade volume than the previous year, and this trend continued for a further twenty months. The above is due to Malaysia's entire trade volume rapidly increasing. In 2016, Malaysian exports totalled MYR 787.0 billion, accounting for 5.3 percent of the global total. The next two years show a 4.6 percent increase with MYR 935.4 billion and a 4.0 percent increase with MYR 998.0 billion.

1.2 Problem Statement

According to the other researcher's findings, Malaysia do not participate in the competition due to various deficiencies in network technologies and a deficiency of an adequate knowledge of such principles of Industrial Revolution 4.0 and even its implications (Mudin, D. K. D., How, S. E., Rahman, M. M., Ibrahim, P., & Jopony, M., 2018). As the result from the revolutions, it caused changes in life of the communities. Workers must adapt towards the changes platforms and discover different abilities. Globalization become the component for recent major shift. A portion of a mass production line could well be reassigned to a company on the opposite side of the country depends on the availability of global access to information and a worldwide logistical network (Zhou, K., Liu, T., & Zhou, L. 2015). It leads their performance to be viewed as deficient in terms of behaviour in order to adapt with unfamiliar setting. Physiological impact and cognitive broadening are benefits from positive emotions as people are experiencing these pleasant states (Fredrickson, B. L., 2013).

The intention between behaviour towards performance and effort are very relatable among other variable cause performance and effort which can be seen through key performance indicator (KPI) (Kusumawati, A., & Riskinanto, A., 2019). Therefore, humans are engaged in every technical or industrial system at some time. On the other hand, the interfaces are frequently unclear. Everyone immediately recognises those in front of computers or personnel running industrial machines. (Posada, J., Toro, C., Barandiaran, I., Oyarzun, D., Stricker, D., de Amicis, R., & Vallarino, I., 2015). Customers of manufactured products are also involved in the process of production, and are commonly referred as "the client." When dealing with a complex network, like Industry 4.0, the computerized manufacturing process become automated which implement in the entire organization. As a result, it is critical to figure out how workers feel about the application of Industry Revolution 4.0 (Jazdi, N., 2014). This might prompt people's efforts to turn out interpreted as inadequate in behaviour as the transition influence the overall setting.

The government has built world-class legislation, spearheading new projects to certify halal certifiers around the world, giving its first Islamic financial technology crowd funding platform licence, and introducing a new certification scheme for Muslim-friendly hospitality. Malaysia's involvement in worldwide halal trade has been strengthened through trade agreements struck with China and Japan, as well as a connection of international corporations at the crucial Malaysia International Halal Summit, or MIHAS event. Malaysia's investment ecosystem has also been strengthened by a concern towards Modern Islamic Economy during establishment of diplomatic relations with China, and other major such as Japanese expenditures in domestic halal enterprises like The Chicken Rice Shop, and a good indication from CIMB Islamic Bank Bhd to enhance its funding towards entrepreneurs.

Based on the most recent mental health professionals and its studies, psychological needs, became a potent drive, Failure to consider humans in a technical system gives impact on how the system is measured and how safe it can run (Schwab, K., & Davis, N., 2018). According to the most recent mental health professionals and its studies, in a dynamical interaction, ignoring the human element became a potent drive. Failure to consider humans in a technical system will have an impact on how the system is measured and how safe it can run (Schwab et al. 2018). In a dynamical interaction, ignoring the human element like Industry 4.0 could result in the concept's ultimate failure. In theory, the impact of Industry Revolution 4.0 on the human component has yet to be shown in the context of Malaysia (Mudin, et al (2018). As a consequence of this, the way they behaved could potentially be seen as inadequate in the Industrial Revolution's ability of adapting in the respective setting.

The theory's fundamental idea is that the creator concern towards everyone equally, and all equal in the eyes of our creator regardless of our sexual orientation, skills, faith, or beliefs. Each individual has the potential to experience joy or sorrow in life as a human being. Everyone encounters moments of happiness and challenges while navigating through life. However, there are

individuals who fail to acknowledge or comprehend this truth. Some people find themselves incarcerated by their own conscience, personality, and comprehension as a result of adverse life experiences. They become disenchanted with themselves, fail to acknowledge and comprehend their transcendent identity, and diminish their capability and autonomy to be who they are. People make mistakes and succeed in life as a result of their interactions with others in their environment, personal preferences, and life experiences. When they succeed, they frequently assume that their strength and force are to blame. When they happen to experience setbacks, they find it difficult to accept (Elizabeth, Okpalaenwe., 2022).

Acceptance theory, a fundamental concept which applied in various fields, including psychology, sociology, and organizational behavior, explores the complex process by which individuals or groups come to accept and internalize new ideas, behaviors, or practices. One of the prominent frameworks in the study of acceptance is Acceptance and Commitment Therapy (ACT), which emphasizes the role of psychological flexibility in behavior change (Hayes, S. C., Pistorello, J., & Levin, M. E., 2012).

Using Theory Reasoned Action with UTAUT theory to investigate on how employee could accept technological advancement and enhance the establishment of new Industrial Revolution technology. The rapid evolution of technology creates a slew of concerns, such as technological dangers. Data and information are a company's most precious assets. If a hacker manages to get past the company's computer security measures, the valuable asset will be taken, and the owner will face unanticipated disasters.

To avoid such an unanticipated problem, they prefer existing practise, which allows them to avoid technological risks. There are a few other explanations why local SMEs do not adopt e-Commerce applications in their workplaces. One rationale is the employer's sort of mind-set; they believe that setting up and deploying smart technologies in their workplaces requires a significant financial investment, as well as costly IT infrastructure maintenance (Matthews, B., Daigle,

J., & Houston, M., 2018). This situation caused their Employee Acceptance to turn out to be interpreted as inadequate with the Industrial Transformation's competence of adapting into an entirely foreign environment that is unfamiliar.

Furthermore, SME Corp Malaysia has been mentoring 62 agencies SMEs under ministry of entrepreneurial development and cooperatives Malaysia halal programme since September 2020. SME Corp Malaysia, as one of the appointed agencies, is also working with Halal Development Corporation on particular programmes to help SMEs in order to improve their competencies. "The programme focuses on five critical areas: potential and performance management, greater performance and financial performance, innovation, and digitisation, economic integration, expenditure, and equitable growth (Hamzah, M. L., Rizal, F., & Simatupang, W., 2021).

Furthermore, the government of Malaysia are likely to invest more regional state development authority that are same direction follow government purpose such as Penang Regional Development Authority (PERDA). The government invest more than 100 million every year to PERDA. Penang Regional Development Authority (PERDA) was established on 1 June 1983 under Penang Regional Development Authority Act, Act 282 which is covering budgeting from federal government to Penang economy and development.

The vision is to enhance dynamic regional development agency in leading the development of the Penang Region. While, its being an agency that mobilizes local community development through the implementation and management of effective socioeconomic programs/projects through good governance Penang Province. The development in Penang is more contemporary in economically to adapt new environment that accepting new era of industrial technology PERDA (2021).

1.3 Summary of Research Objective and Research Question

This part of the study summarizes the existing study's research objectives and hypotheses statement based on the research questions. The following study objectives and hypotheses are developed in response to the preceding research topics.

1.3.1 Research Question

1. Did Behavioural Intentions contribute to Performance Expectations and Effort Expectancy?
2. What is the level of employee acceptance towards IR 4.0 among Halal SME in Penang?
3. What is the current technology used among Halal SME in Penang that being factor regression of the employee Halal acceptance?
4. What is the most significant factor influences the employee acceptance towards IR 4.0?
5. Does Effort Expectancy, Performance Expectancy as independent and Behavioural Intention lead to employee acceptance towards IR 4.0?

1.3.2 Research Objective

1. To investigate the relationship between performance expectation and effort expectancy towards behavioural intentions
2. To investigate the level of employee acceptance towards IR 4.0 among Halal SME in Penang
3. To investigate the current technology used among Halal SME in Penang that being factor regression of the employee Halal acceptance
4. To investigate the most significant factor influences the employee acceptance towards IR 4.0
5. To investigate either Effort Expectancy, Performance Expectancy as independent and Behavioural Intention lead to employee acceptance towards IR 4.0

1.4 Significant of Study

Considering the significance of the small and medium business industry in the realization of Industrial Revolution 4.0, it can be seen that fundamental and applied observations of this study as followed. This paper contributes to the evaluation of the Unified theory by employing the model's sex, age, and experience as control variables, which is a novel approach which has been to be tested in observational literature on Industrial Revolution 4.0 acceptability in Malaysia (Faiq, Fauziah and Lutfi,. 2020). There have already been a few

researchers who have been using Unified Theory Acceptance and Use of Technology to assess technology acceptability in respective studies, but it is still uncommon in the Malaysia small and medium business. As a result, this research could serve as a useful resource for further studies academics, data analysts, students, and corporations willing to participate in the Industry 4.0.

Besides, there is a study that using theory TAM stands for Technology Acceptance Model under Theory Plan Behaviour (TPB). The theory is based on the Theory of Reasoned Action (TRA). Amongst the most significant models of technology acceptance has been among the least prominent models of adoption of technology, with two essential components determining an applicant's ability to employ latest technology: usefulness and ease of it and the perceived value. Regardless of whether or not the TAM model is used to examine the respondent is debatable (Rigopoulos, Psarras, Askounis,. 2008). TAM is a good framework which has been described to a multiple purpose which has already been found to be compatible with a review of the literature looking at the elements that determine older people's readiness to engage with technological innovations (Rigopoulos, et al., 2008).

The use of UTAUT theory is being most significant compared to TAM models in this study as the researcher focused on the acceptance which is not the understanding of employee in terms of performance expectancy and effort expectancy towards employee behavioural intention to accept new technological in form of Industrial Revolution 4.0.

The mediator variable has been include with behavioural intention as a mediating variable (MV). This variable used to study on how interaction between performance and effort of employee above behavioural acceptance towards acceptance of Industries 4.0. When a mediator variable is present, the measure to which an independent as well as dependent variable are related varies depending. A mediating reliability refers to the extent that operates as a link for both two and more variables. It is also known as a coefficient of determination or an intervening variable. When a mediator variable is present, the strength of the

association apart from an independent and dependent variable fluctuates based on the mediator variable's value, indicating that the correlation between the two variables is mediate on the value of the mediator variable, the correlation between the two variables is seen to be mediate.

According to the Ministry of Entrepreneur Development and Cooperative, the worldwide halal market would reach US$5.0 trillion (RM20.92 trillion) by 2030, whereas the local market will reach US$113.2 billion (RM473.57bil).

Furthermore, Malaysia's halal business generated roughly 7% of the nation's Gross Domestic Product in 2020, demonstrating that the country has been effective in harnessing its potential as a Muslim-majority country. Boosting economic growth through determining the competitiveness of the halal industry in order to grab a larger contribution to the total halal market is one of the primary strategic interventions under the 12th Malaysia Plan (12MP). Fostering a tight relationship between Small and medium enterprise owners and their users, for example, is a logical way to assure slightly elevated services and the construction of a methodical and effective organisation. Customer satisfaction will almost certainly rise as a result of high-quality offerings and enhanced success. The 6 GP will result in decreased noise and pollution amongst small and medium enterprise when compared to solutions and services from the fourth and fifth generations. It lead to a healthier environment around Small and medium enterprise and the cities overall said Tan Sri Noh Omar minister of MEDAC (*The Star* Improving SME Capacity in Halal Industry 2021).

Nowadays, the Small Medium Enterprise facilities are nearly reached the new era of Industry 4.0 technology through the adoption of Artificial Intelligence technology, Augmented Reality Technology and others. This technology also can improve the productivity of the employee in Halal Small Medium Enterprise Said Noh Omar (*The Star* Improving SME Capacity in Halal Industry 2021). Besides, consumers generally believe that Halal products have recently experienced stringent inspection as well as straightforward control regarding the ingredients
used, strict safety and hygiene specifications, or even sanitation procedures. It

means that the opportunities of Halal products and services is not just constrained to Muslim consumers but also includes attracting considerable acceptance among non-Muslims.

This study investigates the effect of performance expectancy and effort expectancy as an acceptance expectancy in UTAUT model framework, which leads to IR 4.0 adoption. Sophisticated theories and concepts are evaluated in terms of determining the role of those kind of independent variables in the UTAUT model's specific intention (Safira, I. D., & Kusumawati, N., 2015). It shows the supportive evidence for the interaction foundation among these independent variables, mediating variables, control variables, and acceptance to accept IR 4.0 (Zhang, X., & Bartol, K. M., 2010). Certain research can prove the UTAUT model's predictability in the setting of the industrialization, which has been researched sparingly in the intervening decades. As a result, our study aimed to test these theories. The findings reported the relationship between UTAUT's independent variables, moderating variable, and dependant variable (Salinas, E., Scerra, V. E., Hauser, C. K., Costello, M. G., & Stanford, T. R., 2014).

Besides, there is the variable of mediating which is Behavioural Intention to accept Industrial Revolution' 4.0 as an Independent Variable align with the study conducted by Safira, I. D., & Kusumawati, N (2015). Although, there is an increasing amount of nationally representative sample research addressing mediating and moderating variables as lack of repeatable research results among other researchers (Martı´nez-Martı´, M. L., Avia, M. D., & Herna´ndez-Lloreda, M. J., 2010).

In addition, the study considers multiple levels of intention, such as objective and implementation intentions. The latter relates to provide strategies for when, where, and how action should be taken in order to achieve a goal of implanting using of industrial revolution 4.0. Subsequently, the study incorporates volitional components, which some assume might indeed explain why so many people are unable to transfer their behaviour goal intentions into practice of applying industrial revolution 4.0 as a new norm. Malaysia established founded of

SME Corp Malaysia in November 2018 as being an organization under the Ministry of Entrepreneur Development (MED), and on January 22, 2020, it was renamed the Ministry of Entrepreneur Development and Cooperatives (MEDAC). SME Corp Malaysia is well on its way to achieve its goal towards becoming Malaysia's premier corporate entity for the advancement of modern SMEs in order to promote the country's wealth generation and social well-being. SME Corp. Malaysia aims to provide efficient processes, resilient business models, access to financial resources, savvy alliances, competitive dynamics, and successful business alternatives to the significant increase in the number of SMEs in Malaysia., in order to successfully achieve its mission of encouraging the creation of innovative, resilient, and global level Small and medium enterprises through improved implementation and accessibility of business support, through numerous channels and initiatives for Small and medium enterprises and entrepreneur advancement.

Megatrends are long-term, global sustainability forces that influence industry, the market, civilization, lifestyles, and individual lives, influencing our future scenario and its tremendous speed of progress. Commodities, capital, and personnel are currently moving at an exponential rate and in non-traditional patterns around the world. Technological development is transforming economic growth and improving, as well as people's occupations and lifestyles, across all sectors. These advancements will transform businesses by altering the way companies think and operate on a national scale. Therefore, SMEs who leverage on the Megatrends' potential stand to gain significantly.

Perhaps as direct consequence, small and medium enterprises must be educated on the importance of migrating Industry 4.0 instead of continuing to do business as usual. Transition to Industry 4.0 offers increased flexibility, effectiveness, responsiveness, quality, and significantly reduced development cost and time, as well as more research, development, and demonstration (R&D&D) engagements and the opportunity to generate new ability and expertise globally. Small businesses should also be aware that the government is

developing a national framework for IR 4.0 to help the industry grow. In May 2017, the Cabinet tasked MITI, MOSTI, and MOHE with leading this pursuit. Beginning March 2017, MITI has led a High-Level Task Force (HLTF) comprised of officials from numerous Ministries and Agencies to lead the efficiency of the overall Government's Industry 4.0 strategies, with major stakeholder input, along with industry (Tjahjono, Esplugues, Ares, and Pelaez,. 2017).

The importance of small and medium-sized businesses in the worldwide marketplace will continue to grow as a surplus resource for larger income commercial advantages given that they are able to acquire high-quality products at a low cost. Maybe despite the fact that product prices are rising, there will consistently be a supply of products available (Bondarouk, T., Parry, E., & Furtmueller, E., 2017).

"A bunch business SMEs are in the processed food industry, which is why we're investing more money in it than the others," Azmin tells The Edge (The Edge Market 2021). Malaysian Trade Agency (MATRADE), as Malaysian government's economic cooperation agency is in the forefront of the development Malaysian- made products in global markets. A network of 46 offices around the world. The agency facilitates business connections among Malaysian suppliers and international buyers, as well as providing market knowledge on changes in international standards and laws. In 2016, Malaysia's halal-certified exports totalled RM40 billion, with food and beverages accounting for over half of that. According to (Thomson Reuters and Dinar Standard's In 2017, Muslims all across the world spent Approximately US$ 1.3 trillion for meals and devoured US$ 2.3 trillion in halal commodities, spanning from fresh produce to beauty products, according to the State of the Islamic Economy Report 2018/2019 (The Edge Market 2021).

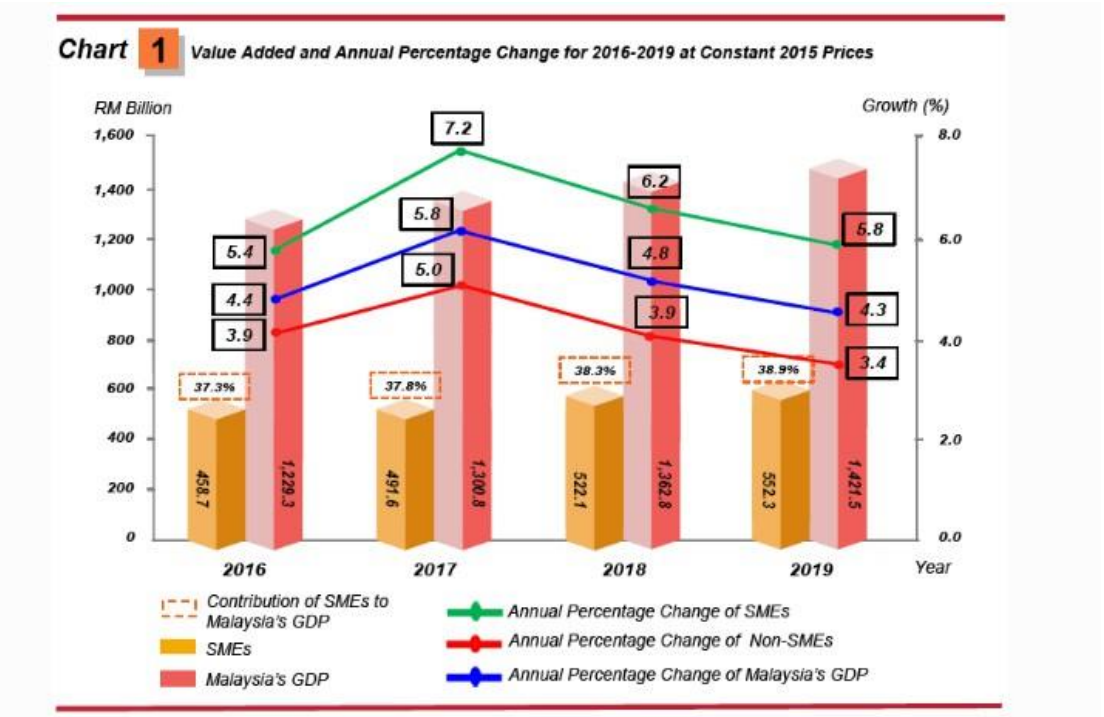


Figure 1.4

Malaysia Small Medium progress statistic 2016 – 2021 (Malaysian Statistic Department 2020)

Figure 1.4 indicates that the value added of SMEs indicator Malaysia Gross Development Product 38.9% in 2019, the services industry grew 7.4%, contrasted with 8.1 percent during 2018. The expansion was powered by the Distributor & Commercial Business, Nourishment & Beverage, and Hospitality comment thread, that further increased by 7.6%. (2018: 8.6 percent). Apart from that, the banking, insurance, property investment, and professional services sub-sector rose 7.7% (2018: 7.5%), while the logistics, distribution, digitalisation & media sub- sector both expanded. 6.6 percent (2018: 6.9%) to help keep the momentum going.

1.5 Scope of Study

The study conducted in Penang which involving Penang Halal Small Medium Enterprise. The scope of this study is centred on the behavioural intention of most employees' adoption of new Industrial 4.0 technology in small and medium business in Penang. Because there are so many companies in the marketplace in Penang, this study concentrate on the top ones that are readily to applicant the use of IR 4.0 which is Penang Halal Small Medium Enterprise.

Small and Medium Enterprises (SMEs) play a crucial role in Penang's economy, contributing significantly to its GDP. As of recent estimates, SMEs contribute around 40% to 50% of Penang's GDP. This contribution aligns with the broader trend in Malaysia, where SMEs are pivotal to economic growth and job creation SME Corp 2024. As of 2024, Penang's GDP is approximately RM 94 billion (about USD 21 billion), according to the most recent data available. This figure reflects Penang's role as a significant economic hub in Malaysia, driven by its strong industrial base, especially in electronics and manufacturing, as well as contributions from the services sector and tourism. During the COVID-19 pandemic, Penang's SMEs, like many globally, faced significant challenges. The economic impact included disruptions in supply chains, decreased consumer demand, and restrictions on business operations. This affected their overall contribution to the state's GDP. Penang Department of Statistic Malaysia (DOSM) 2024.

State	Gross Development Product 2023	Gross Development Product 2022	Gross Development Product 2021	Gross Development Product 2020	Gross Development Product 2019
Penang	115,957	121,154	99,111	92,691	94,645

Wikipedia 2024

Figure 1.5

Gross Development Product from 2019 to 2023

Figure 1.5 shows prior to the actual outbreak Covid-19 strike Malaysia in the early 2020, both imported and Gross Development Products are reports concerning those economical activity is slightly drowned due to pandemic and recession after affect by pandemic Covid-19.

Penang being as an important province for North Peninsula of Malaysia covering the majority of north economical market of Peninsula Malaysia which have dominate the market of IMT- GT. IMT–GT stands for Indonesia — Malaysia — Thailand Growth Triangle. It has a considerable contribution to the development of economic growth in any of these areas. The IMT-GT economy constitutes roughly 23 percent of the combined economies of Indonesia, Malaysia, and Thailand and about 15.2 percent of ASEAN's Gross National Product (GNP) at billion Ministry of Investment Trade and Industry Malaysia, (2010).

Furthermore, Government under Agencies of Northern Corridor Malaysia which focusing on developing in term of economic, social and facilities. Under Northern Corridor are focusing more in developing economic under Northern Corridor Economic Region was formed accelerate economic growth in four

northern of Peninsular Malaysia. Besides, Penang Regional Development Authority (PERDA) have contribute to develop people assist in creating prosperous young business people by providing a variety of platforms and sponsorships.

Table 1.2

Indonesia – Malaysia – Thailand Growth Triangle market consumption in billion.

YEAR	IMT-GT	INDONESIA-GT	MALAYSIA - GT	THAILAND-GT
2013	**1,001.80**	**588**	**318.3**	**95.4**
2014	**1,040.30**	**609.9**	**338**	**92.4**
2015	**1,040.60**	**593.6**	**352.6**	**94.4**
2016	**1,088.60**	**615.7**	**369.6**	**103.3**
2017	**1,129.60**	**636**	**368.9**	**106.7**
2018	**1,203.70**	**679.5**	**413.9**	**110.3**

Source: IMT-GT.ORG 2020

Penang Halal Small Medium Enterprise, which enables Penang to be the focal point for Malaysian to gain economic benefits in IMT - GT area following Penang which located near the Straits of Melaka and Andaman sea which have been the largest economical market area for sea market since time immemorial. Penang will capitalise on its Halal SME to tap into the IMT - GT market by undertaking economically especially in Halal product and services (*The Star* Improving SME Capacity in Halal Industry 2021).

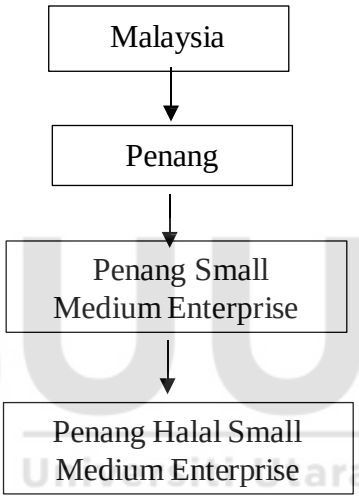


Figure 1.6

Research Scope

Figure 1.6 shows the research area from Malaysia until Penang Halal Small Medium Enterprise. The scope of this study is centred on the behavioural intention of most employees' adoption of new Industrial 4.0 technology in halal small and medium business in Penang.

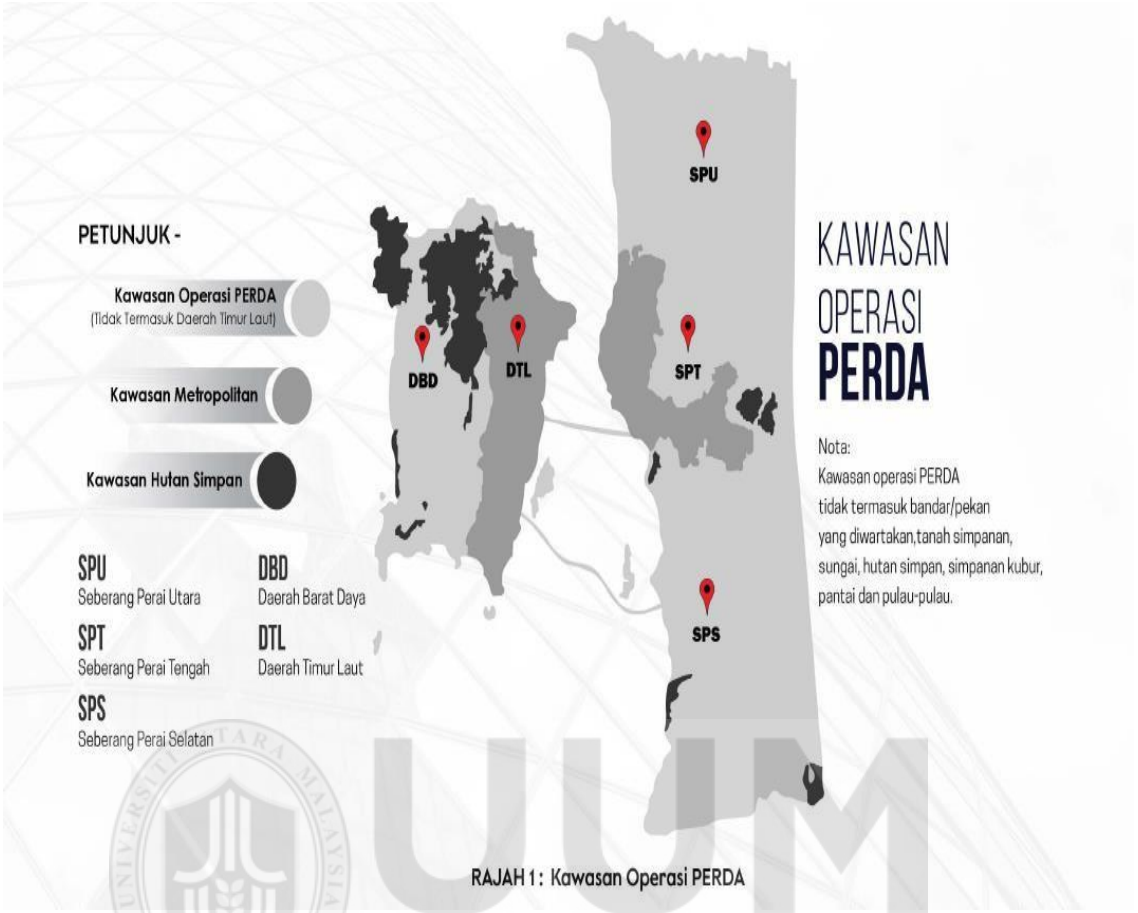


Figure 1.7

PERDA Area in Penang

Figure 1.7 illustrated the industrial sector under Penang Regional Development Authority (PERDA). The most important sector encouraging Small and Medium- sized enterprises located within the PERDA area is between the SPU and SPT which is Perda Small Medium Industrial area in Tasek Gelugor Penang and Penang Halal Park Bukit Minyak Penang.

1.6 Organization Thesis Study

The report covered a total of five chapters and the outline for each of the chapter as followed:

Chapter One: This chapter gives an overview of the study and describes the research setting, as well as the history, goals, and significance of the main research question. The meanings of the terminologies employed are then supplied to define the viewpoints made in this research.

Chapter Two: This section addresses the main hypotheses and defines the variables that make up the study's context. Furthermore, the past literature on the concepts used in science has been examined in this part. This chapter describes the theoretical framework that the study is based on. This chapter have included the evidence in support for the construction of hypotheses.

Chapter Three: This chapter begins with a review of the methodological approach, as well as the options and framework choices used in this study. The approach, research design, pilot test, instrument creation, and statistical treatment of data were all described in this chapter.

Chapter Four: This chapter describes how to evaluate a research model, specifically the Smart Partial Least Squares simultaneous equation analysis and how to record the hypothesis testing procedures.

Chapter Five: This final chapter covers everything from data analysis presentations to assumptions and consequences, along with a summary of the findings of the study, recommendations derived from the findings, as well as a discussion of such ramifications following that, there is a review about the study's findings. Short comings and recommendations for future research.

1.7 Summary

In this chapter, the researcher concludes that more studies need to be done to discover solutions to handle Malaysia IR 4.0 challenges, given the significance of employees, based on the findings of the study. Penang Halal Small Medium Enterprise is another area in which the researcher would like to conduct research. This chapter also discussed why all levels of employees within the organization should participate in the survey.

CHAPTER 2:

LITERATURE REVIEW

2.1 Introduction

This chapter provides the literature that supports the study. The purpose is to create a theoretical research framework. The hypothesis of behaviour and attitude has examined. This section begins with an explanation of the Unified Theory Acceptance Use of Technology (UTAUT) theory. The UTAUT theory was adopted as the foundation for the conceptual framework to encourage employees to accept IR 4.0 among employee of Halal Small Medium Enterprise. This chapter will go through the UTAUT independent variables involving performance expectancy and effort expectancy and mediating variable which is behavioural intention The theory discussion serves as the foundation for hypotheses. The theoretical framework of the study is acknowledged.

Next, the study on employee acceptance towards technology which improve their Performance and Effort contributes to the acceptance of Industrial Revolution 4.0. This chapter also study on how the technology implement Halal Small Medium Industries at Penang.

2.2 Malaysia Halal

Nowadays, the idea of halal is widely accepted. The word "halal," is found solely in Arabic, denotes a substance that is allowed or legal. No one can legitimately claim that food is Halal if they don't adhere to Islamic law. Halal and non-halal encompass a wide range of aspects of Muslim life, including social justice, sustainability of the environment, animal welfare, safety, and food and beverage choices. The terms "halal" and "toyyiban," which translate to "clean and wholesome," represent an intolerance for food safety, quality, and hygiene among Muslims. Codex Alimentarius Commission has stated that the finest example of halal food rationale in the world is the Malaysian Standard Halal Food (MS1500:2004). Malaysia must move aggressively towards enhancing the Halal certification services since it expects to establish itself as the hub for Halal products by 2010. Halal Industry Development Corporation (HDC) has been designated by the Malaysian government as the entity responsible for managing the local and international Halal certification procedures. The halal sector is expanding quickly, thus it's critical to do study on halal certification because halal characteristic features and credentials are crucial for maintaining consumer loyalty and diversifying worldwide marketplace shares (Noordin, N., Noor, N. L. M., Hashim, M., & Samicho, Z.,2009).

Malaysia required to market itself ingeniously in order to fulfil its primary objective of Halal-hub, which is connected to the global Halal supply chain with a reliable platform and provide certification for Halal Assurance. Numerous examples from the literature already in existence show how supply chain strategy and marketing intelligence enhance a company's performance (Nik Muhammad, N. M., Md Isa, F., & Kifli, B. C.,2009).

2.2.1 Penang Halal Small Medium Enterprise

Department of Statistics Malaysia 2020

Figure 2.1

Malaysia Halal Manufacturing Product have been produced from 2018 – 2020

Figure 2.1 shows recorded by Malaysia Halal Manufacturing after three years of production. The data represents overall rise in Malaysian Halal Production from 2018 to 2019 prior to the pandemic Covid-19. Currently, halal certification are already in high demand throughout the entire world since they not just to adhere to the requirements for being halal rather than for being clean and prioritize hygiene.

In most developing economies, Small and medium-sized enterprises (SMEs) play an integral part. As shown by World Bank (2018), legal smaller businesses in developing countries make up a significant

portion more than 60% of overall workforce and 40% of gross domestic product (GDP). Whenever formalised SMEs were factored up, those figures getting increased. SMEs, which represent up four out of the next five available employment in developing countries, produce the overwhelming of remuneration. SMEs are also expected to contribute significantly to the export of developing countries. According to Abdullah et al (2018) and De Paula, E. R., Rodrigues, F. S., Iyer, K. N., Kantor, I. J., Abdu, M. A., Kintner, P. M., & Kil, H. (2003), definition of SMEs changes throughout time dependent in terms of their important contribution to a country's economic status. Furthermore, Muslim demographic around the world expanded between 2.14 billion to 2.18 billion in 2017, It shows the increment about 1.84 percent which provides good potential for SME growth (Tahir H M Razak N.A & Rent, 2018) .

Interoperability practises of operational activities across distributed platforms inside the organisation could be considered as problems for top level management, given the current tendency of un-integrated systems among Malaysian SMEs/SMIs. Programming paradigms used for commercial applications are one of the most difficult interoperability difficulties. If all current systems are provided by different suppliers, the problem becomes even worse, requiring the business to spend more time and money designing the connectivity between the numerous systems that share a centralized database (Quan, L. R., Suhaimi, A., & Ali, A., 2013). SME Corp Malaysia functions as the central point of reference for information and advisory services for Small and Medium enterprise nationwide. SME Corp Malaysia provides business advisory services and information to SMEs and entrepreneurs through SME Hub which is located at the Head Office in Kuala Lumpur, and 12 State Offices throughout the country. Internal corporate governance confront entrepreneurial and managerial capacities for productive output and only around 20% of Micro finance institutions are implementing the dynamic capabilities idea factors such as culture and strategy (Colombo, L., Femminis, G., & Pavan, A.,

2014). Hence, Small and medium enterprises are scattered (Razak, D. A., Abdullah, M. A., & Ersoy, A.,2018 and Colombo et al., 2014). It is believed that Companies will indeed be successful in gaining even more knowledge creation because their ability to respond to changing surroundings is stronger than that of larger organisations (Razak, D. A. et al., 2018).There are a variety of techniques that can help SMIs overcome barriers to effectively embrace new digital technologies, as well as other choices for exploring challenges that haven't been addressed. Malaysia coordinates, streamlines, monitors and evaluates the progress and effectiveness of SME development programmes implemented by 17 Ministries and more than 60 agencies (Malaysian Small Medium Enterprise, 2021).

The Internet revolution has had numerous effects on all of us; it has changed the vendor's business strategy from "brick and mortar" to "brick and click." Aside from that, the Internet provides several business options for entrepreneurs looking to launch an e-enterprise on the Internet. There are plenty undiscovered obstacles in the digital platform; in achieving competitive advantages in the regional market as well as accommodate into a lucrative market, Small business owners must be able to take appropriate into account many factors, such as market trends, practise, and consumer behaviour, so that SMEs are always aware of the importance of e-Commerce, which will decrease the overall risks and provide a profit to those company (Tahir H M et al., 2018).

Furthermore, through the formation of the Malaysia Halal Council, an integrated framework for strengthening and expanding Malaysian halal industrial development activities especially in Penang was holistically developed to create a new Malaysia halal sector in the globe, based on these problems and opportunities Malaysia Halal Council (MHC) 2022.

Next, the fact that the number is increasing year after year demonstrates that people are becoming more aware of the need of producing halal cuisine. It is resulting from the consequence of Penang

International Halal Hub's spreading the awareness of the need of applying for a halal certificate among food product makers. Meanwhile, as the competition for halal food products grows, the number of halal certificate holders in the halal food product category grows as well. In the raw material category, the number of Malaysian halal certificate holders climbed from 12 to 84 between 2010 and 2013, but from 2014 to 2017, the number of halal certificate holders in the category decreased, with just 20 halal certificate holders recorded (Tahir H M et al., 2018).

Penang International Halal Hub authoritative formation was built on a foundation tri-partite model of coordination between government, private, and academic sectors in order to create a vibrant halal industry in Penang. The Penang International Halal Hub Task Force and the Penang International Halal Hub Steering Committees for the nine Halal Clusters were subsequently formed to shape the principles and orientation for Penang International Halal Hub to be the next state and region regarded as effective. Penang Halal International Sdn. Bhd. (PHI) is the agency of Penang State Government responsible for the promotion, facilitation and development of the Halal Business Ecosystem and Activities. A state- owned organisation called Penang Halal International Sdn Bhd (PHI), originally known as PIHH Development Sdn Bhd, was founded in 2008 with the goal of assisting and promoting the halal business in Penang. It serves as a starting point for a variety of projects that aim to help the local and global halal business through bilateral and multilateral alliances with stakeholders. Penang leverages its advantageous properties to encourage Halal businesses as both the rising engine of economic growth and create sustainable economic values for the state in support of Malaysia's aim to dominate the world in halal production (PIHH 2022).

Economic software and block chain complement one another in the allowing for easier online payments and financing, as well as financial services, insurance, and financial counselling for individuals and

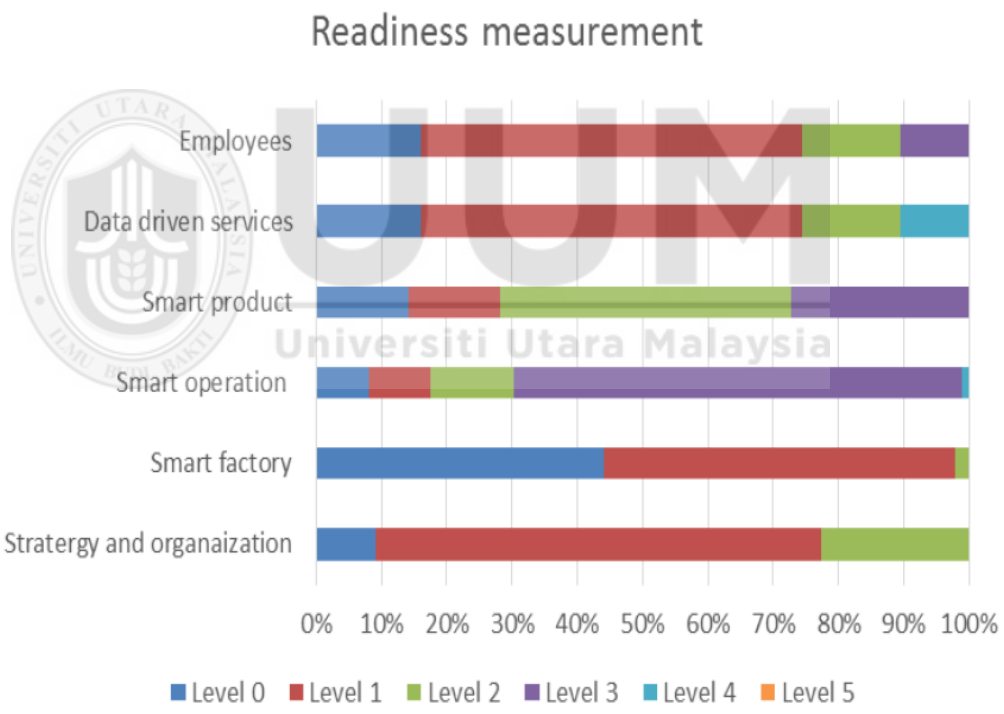
businesses. When such system is available to the halal economy in its whole, it will undoubtedly result in successful and efficient Islamic commerce, raising the public's level of prosperity and maslahah. The same tool could also be used for proponents and consumers of mobile apps with greater information regarding Islam's holistic character (Wong, L. W., Leong, L. Y., Hew, J. J., Tan, G. W. H., & Ooi, K. B., 2020).

A Muslim trader's required attributes suggest that they should have excellent moral support and ethical etiquette. As a result, engaging in Islamic contractual relationships and following to Islamic norms on a regular basis will ideally create a comprehensive, persistent, and accidental 'devastating impact' in society, indirectly evoking the urge to become acquainted with Islam. According to Faizal et al. (2013), Halal actually touches on each and every facet of human existence. The Halal idea considers the necessity to safeguard the environment, the significance of treat animals humanely, the importance of ethical investing, the intrinsic value of currencies, and the necessity for fairness in all business dealings (Penang Economic Monthly, 2021).

Benchmarking itself with a successful organisation, especially among SMEs, as an important means to study its business progress, especially in today's business, which is full of competition for success and sustainability, should become a necessity stage for SMEs on their way to sustainability business excellence. To put it another way, benchmarking is crucial because it enables firms to develop business excellence. The majority of studies on business excellence and SMEs presume that large- company techniques can be scaled down and applied to SMEs. (Quan, L. R., Suhaimi, A., & Ali, A., 2013).

2.2.2 Employee Behaviour Intension towards Industry Revolution and the implementation of Industry Revolution 4.0 in Penang Halal Small Medium Enterprise.

The term maturity denotes a condition of perfection, readiness, or completion. It describes how a system evolves and accelerates. The cognitive ability model was created to suggest a method for improving an organization's processes, particularly its enterprise resource planning. The current maturity level of an additionally demonstrate its competencies in relation to a given combination of traits and application area.



Malaysian Journal of Industrial Technology 2021

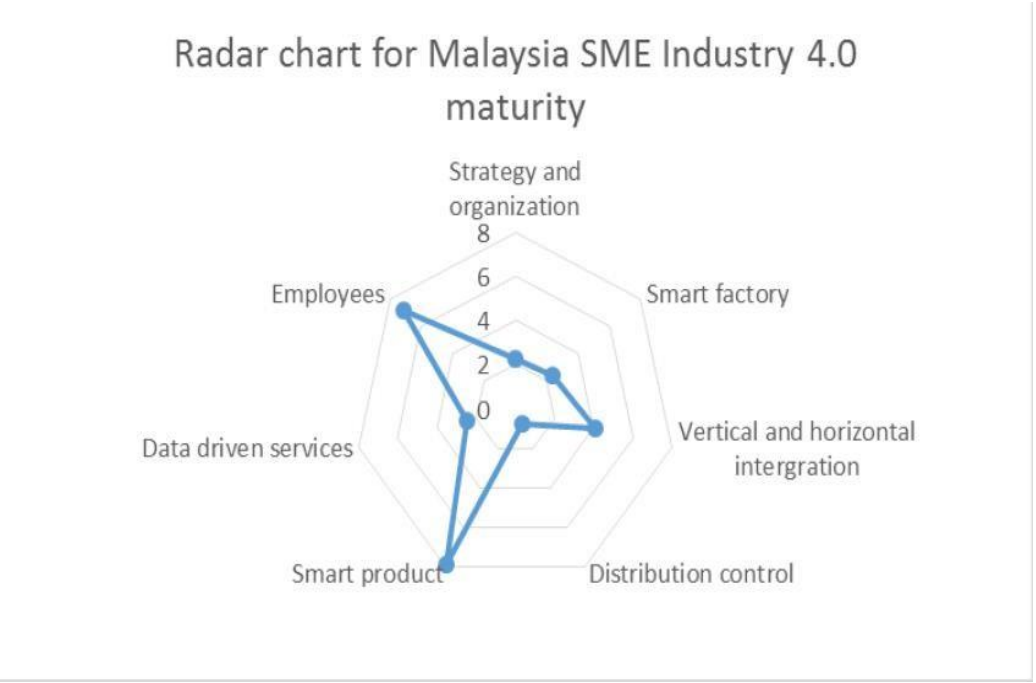
Figure 2.2:

Readiness Measurement for Malaysian SMEs

Figure 2.2 illustrate the applicability to accept new technology environment of employee by readiness of employee towards Industrial Revolution 4.0 technology in 2021 (Malaysian Journal of Industrial Technology, 2021).

Employees' Knowledge and abilities as well as experiential learning towards Industry 4.0 are measured at stage one (starting) in Malaysian Enterprises., according to the assessment. As shown in the data, employees have abilities but possess the requisite expertise. Employees are discovered to have a variety of competencies and skill levels, but not always to the amount that is required for both proposed implementation of Industry 4.0 Entrepreneurs need to learn information regarding Industry 4.0 and gain a better knowledge of it. Employee comprehension and knowledge are critical in transitioning to the Industry 4.0. Malaysian SMEs, as well as the Malaysian government, must give free technical expertise transmission, coaching lectures methods, and mentorship to their workforce in order to prepare them embracing Industry 4.0, pointing employees with in direction of the abilities they really ought to stay up with the new digitised manufacturing (Malaysian Journal of Industrial Technology, 2021).

In this course, workforces would learn to embrace knowledge through machines and parallel computing in order to get a basic grasp of almost everything and command processes. Modern manufacturing includes cloud computing platforms, records consumption, equipment infrastructure, and digital simulation. Malaysian small businesses are mainly classified as concept level (external) and are grouped into two categories: stage 1 and stage 2. (Start-up). That might be due to the absence of knowledge about which Technical components are involved. Besides, they are crucial in aiding small and medium-sized businesses with smart factories.
, which involve real-time, information systems (IS), employees, and multi - dimensional and multi communication amongst software systems. .



Malaysian Journal of Industrial Technology 2021

Figure 2.3:

Radar chart for Malaysia Small Medium Enterprise Industrial Revolution 4.0

The maturity level in seven categories of modern manufacturing revolution is depicted in Figure.2.3. A radar figure indicates the ultimate result in a quick and easy way. The current distribution influence perspective has the minimum value of 0.79. It is mostly due to a lack of adoption of the Industry 4.0 blueprint, and also some inefficient Industry 4.0 engagement and paperwork initiatives. With a score of 2.25, strategy and organisation is the second lowest. This shows that Malaysian enterprises are familiar with the idea of the need to accommodate to Industry 4.0, despite the challenges. In order to perform better and compete worldwide, Malaysian enterprises require more education and exposure to Industry 4.0, including awareness of the benefits and even some methods and organisation in Industry 4.0.

The modern factory, with a score of 2.38, is based on Cyber-Physical Systems (CPS), which communicate towards a Cloud Computing infrastructure, the Internet of Things (IOT) and Industrial Internet of Things (IIOT), to connect in between the physical and virtual worlds. This means that Malaysian SMEs must learn and become accustomed with unforeseen situations, as well as how to deal with them as they emerge to accept it. The ability to identify stakeholders and the requirements that must be met if this happens (Malaysian Journal of Industrial Technology, 2021).

2.3 Industrial Revolution 4.0

The phrase "revolution" denotes a drastic and unexpected shift. As new technology and ways of doing things emerged across the whole of origins, the globe saw tremendous shifts in the financial services and public structure. Since history is used as a reference frame, then suddenly these changes may take years to launch. Klaus Schwab K (2017). Using cutting-edge technologies, the Industrial Revolution (IR) improves the way we live, work, and interact with one another. The term IR-4.0 refers to a future state of industry that is defined by the digitization of economic and production flows. Big Data Analytics, Artificial Intelligence (AI), Cloud Computing Technologies, and the Internet of Things (IoT) are all essential components of IR-4.0 (Budiman, A., 2018).

After the liberalization and deregulation, China's social economy grew quickly. A huge number of small and medium-sized businesses arose at this historic time, contributed significantly to the social and economic development of the modern era, and produced a sizable number of jobs for the population. As the information age has progressed, many small and medium-sized businesses have

chosen information methods and modes for financial management due to their ease of use and other benefits. While cloud computing contains the benefits of financial management information and thus can guarantee the security of the core data of small and medium-sized businesses, traditional information-based financial management has some drawbacks. Small and medium-sized businesses face challenges as they grow due to their own management flaws as well as the fact that they have less complex business models, less access to information technology, and lower levels of information security management than large corporations. These factors limit the ability of these businesses to build and develop their financial management information.

Today, innovation is mostly dependent on skills rather than technology. While acquiring high-skilled jobs for the local workforce is difficult, graduate unemployment in Malaysia was more than three significantly higher than the average rate that are not applicable to industry 4.0 in the context of Malaysia. Following the invention of agriculture, a succession of technological age emerged around the second half of the nineteenth century. Those events signified the shift beyond muscular to thermodynamic efficiency, which has progressed towards the point where, with the fourth industrial revolution, enhance cognitive potential has been supplementing people productivity (Klaus Schwab, 2017). The Industrial Revolution ushered in new manufacturing technology that would fuel the economic growth of substantial areas of the world and a new level of life for decades during the 18th and 19th century. Steam power, various machines, interchangeable parts, and a slew of other innovations gave manufacturers unprecedented efficiency in production and revenue.

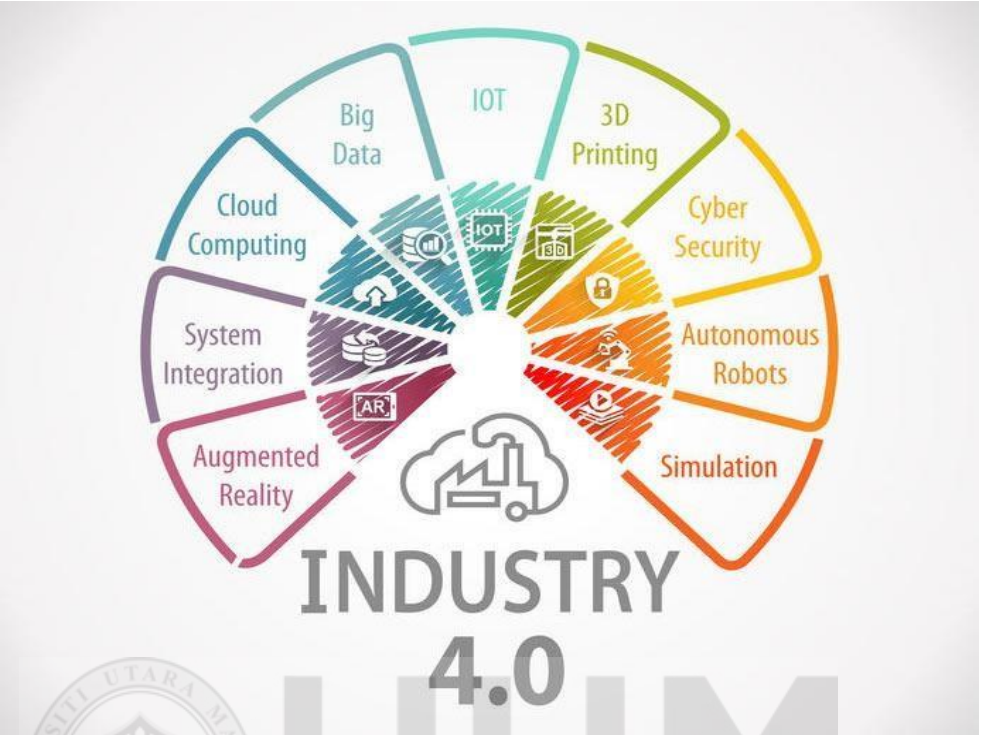


Figure 2.4:

The nine pillar of Industry 4.0

Figure 2.4 shows the nine developments listed below are common principles in many industries, particularly manufacturing. Integrating them where they are now used separately and integrating the missing concepts allows factories to become intelligent, which is what Industry 4.0 is all about. The phrase "Industry 4.0" was coined by the German government to identify and embody a set of technological advances in manufacturing, as well as to set out priorities for a coherent policy framework with the goal of retaining German industry's worldwide competitiveness. Many vocations have changed as a result of Industry 4.0. People are required to master new, everyday duties, but they are also required to use high-tech devices, which are quickly becoming the most significant aspect in their professional lives (Shu, J., Xu, Z., & Meng, D., 2018).

The general definition of Industry 4.0 discussed in this study. In general, Industry 4.0 refers to the manufacturing technologies that automate and exchange data to cloud, such as Cyber-Physical Systems, the Internet of Things, big data and analytics, augmented reality, additive manufacturing, simulation, and horizontal and vertical system integration autonomous robots as well as cloud computing. Its purpose is to assist in the integration and combination of intelligent machines, human actors, physical objects, manufacturing lines, Radio Frequency Identification (RFID) and processes across organisational stages in order to create new types of design records, systematic, and high-agility value chains (Shu, J., Xu, Z., & Meng, D., 2018).

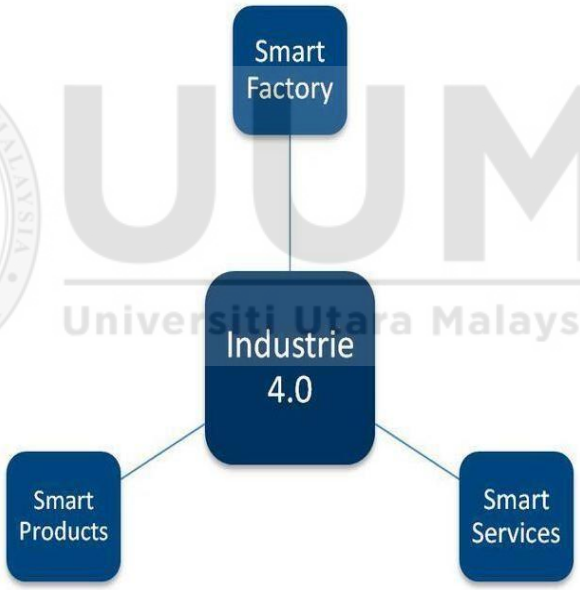


Figure 2.5

Smart product and Smart Services are central components of Industry 4.0

Figure 2.5 shows Sensors and additional equipment are utilised to connect the material, physical world with virtual networks. Intelligent (smart) systems are at the root of digital creativity. Smart refers to a combination of systematically tangible or intangible resources combined with digital systems would create

Industries 4.0. These, in turn are networked and capable of communicating wisely among employer and employee or manufacture and customer, resulting in increased significance for the user to use the system. Furthermore, the commodities expand their inventive diversity of services from time to time. Smart Factory, Smart Products, Electronic Data Interchange (EDI) and Smart Services are the three key specifications (Arvind, V., Kim, J. S., Cho, B. H., Geng, E., & Cho, S. K., 2021).

However, development of intelligent equipment and systems were not the only focus of the technological revolution. The design of the research is much bigger. At the same time, a new wave of infiltration in fields ranging from microarray technology to nano bio-technology, from innovation to artificial intelligence and machine learning is taking place by simulating to reality (Prisecaru, P., 2016). The fourth industrial revolution is substantially concerned with specific revolutions since it is made up of a combination of such capabilities and associated interactions around all over the world in the geographical, intellectual, and biological contexts. Businesses ranging from retail to manufacturing to service practitioners are being required to continuously and reorganize their business models in the wake of the Covid-19 outbreak, as some of them may no longer be competitive in the modern economy. Small businesses might use the crisis to create or accelerate their digital business plans (Penang Institute, 2021).

Covid-19 pandemic is driving more people online and hastening the adoption of e-commerce, necessitating additional digital transformation on the part of SMEs. SMEs will be able to enhance ties with existing clients as well as develop new ones by embracing digital increased trust built on coexistence while discovering and using new collaborations (Penang Institute, 2021).

The fourth industrial revolution will yield great benefits and massive benefits. Exaggerated discrimination is a major concern. Even though the considerable lot of us should be either producers or consumers, the problems

posed by stagnating wages are hard to ascertain, thus transformation and disintegration will have both constructive and bad effects on our housing demand and prosperity (Safira, I. D., et al., 2015).

To put it another way, to overcome the comprehension barrier respectively employee adoption of IR 4.0 in Small and medium enterprise management. Unified Theory of Acceptance and Use of Technology (UTAUT), which includes performance expectations and effort expectancy as independent variables, used in this study to examine their relationship with behavioural intention as mediation variable to accept IR 4.0 explicitly in the Malaysian workplace as dependant variable (Kiani, A., & Ansari, N. 2017).

Table 2.1

Literature Review Matrics IR 4.0

Author (s) / years	**Research scope findings and recomendation**
M. Soltanian; Zailani S; Iranmanes M and Aziz A A 2016	The purpose of study is about Motivations of SME entrepreneurs to become Halal preneurs The findings showed that among SME entrepreneurs, halalpreneurial tendency was substantially influenced by intrinsic drive, effort to seek out opportunity, desirability, peer influence, perceived feasibility, and perceived governmental backing. The impacts of considerable advantage, truthfulness, integrity, uncertainty attitude, and support network on halalpreneurial predisposition, across the other side, aren't substantiated. The independant Variables are Attitude, Subjective norm and Perceived Behavioural Control. While,

	dependent variable is Halal entrepreneur propensity among SME
Mengying Feng, John Mangan, Chandra Lalwani 2013	This study is about globalization of trade Trade and commerce has grown as a result of globalisation and the addition of more countries to the World Trade Organization. The port industry has seen this during the last few decades. The following characteristics illustrate the importance of port performance. Firstly, due to their vast volume and reduced cost compared to other sources of transportation, ports attract 90% of global cargo transit and world commerce. The independant variables are safety, logistic services and shipping services. For dependant variable, port performance represents it.
Jiafu Wan, 2014	This purpose of study is Software-Defined Industrial Internet of Things in the Context of Industry 4.0. In recent years, the Intelligent Manufacturing (IIoT) and related industries including industrialized network devices (IWNs), big data, and virtualization have made considerable strides. These new technologies will open up new avenues for stimulating manufacturing advances, and may possibly serve as the foundation for Industry 4.0, the new paradigm . The independant variable is System

	and Architecture, while dependent Variable is Information Exchange.
Roaimah 2015	This purpose is about Distribution Network Effectiveness and Information Transmission due to Information exchange is the foundation of effective management of the supply chain. The exchange of information within the supply chain helps companies to be more efficient in dealing with supply chain challenges and meeting challenging customer expectations. The Independant Variables are Information Exchange, Information Quality Operational and Information, dependent Variable is Supply Chain Performance.
Fong Yi Chiun 2017	This purpose of study is about Significantly influencing Critical factors Influencing Deployment of OBOR Initiative in Malaysi which Keep in mind that it would be influenced by a variety of external factors, including Malaysian political concerns and the global economic slowdown caused by the US– China trade war. These considerations will also have a direct impact on the expansion of SMEs in a given country. According to Ho (2015), the BRI are to have a long-term economic and corporate influence on Malaysia within at minimum 10 to 15 years. The Independant Variable are Belt and Road Initiative (BRI). For Mediating Variable is Technology & E-Boosting. In terms of Dependent

	Variable, it is representing by Successful Implementation for BRI to SMEs in Malaysia.
Stefania De Simone 2015	This purpose of study is about Inspiring Medical Professionals Using Uses And gratifications Theory. Regarding the employees' prominence is a valuable asset that really can influence value generation, supporting the hypothesis that effective talent management administration improves effectiveness of the organization. For Independent Variable are Valences (value) Instrumentally & Satisfaction Level
Sancheng 2021	This purpose of study is about Using mobile social networks, communications theory is used to describe social interactions. Professionals with comparable interests converse and engage with one another in online spaces utilising various cellphones and/or computers. It really is extensively used as a critical mode of communication, and its use is rapidly increasing. For Independent Variables are Indirect Network, Direct Influence & Global Influence
Dalenogarea 2021	This purpose of study is about Fourth industrial technology's predicted impact to economy and industry conditions Industry 4.0 is an emerging

	technological phase in which enterprises can improve their economic productivity by integrating transverse and longitudinal production methods and connecting their products. Independent Variable are Operation Management & Innovation Field
Timm Gudehus 2009	This purpose of study is about Comprehensive Logistics. Based on preliminary input data, planning and optimizing a logistics network, logistics centre or system results in preliminary dimensions, capacities, limit performance, stock levels and flow values. It is possible to inquire or calculate more accurate cost factors and cost rates with this information. If the starting cost values differ too far from the corrected values, use the enhanced values to repeat the optimization and calculation. The Independent Variable are Planning becomes an iterative process through this procedure and Principles Strategies Organizations

2.4 Theory Finding

The theory's fundamental idea is that the creator loves everyone equally, and we are all equal in the eyes of our creator regardless of our sexual orientation, skills, faith, or beliefs. Each individual has the potential to experience joy or sorrow in life as a created being. Everyone encounters moments of happiness and challenges while navigating through life on this planet. However, there are individuals who fail to acknowledge or comprehend this truth.

Some people find themselves incarcerated by their own conscience, personality, and comprehension as a result of adverse life experiences. They become disenchanted with themselves, fail to acknowledge and comprehend their transcendent identity, and diminish their capability and autonomy to be who they are. People make mistakes and succeed in life as a result of their interactions with others in their environment, personal preferences, and life experiences. When they succeed, they frequently assume that their strength and force are to blame. When they happen to experience setbacks, they find it difficult to accept (Elizabeth, Okpalaenwe, 2022; Afsar, B., Badir, Y., & Kiani, U. S., 2016).

2.4.1 Theory Reasoned Action

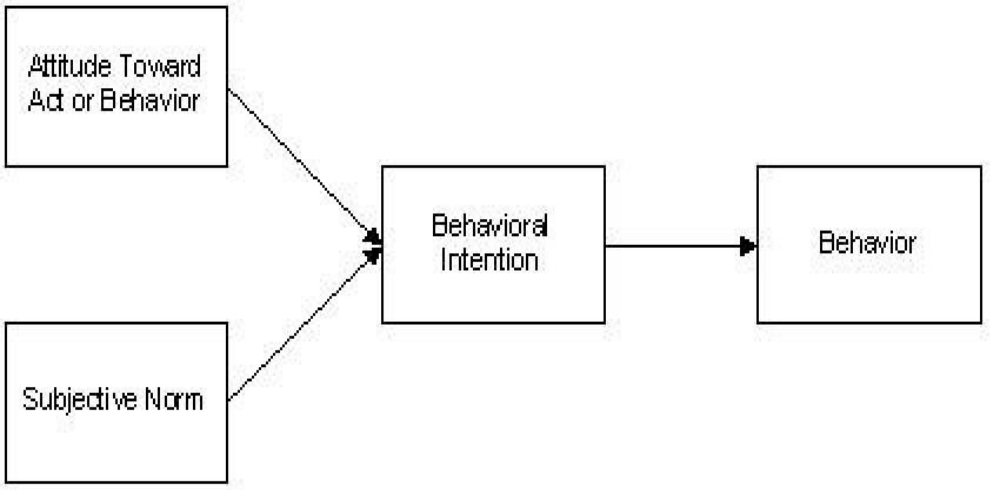


Figure 2.6

Theory Reasoned Action

Figure 2.6 shows that theory of Theory Planned Behaviour (TPB) are being based to UTAUT theory by Theory Reasoned Action. Fishbein and Azjen proposed the Theory of Reasoned Action (TRA) as a pioneering effort to uncover factors of attitudes and behaviours (1975) (Al-Suqri, M. N., & Al- Kharusi, R. M., 2015). The Theory Reasoned Action's core principle presented in Figure 2.4 where individual's behavioural intention in a given situation is determined by his or her stance toward consequences of performing the behaviour as a dependant and by subjective norm, that further pertains to "the person's perception that almost all individuals who seem to be crucial to him or her believe he or she might or might not implement the behaviour in question" (Fishbein and Ajzen, 1974; Allerand, R. J., Deshaies, P., Cuerrier, J. P., Pelletier, L. G., & Mongeau, C.,1992).

Individual beliefs about, outcomes, or attributes of executing the behaviour determine attitude. Those consequence or characteristic evaluations are adjusted. As a result, an individual who is convinced that

engaging in the conduct will lead to a rise in positive consequences. According to the Theory Reasoned Action, the practical effect of subjective norm on behavioural intention would be that an individual could choose to engage in a particular behaviour even if it was not beneficial to them (Venkatesh, 2003). Specificity it is important in the decision-making process, according to the notion. When a consumer makes a precise action, he or she expects an equally specific result. The consumer retains the ability to change his or her mind and choose a different course of action from the time he or she decides to act until the action is finished. Over the last 10 to 15 years, what has come to be known as the additional variables paradigm has dominated TRA research (Al-Suqri, M. N.et al., 2015),

Considering a few of the work that has attempted to describe actions in various domains, with either an insistence on the conceptions that have been employed to explain these behaviours, may best highlight the need for an integrative conceptual framework. Despite the fact that many various areas could be examined, we will focus on organisational behaviour, political behaviour, and prejudice and discriminating behaviour. The paramount concern for any business enterprise is the productivity of its employees. As a result, a lot of research studies have been conducted on work performance and behaviours including tardiness, absenteeism, and voluntary turnover. Behaviour can be an encouraging attitude on evolve new environment (Al-Suqri, M. N.et al., 2015).

Since its inception, the Theory Plan Behaviour in TRA's has been used to predict and explain individual behavioural intentions as well as actual self-reported behaviour in a variety of technology adoption contexts, both from an organisational and consumer perspective. Liaw (2004) recently used the Theory of Plan Behaviour to investigate behavioural intents to utilise search engines as a learning tool. Theory Plan Behaviour implemented to gain traction in the field of digital technologies research as

a result people will positively adapt new technology (Hsu, M. H., & Chiu, C. M., 2004). The new version of TPB implemented to study electronic purchasing, while Goby (2006) used the Theory Plan Behaviour to study about online shopping. According to Hsu, M. H., & Chiu, C. M. (2004), Theory Plan Behaviour model was used to forecast online purchase behaviour. Other research has tailored the Theory Plan Behaviour to specific circumstances, such as consumer behavioural intention (Tanaka, A., Takehara, T., & Yamauchi, H., 2006).

Components of subjective norm are the final category of additional variables considered in the framework of the Theory Reasoned Action. Several lines of research suggest that subjective norms perform worse than attitude and Perceived Behavioural Control in predicting intentions (Armitage, C. J., & Conner, M., 2001; Sheeran, P., Trafimow, D., Finlay, K. A., & Norman, P., 2002). It led to the suggestion that perhaps the principle of subjective norm fails to capture essential components of social impact.

Subjective norm, and from the other side, might be the most important predictor of a behavioural intention for behaviours with strong ideological consequences. If people have little understanding, the subjective norm will be much more prominent although during initial stages of the development process diffusion, forming the attitude through the usage of the technology (Taylor, S., & Todd, P.,1995).

Furthermore, the new theory following based of theory plan reasoned action have being integrated to the new theory that being most applicable to the industrial technology advancement that more related to Industrial Revolution two until the latest Fourth Industrial Revolution nowadays which mean Unified Theory of Acceptance and Use of Technology Theory (UTAUT) Venkatesh (2003).

2.4.2 Unified Theory of Acceptance and Use of Technology Theory (UTAUT)

UTAUT was created by Venkatesh et al. (2010) based on several models and researches. Theory of Reasoned Action by Fishbein and Ajzen, theory of expected behaviour by Ajzen, Technology Acceptance Model by Davis. The goal of UTAUT is to examine the acceptability and application of information technology on an institutional level. It's comprised of four mediating variables (achievement advantage, hedonic motivation, cultural pressure, and facilitating conditions) and four moderator variables (volunteerism, ages, gender, expertise). According to Cheng, Liu, and Qian (2016), UTAUT's impression of achievement and social impact are crucial elements in determining a technology's impulse buying behaviour.

Venkatesh et al. (2003) studied methodological limitations and performed experimental research where they instead merged various components of the research model of behavioural intention in pursuit of a more modified version of technology acceptance. utilised in earlier scenarios of Acceptance of technology (1) The TRA (Sheppard, B. H., Hartwick, J., & Warshaw, P. R. (1988).; Davis et al., 1992; Venkatesh and Davis, 2000); (2) the TAM (Davis, 1992; Davis et al., 1992; Venkatesh and

Davis, 2000); (3) the TPB (Ajzen, 2004; Taylor, S., & Todd, P. (1995).); (4) the combined TAM-TPB Taylor, S., & Todd, P. (1995). (5) the MPCU (Thompson 2020 et al. Zhang, Y., Liu, T., Meyer, C. A., Eeckhoute, J., Johnson, D. S., Bernstein, B. E., ... & Liu, X. S. (2008). (6) the MM (Vallerand, 1997); and (7) IDT Zhang, et al (2008). As a consequence, the authors utilized the UTAUT paradigm to bring disparate viewpoints on how people embrace innovation together (Venkatesh and Morris, 2003; Venkatesh et al., 2003).

The intention between behaviour towards performance and effort are now very relatable among other variable cause performance and effort can be be seen by update of key performance indicator (KPI). Kusumawati, A., & Riskinanto, A. (2019). Those theory has been crated as Acceptance Expectancy. Expectancy theory posits that individuals' motivations and behaviors are influenced by their expectations of success and the value they place on the potential outcomes (Xiu, Y., & Thompson, P., 2020). According to this theory, people are more likely to engage in a behavior if they believe they can successfully perform it and if they perceive the potential outcomes as valuable (Xiu et al., 2020; Stamp, J., & Clemons, D., 2021). In the context of technology adoption, these expectancy-value considerations play a crucial role (Yi, M., & Choi, H., 2023). Acceptance Expectancy comprising of Performance Expectancy and Effort Expectancy of employee influence their behaviour intention on their roles and services that they perform in the company. The relationship between. The relationship between Performance Expectancy and Effort Expectancy of employee directly affected acceptance towards industrial revolution 4.0 among employee Halal Small Medium Enterprise in Penang. Behaviour intension will be measurement towards acceptance of industrial revolution 4.0.

Venkatesh et al. (2003) developed an interconnected paradigm, the UTAUT concept, following a detailed examination and correlation of the latter frameworks. The Proposed framework can indeed capture 70% of the user intention variability, according to Venkatesh et al. (2003). The UTAUT model is the most effective approach to estimate cloud computing adoption, according to the findings of this empirical study. Performance expectancy ("PE" from now on), Effort expectancy ("EE" from now on), Social influence (“SI” from now on), Facilitating Condition ("FC" from now on), and behavioural intention ("BI" from now on) to use the foundation, and usage behaviour are the six key develops in the UTAUT demonstration (see Figure 2.7).

Four main components and four moderators make up the UTAUT design. Performance Expectancy and Effort Expectancy, Social Influence and Facilitating Conditions are indeed the four significant properties of Behavioural Intention and application actions, as shown in the paradigm which it can be any type of people acceptance to do (Venkatesh et al., 2003). The pursuit towards strategic use is mediated by age, household income, gender and experience aptitude, as well as a proclivity employ technology.

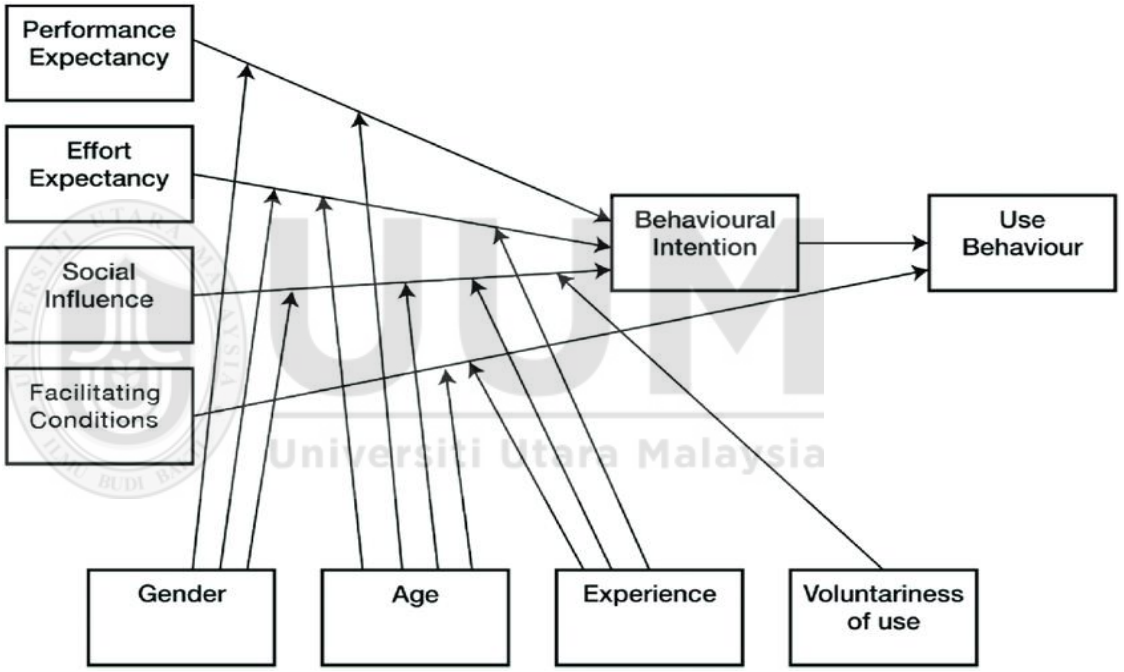


Figure 2.7

Original UTAUT Model developed by Venkatesh et. al, (2003).

Figure 2.7 shows the theoretical framework that have been develop by Venkatesh Visnawath in 2003 during his research on US vs China trade war from Massachusetts Institute of Technology United State America.

Whatever behaviour that may have a significance regarding the research on human behaviour could potentially be regarded as worthy of being used. It may have to do with human acceptance of a variety of different circumstances even so use of behaviour deserves greater empirical and theoretical attention (Venkatesh et al., 2003).

Furthermore, there is some contribution from other researcher after they use the theory of UTAUT theory which have being integrated more by adding some of basic Unified Theory of Acceptance of Technology Theory UTAUT with some type of new technology as a contextual predictor such as the research of mobile Self-efficiency towards school students. The contextual predictor which is Mobile Self-efficiency, Perceived Enjoyment and Satisfaction which presented in Figure 2.5.

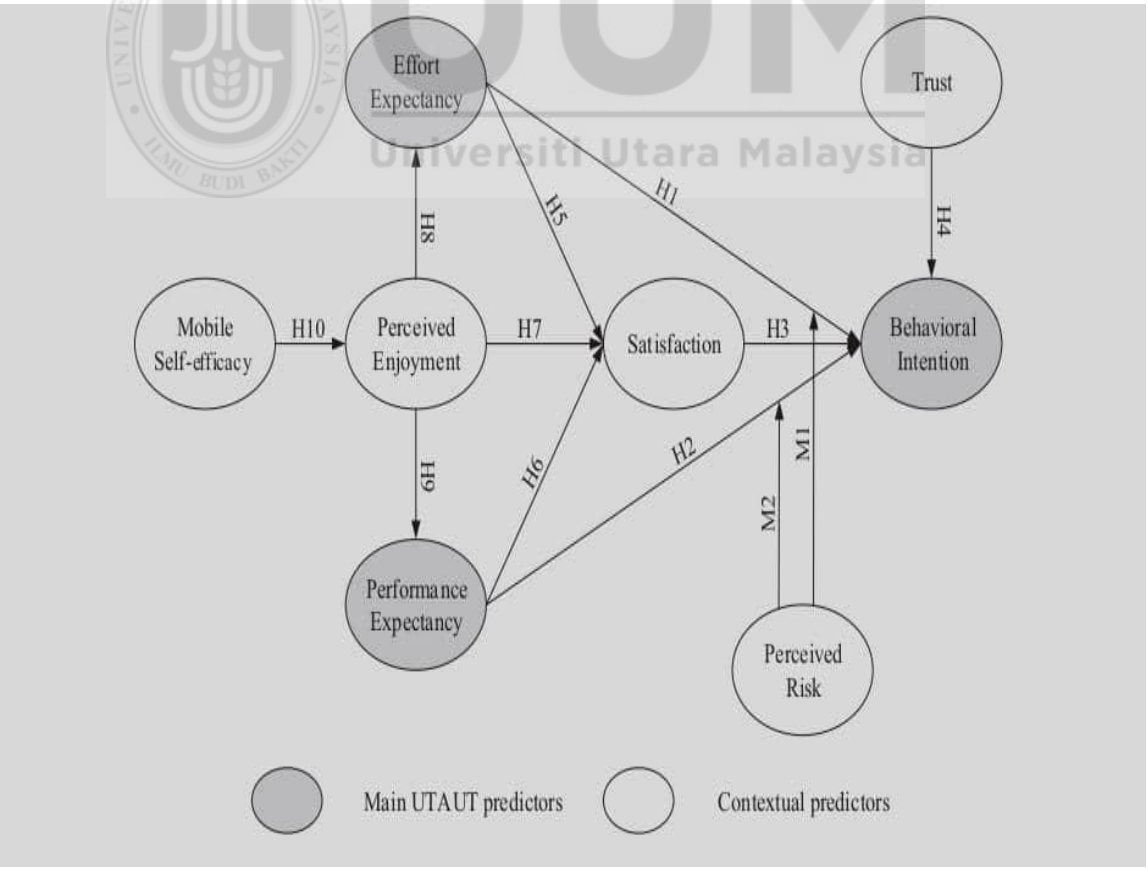


Figure 2.8

Application and Extension of the Unified Theory Acceptance and Use of Technology Model by Venkatesh Visnawath (2003) (Factors Determining the Behavioural Intention to use Mobile learning in school (Lam, T., Cho, V., & Qu, H., 2007).

Figure 2.8 defined new integrated extension of two independent variable from UTAUT towards the research which is effort expectancy and performance expectancy. The research contributes intention of mobile self-efficiency and perceived enjoyment towards behavioural intention.

Based on Venkatesh et al (2003), Unified Theory of Acceptance and Use of Technology (UTAUT), a comprehensive evaluation and summary of numerous theoretical conception. That researchers have therefore comprehensively utilised characterise Management System / Digital Technology acceptance and use the framework theorised both these relationships which might not be appropriate to all circumstances, removed some feasibly intimate values, and turned away some principles that would also be necessary in order to understand engagement and use of Information System / Information Technology Rogers (E. M., Singhal, A., & Quinlan, M. M., 2014). Furthermore, the study attempted to audit and modify the initial Unified Theory Acceptance and Use of Technology demonstration in order to establish hypotheses that has been and identify future inquiry headings (Venkatesh et al., 2003).

Table 2.2

Literature Review Matrics Theoritical Development

Author (s) /	**Research scope findings and recomendation**

Year	
Viswanath Venkatesh & Xiaojun Zhang 2007	This study was Unified Theory Acceptance Towards Technology for Trade War China and US have findings better comprehend the function of civilization in UTAUT, we must first determine yet if the posited connections of UTAUT are valid. We believe that perhaps the roles of performance The independent variables are Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Condition, while, Dependant Variable is Behavioural Intention
Yan Truong 2020	The purpose of this study was An Evaluation of Theory Plan Behaviour in Consumer Acceptance of Online Video and Television which to see if the Theory of Planned Behaviour (TPB) model might predict user adoption of online streaming platforms. Even though the TPB model has been shown to be successful in forecasting technology acceptance, few research are using it in this arena. Validating the TPB model would help academics and practitioners better comprehend antecedents of user adoption. The necessity of integrating user demands and behaviour as a requirement for designing successful user-centric online services has been established in previous studies. The independent Variables are attitude

	toward behaviour and Subjective Norm. The Mediating Variable is behaviour Intention and Dependent Variable is Behaviour.
Noor Raudhiah 2018	This study is about Theory Plan aviour and alal Compliance which Proactive personality has no bearing on Halal compliance among food truck vendors. This demonstrates that food truck traders' compliance intentions are not influenced by factors beyond their control, as an example environment. This appears to back up the findings of Alam and Sayuti (2011), who found that perceived behavioural control isn't a major influence in the decision to buy Halal cuisine in Malaysia. Independant Variable Subjective Norm, Intention Perceived Behavioural control and Religiosity. Dependent Variable Halal Compliance

2.5 Research Variable

2.5.1 Dependent Variable

2.5.1.1 Acceptance towards Industrial Revolution 4.0

Acceptance towards IR 4.0 can be described as an indication as a new industrial technology being accepted.(Kusumawati, A., & Riskinanto, A., 2019) This research looked into how people's perceptions towards technology influence their intentions to utilise it as well as how they actually use it. Given the rapid proliferation of new tools and devices, it gained understanding towards the processes that can impact people's acceptance on new technologies. It offered the advantages which give ease for work done.

2.5.2 Mediating Variable

2.5.2.1 Intention to Accept the Industrial Revolution 4.0

Attitude is a metric that indicates how tough employees were glad to engage and also how much commitment shown to decide in order to implement the technology (Ajzen, I., Brown, T. C., & Carvajal, F., 2004). He also argued that all factors, subjective norm is perhaps the most important factor influence the behaviour. According to Hsu et al (2012), Theory of Planned Behavior (2012), appears to adequately manage the relationship between perceived, attitudes toward the behaviour. Although research has looked into how intentions can affect behavioural performance, Theory Planned Behavioural has been critiqued for attempting to explain the specific importance of the interaction among both intention and behaviour (Gollwitzer, P. M., & Sheeran, P., 2006).

Furthermore, behavioural intention, often known as motivation (Ajzen, I., Brown, T. C., & Carvajal, F., 2004). It denotes an individual's willingness to exert effort in order to accomplish a behaviour. Meanwhile, Fishbein, M., & Ajzen, I. (1974) suggested that there are two core elements that must be regarded when measuring person's personal decision including the connection towards the theory and goals to achieve. To summarise, an individual purpose is regarded to include all motivational factors as well as the effort that goes forward by carrying out the personality. As a result, it contributes to outstanding acceptance among employees towards IR 4.0 (Kusumawati, A., et al., 2019).

2.5.3 Independent Variables

2.5.3.1 Acceptance Expectancy

Acceptance Expectancy is referred as a class of two independent variable which is Performance Expectancy and Effort Expectancy which have been related due to research that focused on the level of expectancy. While, the research is analyse on expectation result between employee performance and effort expectancy towards behavioural intention of Industrial Revolution 4.0. In psychology, this expectancy value paradigm has been used widely in many area of research, including learning theories, attitude theories and decision- making theories (Tanaka, A., Takehara, T., & Yamauchi, H., 2006).

2.5.3.1.1 Performance Expectancy

Performance expectancy refers to the degree to which a person perceives that using a program would help them achieve a job performance benefit (Venkatesh et al., 2003). It can also be defined as the degree to which employees perceive that they can achieve improved performance in their work activities by using technology. Performance expectancy influenced by the use of technology in the workplace as it gives ease to access adequate information related to their cognitive activities (Afsar, B., Badir, Y., & Kiani, U. S., 2016).

Technology enables workers to access vast amounts of information in different disciplines due to their improved search capabilities. Therefore, if an employee perceives that the use of technology for work would make a significant contribution to improving his or her efficiency, he or she may be willing to implement IR 4.0 (Compeau, D., Correia, J., & Bennett Thatcher, J., 2022).

2.5.3.1.2 Effort Expectancy

Effort expectancy is one of the variable in UTAUT theory which used to examine the level of user-friendliness associated with the use of IT (Venkatesh et al., 2003). It can be seen that the degree of ease getting increase when utilize information system. It is reflecting the employee's level of expectation that physical and mental actions influence by the use of software. Effort expectancy is based on the idea that the effort made at work, the performance achieved from that

effort and the rewards received from the effort are interrelated (Afsar, B., Badir, Y., & Kiani, U. S., 2016).

Effort expectancy has a direct link to employee use of technology performance. The use of technology by employees are likely to be influenced by how easy or complex it is to retrieve relevant information or do their job within the shortest time possible. Hence, if employees realize that the work getting ease through the usage of technology, it positively contributes to the intention to accept IR 4.0.

2.6 Hypothesis Development

2.6.1 Relationship between Performance Expectancy and Behavioural Intention

Performance expectancy seems to be a term used to describe a particular identity confidence that certain inventions will produce positive results. According to Venkatesh et al. (2003), quality criteria determine how well technology can assist users in performing specific tasks. Perceived utility, intrinsically motivated, job function, relative advantages, and preconceptions of outcome are all used to create performance expectancy. The capacity of consumers to feel ease when utilising technology positive contributes to technology's performance and acceptance of Industrial Revolution 4.0. This theory is supported by previous studies, which has demonstrated that performance expectancy has an impact on behaviour intention. The significant interaction between behaviour intention and performance expectancy, both can be attributed at exactly the same time,

will undoubtedly result from the positive relationship. However, the negative relationship indicates a weak association between behaviour and performance. As a result, the hypothesis developed as followed

H1 (a): *Performance Expectancy has a significant association with Employee Behavioural Intention to Accept IR 4.0.*

H 01 (a): *Performance Expectancy has no significant association with Employee Behavioural Intention to Accept IR 4.0.*

2.6.2 Relationship between Effort Expectancy and Behavioural Intention

The measurement of individual comprehension of the ease with which consumers can use a technology is referred to effort expectancy. When people believe that using technology is simple, their expectations for it to perform well getting increase. When compared to old techniques, through the use of technology in IR 4.0, it makes work processes easier and more effective; as a result, users are more likely to want to employ technology in their workplace. Referring to UTAUT, it gives significant influence towards perceived tendency (Venkatesh et al., 2003). As a result, this theory is confirmed by past research as effort expectancy influences employee acceptance. As a result, the hypothesis presented as followed:

H2 (a): *Effort Expectancy has a significant association with employee Behavioural Intension to accept IR 4.0.*

H 02 (a): *Effort Expectancy has no significant associated with Employee Behavioural Intention to Accept IR 4.0.*

2.6.3 Relationship between Performance Expectancy and Employee Acceptance towards IR 4.0

The term "performance expectancy" refers to a person's belief that specific developments will provide successful outcomes (Venkatesh, 2003). The applicable of new technology that can make their job easier and faster. As a result, people were more likely to intend to utilise technology at work. Perceived ease to conduct the work, motivation and other advantages encourage the acceptance towards IR 4.0. The study has demonstrated that performance expectancy influences people's intentions, which supports this viewpoint. Performance expectancy resulting to the productive and influence people to work better when they utilized Industrial revolution 4.0 technology. As a result, the hypothesis presented as followed:

H1 (b): *Performance Expectancy has a significant association with and employee acceptance towards IR 4.0.*

H 01 (b): *Performance Expectancy has no significant association with employee acceptance towards IR 4.0.*

2.6.4 Relationship between Effort Expectancy and Employee Acceptance towards IR 4.0

The intensity of personal comprehension of the ease with which consumers can use a technology is referred to as effort expectancy. When people believe that using technology is simple, their expectations for it to perform well rise. Compared to old techniques, the use of IR 4.0 makes work processes easier and more effective; correspondingly, users are more likely to employ technology in their workplace. Effort expectancy has an effect on behavioural intention in the UTAUT (Venkatesh et al., 2003). The effort shown become the indicator either the person are likely accept Industries 4.0 or vice versa. As a consequence, this theory is confirmed by past research that has shown that expectancy effort influences employee acceptance towards Industrial Revolution 4.0. As a result, the hypothesis developed as followed:

H2 (b): *Effort Expectancy has a significant association with employee acceptance towards IR 4.0.*

H 02 (b): *Effort Expectancy has an no significant association with Employee Behavioural Intention to Accept IR 4.0.*

2.6.5 Relationship between Behavioural Intention and Acceptance towards IR 4.0

"Behavioural Intention" usually relates to the motivating elements that drive a particular trait, where strong intention leads to the positive attitude and

encourage for good commitment. According to the theory, whenever a person views a proposed attitudes as favourable (tendency) and perceives that substantial those around would like the individual to use it, he or she is more likely to do it (Subjective Norm are significantly associated with higher normative belief.). The individual's purpose (motivation) to conduct the behaviours will be higher, and he or she will be more likely to do so. Behavioural intention is substantially connected with attitudes and subjective norms, while behavioural intention is correlated of appropriate behaviour.

Ecologically responsible behaviours are conducive to sustainable business practices are usually regarded as beneficial. Despite the fact that there could be a behavioural purpose to engage in such behaviour, Restrictions might make it difficult towards acceptance of Industries 4.0. As a result, the hypothesis presented as followed:

H3: *Behaviour Intension has a significant association with employee acceptance towards IR 4.0*

H03: *Behaviour Intention has no significant association with employee acceptance towards IR 4.0*

2.7 Research Theoretical Framework

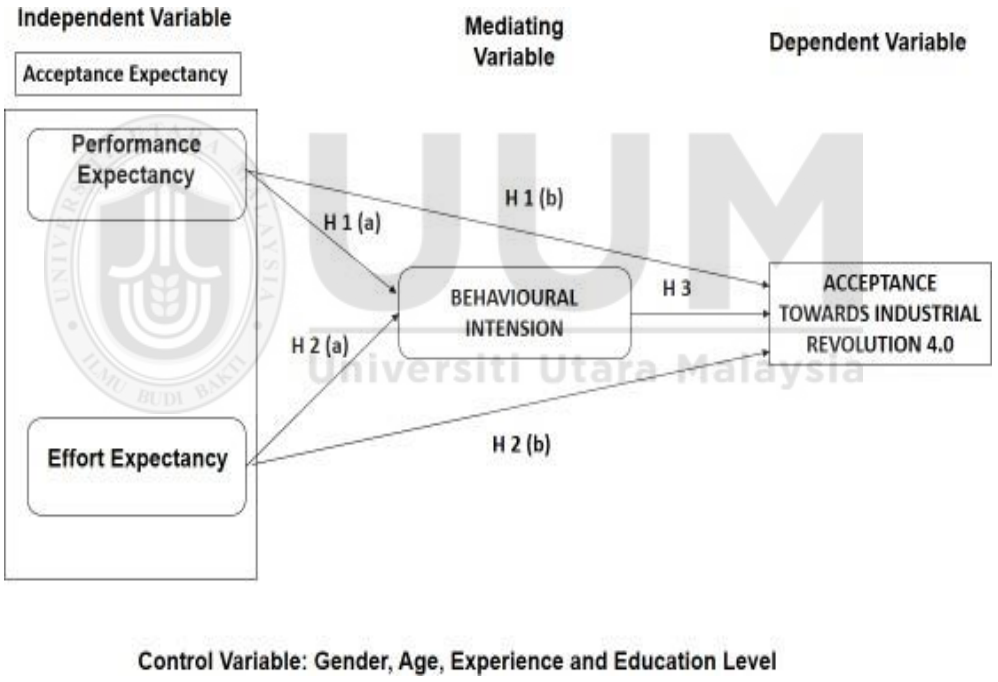


Figure 2.9

Theoretical Framework

Figure 2.9 shows that the relationship between Acceptance Expectancy which it Performance Expectancy, Effort Expectancy of employee affect their behaviour intention on their services that they perform in the company. The correlation

among the relationship between Performance Expectancy and Effort Expectancy of employee directly influence acceptance towards industrial revolution 4.0 among employee Halal Small Medium Enterprise in Penang. Behaviour intention measured towards employee acceptance of industrial revolution 4.0.

2.7.1 Theory of Acceptance Use of Technology

Some of the primary objective of the fundamental components of UTAUT Theory is performance and effort, which contributes to UTAUT researchers distinguish between behavioral intention and use of behavior. Researchers utilize it critically to analyze it within their theoretical framework. Besides, In a manner similar to UTAUT Theory, researchers capitalize on behavioral intention as a mediating variable. Employee Acceptance Towards Industrial Revolution 4.0 has been employed as that of a dependent variable by researchers in the same way that UTAUT Theory uses behavior as UTAUT teory dependant variable.

2.8 Literature Review Matrix (Previous Study)

Table 2.3

Literature Review Matrix

Author (s) / Year	Research scope findings and recommendation

Patrick, C. J., Fowles, D. C., & Krueger, R. F 2009	Considering Structured Numerous Different Regression-Based Analyses For Mediating Impacts, Interpretation Issues Hierarchical multiple regression (HMR) techniques are frequently used to investigate mediating effects. The approach described by Baron and Kenny, which is widely utilized for HMR-based strategies (1986). Unfortunately, it has a number of significant flaws. For independent variable, Human Resource Management is selected and the Dependant Variable is Performance.
Lutfi . Z, Fauziah . Z Faiq. A 2021	This purpose of study is about Employee Behavioural Intention Towards Industrial Revolution 4.0 at Johor Port. Malaysia's government recently announced Industry 4.0 as a strategic project. The primary purpose is to modernise industrial manufacturing thru all the digitization including the use of new technology's potential. As a result, an Industry 4.0 production system is adaptable, allowing for unique and customised products. The purpose of this study is to figure out if the Unified Theory of Acceptance and Use of Technology (UTAUT) can be applied to raise employee acceptance towards IR 4.0. The factors in UTAUT, which include performance expectations, effort expectancy, and social influence as independent variables, will be examined in the context of this study to figure out

	if there is any relationship between behavioral intention and adoption of IR 4.0 in Malaysian employee environment. The independent variables are Performance Expectancy, Effort Expectancy and Social Influence. For dependant variable, it is comprising Behavioral Intention towards Industrial Revolution 4.0 in Johor Port
Lee, M. J., Wong, W. Y., & Hoo, M. H 2017	This purpose of study is about Next Era of Enterprise Resource Planning System. The trend for ERP in the modern era has shifted from on premise to cloud-based. This shift is unavoidable since traditional ERP solutions face significant force to migrate to cloud computing, potentially rendering on premise maintenance obsolete. As a result, there is a pushing factor for this migration switch on the market. To be competitive in the marketplace, businesses must be well-prepared for this transition. The purpose of this article is to examine the key distinctions between two types of ERP systems: traditional on-premise ERP and cloud-based ERP, as well as the essential elements that influence an organization's choice to migrate to the cloud. The first part of this paper explains the fundamentals. Financial Application, Inventory Supply Application, Manufacturing Application and HR Application represent independent variables and central database as the dependent variable.

Sosio Economic & Envioronmental Research Institute 2022	This purpose of study is about The Potential of Halal Industry in Penang 3 billion people will be Muslims worldwide. About 15 million people, or 60 percent, of Malaysia's population are Muslims today. Assuming an estimation of RM1 as the per capita food spend, the country's total yearly demand for Halal food is approximately RM5.5 billion. Since consumers typically believe that Halal products have undergone rigorous inspection and standard control in terms of the ingredients used, strict safety and hygiene specifications, and sanitation procedures, the potential for Halal products and services is not only limited to Muslim consumers but is also gaining outstanding acceptance among non- Muslims. Consumer capital acts as independent variable and halal acts as dependent variable.
Yingying Lu & Yixiao Zhou 2021	The purpose of this study a review on the economics of artificial intelligence. This paper focuses on the macroeconomic perspective, reviewing recent literature in order to answer three key questions. First, what approaches are being used to represent AI in economic models. Second, will AI technology have an impact on the economy different from that of previous new technologies. Third, in which aspects will AI have an impact, and what is the empirical evidence for these effects of AI. Automation and robots are not necessarily

	artificial intelligence, as they can simply be programmed to perform a given task, or set of tasks, and workers can supervise and maintain the robots. A key feature of AI is to process data to decide
Bickley, S. J., Chan, H. F., & Torgler, B. 2022	The history of AI in economics is long and winding, much the same as the evolving field of AI itself. Economists have engaged with AI since its beginnings, albeit in varying degrees and with changing focus across time and places. In this study, we have explored the diffusion of AI and different AI methods (e.g., machine learning, deep learning, neural networks, expert systems, knowledge-based systems) through and within economic subfields, taking a scientometrics approach. For the result The relationship between engineering and economics is also interesting to consider as they are both key players when it comes to building and operating our future smart society. Especially, considering the role that engineering plays in the development of AI itself. Engineers are typically concerned with

a single end, deliberately controlling all effort and resources towards this end and with complete (sometimes illusionary) control of this particular little world that concerns their project scope

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2.9 Summary

Overall, the chapter has an impact towards researcher's understanding by providing brief theory which contributes toward the study. The researcher conduct the research towards Halal Small and medium enterprise generally in Penang Malaysia. The theory developed by Venkatesh Visnwath which are Unified Theory of Acceptance and Use of Technology (UTAUT) has been employed in this study. The researcher look for any other paper, journal, or other resource that may aid him in persuading people to support his theoretical analysis.

The researcher additionally proves the importance of their study through literature review conducted by previous researchers to determine worker adoption of digital technologies and evaluate of technological advancement from industry 4.0. Besides in chapter two also clarify on Halal Small Medium being use as research study in this theoretical framework.

CHAPTER 3:

RESEARCH METHODOLOGY

3.1 Introduction

Chapter three explains the research methodology which adopted in the present study including the interviewee's questionnaire layout, reliability, the pilot study, and the extent of variable correlations. The study population, the timeframe of information collection, as well as the mechanism which used to construct the measurement can be utilised to characterise the quantitative research. The different components, questionnaire constituents, and range statistic ordering are all defined by the survey layout. The purpose of the present chapter is used to explain how to perform a pilot study. In this pilot study, a minimal number of sample sizes will be used. Each variable's arrangement is assessed using reliability tests to ensure that they are related to one another.

3.2 Research Paradigm

The quantitative research method is referring on how he or she sees the world from him or her own beliefs regarding understanding on how to communicate in order to obtain the data (Saunders, M., Lewis, P., & Thornhill, A.., 2009). This framework is designed to help authors clarify specific views related to theoretical and practical aspects. It is indeed a collection of concepts about how a specific

problem arises, as well as a set of agreements about how well the issue can be addressed (Talukder, M., 2012).

The research was conducted using the positivist approach. The first reason is that this study's theoretical foundation was built from a number of responses of applicable research and statistics, giving the researcher a clear idea about how a specific event will likely perform. Furthermore, there seems to be a substantial body of literature, known variables, and validated hypotheses to back up the findings of this study. As a result, the primary goal of this study is to gather quantitative data and test hypotheses (Plano Clark, V. L., & Creswell, J. W., 2015).

3.3 Research Design

Inferential statistical methods are applied in many study findings. The term "inferential statistics" describes methods for making inferences regarding a group of people from a sample. Briefly, we use a sample to estimate what the population might possibly look like. The null hypothesis is the central idea of these methods. The idea that there is no influence on the general public is represented by the null hypothesis. The null hypothesis is commonly used to indicate that there is no correlation between two variables or that neither of the categories are equal (Aberson, C. L.,2015).

Developing an understanding that behind organizational research designs is critical since it aids in clarifying and deciding which research design to use. A data analysis plan is essentially a master plan for a study where certain research questions are linked to data (L. J., Gleser, G. C, Nanda, H., & Rajaratnam, N., 1972). In attempt to validate the study hypothesis, decisions must also be taken on the sampling strategy, data collection method, and how variables are measured and analysed. As a result, the researchers' data collection and analysis

would be developed based on the research objectives (Sekaran, U., & Bougie, R.,2016).

3.3.1 Type of Investigation

Although there two major elements in quantitative studies when looking into an occurrence. The first one is a causal investigation, which aims to establish a definitive causal or cause-and-effect link (Sekaran, et al., 2016). The independent factors and mediating variable are routinely changed and examined for their influence on the dependent variable in order to establish the conclusive link (Plano Clark, V. L., & Creswell, J. W., 2015). Nevertheless, when a large number of factors interact, establishing a definitive cause-and- effect affiliation is highly unlikely Sekaran, et al (2016). The correlational investigation falls into the second group. As a result, the goal of a correlational study is to see if there is a link among both variables (Cresswell, 2014). Furthermore, the variables in a correlational analysis are not manipulated since they are seen and quantified in their natural state (Plano Clark, V. L., & Creswell, J. W., 2015).

The problem is investigated via a correlational investigation in this paper. The first rationale seems to be that the current literature is looking into whether or not there is a correlation between the variables. The remaining variables are then regarded to be linked to the problem, although this does not imply the link between two events. Finally, because the purpose of the exercise is to analyse the parameters in their natural condition, the parameters will not be changed.

3.3.2 Extend of Researcher Interference

The degree to which a researcher's involvement with a typical surroundings state determines the study's wide variety of examination (Plano Clark, V. L., & Creswell, J. W., 2015). The researcher's intervention would be minimal as this present study is related to theoretical framework and hypothesis testing investigations are categorised as correlational studies.

As previously stated, this study employs a descriptive statistical methodology for assessing correlations and evaluating hypotheses. As a result of employing such a research paradigm and procedure, the researcher was able to collect data in accordance with the research objectives. To guarantee objectivity, the data was analysed using statistical processes after the collection of data step.

3.3.3 Time Horizon

Convergence research has always relied on empirical methods. In general, if important, underlying permanent or growing components are stochastically time-varying, the dynamics and drivers of economic growth might be misleading (Williams, M. D., Rana, N. P., & Dwivedi, Y. K., 2015). Since the data for this research has been collected on one point in time. Therefore, this study applies the cross-sectional study due to the shorter period of data collection and cost considerations (Plano Clark, V. L., & Creswell, J. W., 2015).

For the first reason, the current study is aimed for hypotheses testing among the variables involved. Besides that, a correlational study is the most appropriate to be applied for testing the proposed variables. Lastly, within a correlational design the cause and effect

are not the aim of the study. In this present study, the researcher collected the data under one point in time within a normal environment condition. As such, the cross-sectional study is applied during the data collecting stage (William et al., 2015).

3.4 Population of Study

The population are made up of employees who work in a medium of Halal Small Medium Enterprise around Penang. It is including the respondents ranging from supports staffs level especially who are involve directly with the technology of Industry 4.0. In Penang Halal Small Medium Enterprise, there are around 5500 workforce reported by Penang Federation Malaysia Manufacturing (FMM) Penang Section 2023 and Penang Develoment Autority (PERDA) 2023.

Using online sample size calculator from qualtrics.com with 90% confidence level and five percent of margin error, the ideal sample size require are 260 respondents. While, for 95% of confidence level with five percent of margin error, it required for 360 respondents.

The link between prejudice and discrimination has been found to be insignificant or inconsequential in most investigations. When it comes to groups like Operator, Supervisor, or the elderly, prejudice is frequently measured using standard attitude scales which can be conclude as peple who will interface IR 4.0 technology. There are no standard metrics of discriminating conduct. Instead, investigators often evaluate one or more of an individual's behaviours in relation to members of the target group, behaviours that they believe are discriminatory happen.

3.5 Variables and Measures

The comprehensive definition on each variable is established in calculating the total the validity of the research. The measurements of the variables established the operational definition of the variables, as explained in Chapter two. Each variable's overall approach was provided based on the aforementioned platform's relevancy. Below is a list of some indicators that were studied throughout this study: -

a) Dependent Variable : Acceptance towards Industrial Revolution 4.0
b) Mediating Variable : Behavioural Intention (BI)
b) Independent Variables: Performance Expectancy (PE) and Effort Expectancy (EE)
c) Control Variables : Sex, Age, Experience Education Level Household Income and Marital Status

3.5.1 Performance Expectancy

Generally, performance expectancy draws attention to a person's belief which lead to better results (Venkatesh et al., 2003). Venkatesh et al.. (2003) designed items to measure this characteristic. The 5-point scale was used in this study which indicate a significant declaration from most agreed until most disagreed including the presented details.

Table 3.1:

Employee Performance Expectancy

	Determination Instruments	Adopted
1.	I would use such system, it really would be simple for me to be such a specialist.	Was customised from Venkatesh et al. (2010)
2.	The platform would indeed be simple to use for me.	
3.	It is simple for someone like me to discover how to interact with the system.	
4.	Would use such system, it really would be simple for me to be such a specialist.	

Table 3.1.1:

Employee Performance Expectancy

	Determination Instruments
1.	I would use such system such as SAP success factor or HRMS or other that will help me reduce my work, it really would be simple for me to be such a specialist.
2.	The platform would indeed be simple to use for me. It helps a lot to ease my job

3.	It is simple for someone like me to discover how to interact with the system and use it.
4.	I would use such system that would help me become more easy to use or to make a short cut, it really would be simple for me to be such an expert.

3.5.2 Effort Expectancy

In IR 4.0, effort expectation is described as the convenience through which the proposed system can be implemented (Venkatesh et al., 2003). Venkatesh et al. (2010) estimated this parameter using entrenched objects. The 5-point scale, which ranges from 1 to 5, indicates any significant dispute including the assertions which presented in this study.

Table 3.2:

Employee Effort Expectancy

	Determination Instruments	Adopted
1.	My involvement through the device could become pretty obvious.	Was customised from Venkatesh et al. (2010)
2.	Would use such system, it would indeed be simple for me to be such an expert.	

3. The platform would indeed be simple to use for me.

4. It is simple for someone like me will gain a better understanding of how to work through the platform

Table 3.2.1:

Employee Effort Expectancy

	Determination Instruments
	1. I thought, My involvement through the device could become pretty obvious.
	2. I thought, it would use such system, it would indeed be simple for me to be such an expert.
	3. I thought, the platform would indeed be simple to use for me.
	4. I thought, It is simple for someone like me will gain a better understanding of how to work through the platform

3.5.3 Behavioural Intention

The measure through which an individual acknowledges that he or she will lock in on a particular behaviour is term "considered" is used to describe how something is regarded the intention of he or she (Venkatesh et al., 2003). Venkatesh et al., (2010) designed items to measure this characteristic. Throughout this study, a Likert scale rating measure was utilised, which one representing substantial disagreement while five indicating complete agreement with the statements presented. A mediating variable is a variable that operates as little more than a bridge for both two and more variables. It is also referred as an endogenous variable and perhaps an intermediate variable.

Table 3.3:

Employee Behavioural Intention

	Determination Instruments	Adopted
1.	I aspire to use the latest IR 4.0 technology.	Was customised from Venkatesh et al. (2010)
2.	I am pretty sure I will be using the IR 4.0 setup.	
3.	I seek to make advantage of the IR 4.0 platform.	

Table 3.3.1:

Employee Behavioural Intention

	Determination Instruments
1.	I aspire to use the latest IR 4.0 technology. It really took my job become more easier
2.	I am pretty sure I will be using the IR 4.0 setup. I would rather see that it will help me a lot
3.	I seek to make advantage of the IR 4.0 platform.

3.5.4 Acceptance towards Industrial Revolution 4.0 (Among Employee Penang Halal Small Medium Enterprise)

Acceptance is described as a state of mind whereby a person perceives they are interested in and intend to do something that related of utilise Industrial Revolution 4.0 (Venkatesh et al., 2003). Venkatesh et al. (2010) established this measurement using proved items. The Likert scales measure used for the survey as 1 representing strongly disagree and 5 representing strongly agree.

Table 3.4:

Acceptance towards Industrial Revolution 4.0

	Determination Instruments	Adopted
1.	My Interest towards the new system are facilitate	Adapted from Venkatesh et al. (2010)
2.	It will expose my knowledge of new system	
3.	I would like to intent new technological system	

Table 3.4.10:

Acceptance towards Industrial Revolution 4.0 Among Employee Penang Halal Small Medium Enterprise.

	Determination Instruments
1.	My Interest towards the new system are facilitate when the system are being exposed
2.	I thought it will expose my knowledge of new system of Industrial Revolution 4.0
3.	I would like to intent new technological system that related to system of Industrial Revolution 4.0

3.6 Mediating Variable

In the research, Mediating effects tested using hierarchical multiple regression (HMR) procedures. Typical of the HMR-based strategies is the very frequently cited and widely used procedure described by Baron and Kenny (1986). A mediator is a variable that transmits the effects of an independent variable to a dependent variable. Many disciplines (for example, management, psychology, and sociology) deal with assumed causal models that include mediators. For example, behavioural intentions are thought to buffer the relationship between attitudes and conduct Azjen & Fishbein (1980).

The majority of mediation model assessments are constructed on the basis of results from non-experimental studies. It is worth noting that testing of several presumed causal models in the aforementioned disciplines have shown widely disparate results in terms of correlational perpendicular direction across than among measured variables (Cuadrado, M., Frasquet, M., & Cervera, A., 2004).

3.6.1 Mediating Analysis

The researcher use covariate which are continuous independent variables (or predictors) in a regression or ANOVA model. The researcher used correlation coefficients for each path which is statically significant.

3.7 Research Secondary Data

Secondary data is collected which have already been gathered for a certain purpose. A research work different than those at hand (Zikmund., Babin., Carr, 2015). Month - to - month publications, magazines, books, textbooks, articles, and analyses, and perhaps even the Internet, were used to gather secondary data. The details shown in this review originated from educational publications,

textbooks, and journal articles, rather than from websites. The fact that the data is correct and accessible to use is a benefit of employing this type of data.

3.8 Sampling Technique

An evaluation is a component of a comprehensive image, a subset of a larger group. In addition, there would have been two types of sampling methods: those that were likely and those that were unlikely. A non-probability sampling technique is used in this study. Snowball, simple, judgmental, and quota sampling are some of the non-probability sampling procedures that can be applied (Castillo, 2009). Purposeful sampling will be employed throughout the study to improve the validity of the information and maximise the sample's significant factor while also giving adequate data in order to identify the various demographic groupings.

3.9 Quantitative Method

3.9.1 Sample Size

A study sample of 5500 respondents was selected to establish the level of significance due to this particular investigation, considering the potential the extensive nature of such recommended questionnaire. Though that a representative sample of 5500 is large enough to alter data quality thus usually results in higher accuracy when predicting statistical parameters Ibrahimi, K. (2017).

The frequency of this study will be 50:50 including businessman, ensuring that the review's findings are not prejudiced. In addition, the extra

50 will indeed help bridge the gap, ensuring that the corresponding number of respondents 400 samples or at least 260 sample are accumulated and used for statistical surveying by anticipating 10% errors and 90% confidence level in participating in the survey, such as misstatements, comprehensibility, incompleteness, and ambiguous or inadequate answers.

3.9.2 Pilot Test

A pilot study is an exploratory project which are undertaken prior to the circulation of a questionnaire on a restricted scale to a large number of respondents to acquire a firm grasp of such proposed study before it is constructed on a large scale. It saves time by allowing you to evaluate surveys that only represent a small group of respondents, covering the following the survey question's flaws and improve them. As a result, because this was only a pilot test, a certain latest finding and might not be included in chapter four available literature. This pilot study will assess the correctness of the questionnaire survey by picking 62 respondents to complete it Sekaran et al (2016). The using SPSS 27 software, they were able to review the results' dependability.

3.10 Reliability of the Research

The measure towards which measurements are error-free and so produce consistent results is characterised as reliability. In this study, the strategy utilised to reduce the number of respondents giving wrong answers required that attention be paid to factors such as coherence and dependability towards the study.

Saunders, M., Lewis, P., & Thornhill, A. (2009). According to Wallace J. Hopp & Mark P. Oyen (2010) there are numerous ways to look at the topic of durability:-

1. Have the findings of the evaluation output been replicated in other incidents?
2. Is it possible for another spectator to make the same interpretation?
3. Is there any granularity in the actual database's reliability or otherwise?

All aspects are viewed using identical measures that represent the data obtained in important to maintain that each of the factors being evaluated are developed with the same purpose. The suitable strategy for similarities is employed through this method, in which all the path feedback from the framework to be evaluated is expected to be consistent. Because they are viewed as items that constitute the emergent element, formative measures can be independent of one another. In this case, Cullinane, K., & Khanna, M. (2000) recommends using the mass of each item to determine how much it refers to the achievement factor.

This study concentrated on the respondent's trustworthiness, with the evaluations being validated on multiple respondents in the same industry. Aside from that, the study's reliability is based on the respondent, who may have had a different experience than the others. When the significant positive relationship of the data is high, all of the data acquired can indeed be perfectly accurate (Lewandowska, A., Berniak-Woźny, J., & Ahmad, N., 2023).

Even though the questionnaire employed the Likert scale approach, which has a numerous variety of answers, Cronbach's Alpha Reliability Measurement has also been used to assess the questionnaire's internal accuracy and completeness of reliability. The researchers promised that no discrepancies would be obtained during data collection in order to verify that the information obtained was accurate, consistent and valid. This is just to prevent any issues that may arise throughout the data transmission process (Cronbach, L. J., Gleser, G. C, Nanda, H., & Rajaratnam, N., 1972).

Certain circumstances, such as those in the respondent's history, the period of time the survey was done, as well as the variables employed in the study, may have an influence on the data processing score. The variation of reliability is shown in the table below.

Table 3.5:

Consistency level for Cronbach's Alpha scale.

Measure	Stage of Durability
Upwards of 0.9	Awesome
Upwards of 0.8	Great
Upwards of 0.6	Adequate
Upwards of 0.5	Poor
Fewer over 0.5	Unconscionable

Source: Cronbach Alpha statistic solution 2023

The Cronbach's Alpha scale and its accuracy level are shown in Table 3.5. According to Table 3.5, most maximum scale in Cronbach's Alpha is larger beyond
0.9 which indicating the best, the good level is maximum than 0.8, the adequate

standard is better than 0.6, the poor point is more than 0.5, and the undesirable rate is less than 0.5..

3.11 Relationship Range

While this Likert Scale approaches is used to design the questionnaire, the relationship must be created up and address which points correspond toward which area indication. The following table displays that when the points are around 1 and 2, the range is low, where another point of 3 represents a medium range, and whether the level of variety is around 4 and 5, the range is high (Jebb, Andrew T., Vincent Ng, and Louis Tay., 2021).

Table 3.6:

Indications' Scope

The stage of ascension	Variety of evaluation
one to two	Weak
three	Average
four to five	Strong

Source: Cronbach Alpha statistic solution 2023

3.12 Descriptive Statistics

Descriptive statistics is a statistical tool used to describe summarise, and present data in a comprehensible way. Inferential analytics make it easier to understand the data. This analysis technique is critical for presenting difficult-to-visualize input data. Unfortunately, descriptive statistics do not allow this study to draw any

conclusions about the hypothesis or make any judgments further than the data examined. The mean, median, mode, variance, and standard deviation are some of the measures used to measure central tendency. Additionally, inferential analysis is employed in order to present a more complete representation of the data.

This purpose of the study was to evaluate the demographic features of the respondents and examine their impact on the overall results. Gender, age, status, educational level, profession, and income, frequency of internet banking usage, work experience, nationality, and favourite internet banking provider are the aspects included in the respondent's demographic for this study.

3.13 Mean and Standard Deviation

The most often used statistical methods are mean and standard deviation are two important terms in statistics to figure out the normal average of interval data, the mean or standard of score is employed. It could also be defined as rounding all values within a group to a group mark. The researcher could calculate the mean by combining the total of the scores and dividing by the overall amount of results delivered The standard deviation, at the opposite side, determines a wide range of a dimensions of development on the mean among a type of figures. It indicates how near the complete data set to the overall average, and the larger the dispersion of data, the higher the deviation.

The review of literature of respondents' levels of agreement or disagreement on the knowledge domain resumes in the next section of the study. The responses are graded on a scale based one to five, one indicates significant dissatisfaction and five indicates good satisfaction. As the result, respondents who use online banking services were provided a set of statements to convey their

thoughts via questionnaires. This study provide the researcher with a better idea of how internet banking is accepted in Malaysia.

3.14 Correlation Coefficient

Karl Pearson invented the correlation coefficient was invented around 1896 to test the validity of a continuous or straight-line connection among given variables. Pearson's correlation coefficient, denoted by the letter r in calculations, might be used to calculate a range of results ranging from + 1 to -1. A correlation coefficient of zero suggested indicating there was any linear relationship towards variables. A value greater than zero also indicates a good linear relationship, in which the extent to which one variable always rises once that value with the first variable lowers. A correlation value and coefficient just over zero (negative) indicates a negative linear correlation, whereby the worth of one variable decreases as the rate of the other variable increases the other grows (Pearson, K.,1895).

3.15 Data Collection Procedure

Although this data is obtained in the form of quantitative values, it is more appropriate to utilise a quantitative method instead of just a qualitative method to conduct this study. The goal of this investigation is to see if there is a relationship of both the dependent and independent variables. The information acquired presented using charts, graphs, and other statistical aids.

The study conducted employed "Google Form", which was developed by the Google website. The link towards the questionnaire survey is emailed to all respondents, and then they only need to click on it to complete the survey. As a

result, when the questionnaire is completed, many of the data is automatically created. The researcher discovered that this method is incredibly time-saving, efficient, and environmentally friendly, and that it may be used for research survey purposes. The analysis results will be prepared in forms of percentages, amounts, and ratios. Every set of the data, both calculated and descriptive, was acquired using a questionnaire that was created. On the other hand, for offline procedure, the researcher printed the questionnaires and distributed to the selected group of respondents.

Researchers also used the paper to distribute questionnaires among employee who feel unsafe to share their personal data such as e-mail or personal mobile phone numbers as well as given to some employees who are skilled in using the latest technological advances. The data collection period via questionnaire takes about 4 weeks to complete. The questionnaire were administered to around 100 people.

The Likert Scale is used to create the questionnaire survey. The methods of Likert Scale, which contain five levels of scale used to show the interviewee's response to the question that has been asked. According to Mcleod, E., & Arnold, C. B. (2008), the objective of using a questionnaire as the research instrument is to determine the impact of other people's perceptions of the answers of the participants. As presented in Table 3.7, the scale that was used in the study (Jebb, Andrew T.,et al., 2021).

Table 3.7:

Variety of grades and their characterizations of Likert Scale

Scope	1	2	3	4	5
Characterization	Strongly Disagreed	Disagreed	Neutral	Agreed	Strongly Agreed

Source: Scribd 2020

3.16 Statistical Analysis

This section discusses the methods of analysis that are based on facts and interpret the data gathered as well as the testing of hypotheses. Social Sciences Statistical System (SPSS) version 27.0 for Windows used.

3.17 Data Analysis Procedure

Data analysis procedure take place to evaluate the respondents' demographics profile as well as testing the hypotheses. In line with that, there are several tests conducted.

3.17.1 Reliability Test

The test conducted to determine the alpha value which become the indicator to determine the items in the questionnaire reliable or vice versa. If the alpha value is more than 0.6, it can be classified as reliable and the items can be used for further study.

3.17.2 Factor Analysis

It used to determine the element of variables throughout the suggested concept or empirical study interactions. It is crucial phase in the methodology process. The molecular formula modelling was used to define the structure of inter-relationships (correlations) among a huge number of objects. It accomplished by identifying underlying characteristics known as factors (Marra, J., & Hair, M. L.,1988). Measurement model is a multidimensional statistical method for condensing data from a sizeable population of ensembles or components into a reduced quantity of subgroups or factors. The purpose of using variable evaluation seems to make this process more understandable. It is none distinction across dependent, mediating, and independent variables in factor analysis; instead, every elements beneath discussion were evaluated collectively to determine contributing causes.

3.17.3 Descriptive Statistics

For descriptive statistics, mean values and standard deviations presented to tabulated the results. It used to provide collected facts in a systematic order. With that, it contributes to better understanding and good interpretation.

The study was divided into two portions, the first of which focused on the demographic profiles of the respondents comprising age, gender, working experience, and educational level. The five factors considered for this study were presented in the following section. Finally, the final section provided the summary of the overall responds given by the respondents. There are four variables evaluated.

3.17.4 Regression Analysis

The quantitative methodology used to evaluate the relationship between dependent variable independent variables which known as regression analysis. Regression analysis employed primarily two reasons that are completely different. First, regression analysis is frequently employed in estimating parameters, how the use of intersects significantly and the trends (Freedman, D. A., 2010).

In recent years, new techniques developed for regression which required correlated reactions also including series data and developmental curves, regression whereby the determinant (independent variable) as well as reaction (mediating variables) are curves, pictures, diagrams, or such various data entities, and regression in which the predictor (independent variable) or response (mediating variables) are curves, images, graphs, or other complex data objects. By executing a regression analysis on this survey data, researcher can establish whether or not these variables have affected the overall satisfaction of the participant as well as if to what extent (Wallace J. Hopp & Mark P. Oyen,. 2010).

In psychology, intervention of the mediator and evaluation of mediating factors are infrequently used in the same research. Mediation can be statistically studied if a research study contains assessments of a mediating variable and even the independent and dependent variables (Fiske, S. T., Kenny, D. A., & Taylor, S. E.,1982). Mediation is usually implied rather than proven in non-experimental research. As a result, the valid conclusion a researcher may draw from certain research is that a collection of covariance's (e.g. correlation coefficients) between variables is compatible with an established explanatory mode. The regression analysis represents the significant employee acceptance towards industrial revolution 4.0 in Small Medium Enterprise.

3.18 Conceptual Framework

A conceptual framework is a framework of concepts, assumptions, expectations, beliefs, and theories that supports and informs research. It serves as a foundation for conducting studies and helps to guide the research process, including the formulation of research questions, hypotheses, and the methodology used. The conceptual framework can be thought of as a map that lays out the terrain of the research topic, showing how the various components of the study are related. It often includes key concept relationship, assumptions and contextual factors.

The development of a conceptual framework is an important step in the research process, as it clarifies what will be studied and helps to ensure that the research is coherent and well-structured. It also helps to communicate the researcher's perspective and approach to others, including peers, funders, and reviewers (Varpio, L., Paradis, E., Uijtdehaage, S., & Young, M., 2020).

The concept develops by referring Theory Reasoned Action theory and Unified Theory Acceptance Use of Technology where Performance (attitude towards behaviour) and Effort (subjective norm) acts as Independent Variable, Behavioural as Mediating Variable and Acceptance as Dependant Variable.

Figure 3.1 illustrated the conceptual framework

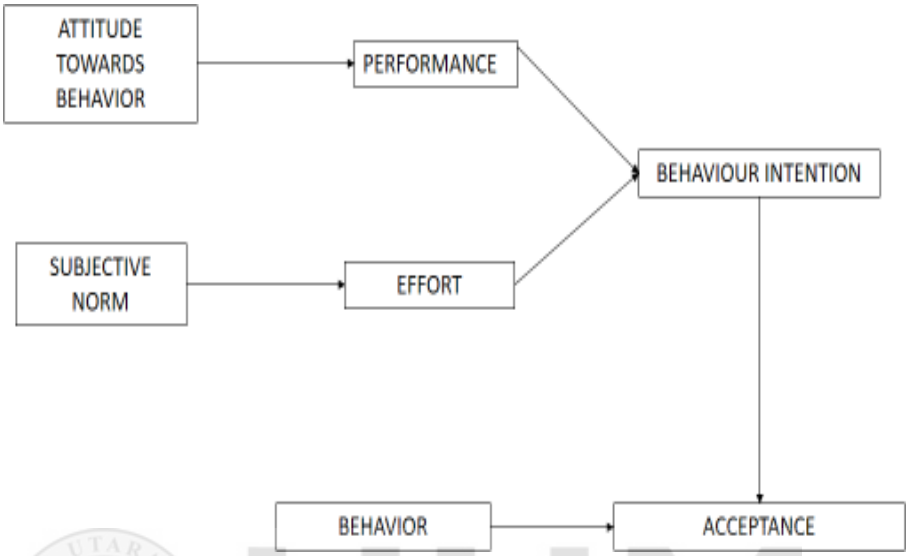

Figure 3.1

Research Conceptual Framework

Figure 3.1 shows that the relationship between Acceptance Expectancy which comprising Performance Expectancy and Effort Expectancy of employee as it gives influence to their behaviour intention. The relationship between Performance Expectancy and Effort Expectancy of employee directly influences their behaviour intention and also acceptance towards new industrial revolution
4.0 among employee Halal Small Medium Enterprise in Penang. Behaviour intention measured towards acceptance of industrial revolution 4.0.

It also shows that the relationship between Performance Expectancy of employee and Effort Expectancy of employee affect their behaviour intention on

their duty and services that they perform in the company. Besides, there is a correlation relationship among them which representing by Performance Expectancy and Effort Expectancy towards acceptance of IR 4.0. Their behaviour intention will be measured as the mediator towards acceptance of industrial revolution 4.0. It shows that this theory is referring to Theory Reasoned Action and also Unified Theory Acceptance Use of Theory.

3.19 Research Theoretical Framework Hypothesis:-

H1 (a): Performance Expectancy has a significant relationship with Employee Behavioural Intention to Accept IR 4.0.

H 01 (a): Performance Expectancy has no significant relationship with Employee Behavioural Intention to Accept IR 4.0.

H2 (a): Effort Expectancy has a significant relationship with employee Behavioural Intention to accept IR 4.0.

H02 (a): Effort Expectancy has no significant relationship with employee Behavioural Intention to accept IR 4.0.

H1 (b): Performance Expectancy has a significant relationship with and employee acceptance towards IR 4.0.

H01 (b): Performance Expectancy has no significant relationship with employee acceptance towards IR 4.0.

H2 (b): Effort Expectancy has a significant relationship with employee acceptance towards IR 4.0.

H02 (b): Effort Expectancy has no significant relationship with employee acceptance towards IR 4.0.

H3: Behaviour Intention has a significant relationship with acceptance towards IR 4.0

H03: Behaviour Intention has no significant relationship with acceptance towards IR 4.0

3.20 Summary

Overall, this chapter has demonstrated how the researcher implement the methodology procedures and justify the study conducted align with the research objectives. The conclusions and recommendations that validates this study's hypothesis are discussed in the next chapter in order to gather sufficient evidence to support the research objectives.

CHAPTER 4

RESULT AND DISCUSSION

4.1 Introduction

In this chapter, the researcher analyses the data collected from the study conducted. The researcher used IBM SPSS Statistics 27 to interpret the results. After the researcher collected and filtered all the data, a total of 350 sets of questionnaires has been distributed by paper and the response obtained 337through online and distributed hard copy of questionnaire towards the respondent. The researcher used this data to further discussion and interpretation in this chapter.

4.2 Pilot Test

A pilot study provides necessary information not only for calculating the sample size but comprising the assessment to determine the suitability of the research for the actual. In line with that, pilot test conducted towards the smaller scale of the respondents compared to the actual research (Mitskidou, P., Mertika, A., Pezirkianidis, C., & Stalikas, A., 2021).

The number of respondents involved in the present study is 260. For pilot test, it is conducted towards 10% to 20% of the total respondents. It is comprising about 30 to 50 respondents who involved in the pilot test in order to determine the normality and reliability (C.O.S. Sorzanoa,b, D. Tabas-Madrida , F. Núñezc , C. Fernández-Criad od., 2018).

The statistical result obtained and presented in the form of skewness and kurtosis. A distribution's asymmetry is measured by skewness, while its tail weight or peakiness is measured by kurtosis. According to research by Ariston, Karagiorgis., Antonis, Ballis., Konstantinos, Drakos., 2023, the slope of kurtosis is greatly impacted by squared skewness, which shows relationship between skewness and kurtosis.

Table 4.1: Normality

Pilot Test

Variable	Item	Skewnes s	Kurtosi s
Employee Acceptance	EA 1	-0.77	0.188
	EA 2	-0.65	0.072
	EA 3	-0.829	0.358
Behavioural Intention	BI 1	-0.717	0.807
	BI 2	-0.68	0.113
	BI 3	-0.69	0.389
Performance Expectancy	PE 1	0.188	0.135
	PE 2	-0.603	-0.278
	PE 3	-0.546	0.179
	PE 4	-0.706	0.276
	EE 1	-0.785	0.522

Effort Expectancy	EE 2	-0.834	0.304
	EE 3	-0.507	0.760
	EE 4	-0.971	0.695

For normality test, Skewness and Kurtosis have been tested towards 62 sets of pilot test data. Based on the result, all the variables obtain below +3 and above -2 (Ariston, Karagiorgis., Antonis, Ballis., Konstantinos, Drakos., 2023). In line with that, it can be classifies as normal if Skewness is between -2 to +3 and Kurtosis is between -7 to +7.

4.3 Reliability Test

Table 4.2 Reliability Test

Construct	Cronbach's Alpha Value	Number of Item	Strength
Employee Acceptance	0.941	3	Acceptable
Behavioural Intension	0.938	3	Acceptable
Performance Expectancy	0.888	4	Acceptable
Effort Expectancy	0.965	4	Acceptable

Referring to Table 4.2, it shows Cronbach's alpha value based on pilot test conducted towards each variable. Majority of the variables are more than 0.8 which considered as good. According to Cortina, J, M. (1993), as alpha value recorded is more than 0.7, it is acceptable and further study can be conducted.

4.4 Descriptive Analysis

Based on Sekaran, U., & Bougie, R. (2016), from the total of 5500 sample size needed to represent the cross-section of the population. For this present research, the researcher managedto obtain 337 responses. It indicates that this research gains six percent of the response rate from the respondents needed. The researcher faced difficulty to collect data face-to-face which caused only 337 responses managed to obtain. According to Baruch, Y., & Holtom, B. C. (2020), the analysis indicates that research conducted towards organizational representatives which is lower-level management such as operator or top executive which have a higher chance to obtain lower response rate.

Table for Determining Sample Size from a Given Population

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

N is population size.
S is sample size.

Acknowledgments to Uma Sekaran

Figure 4.1

Uma Sekaran Table of determination sample size

Table 4.3 Descriptive

Analysis

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PE1	337	1.00	5.00	2.9792	1.18127	.062	.133	-.876	.265
PE2	337	1.00	5.00	3.4807	1.11019	-.325	.133	-.598	.265
PE3	337	1.00	5.00	3.4125	1.11759	-.326	.133	-.507	.265
PE4	337	1.00	5.00	3.6053	1.09722	-.461	.133	-.465	.265
EE1	337	1.00	5.00	3.5460	1.07396	-.512	.133	-.187	.265
EE2	337	1.00	5.00	3.5282	1.04081	-.314	.133	-.330	.265
EE3	337	1.00	5.00	3.4837	1.07205	-.315	.133	-.497	.265

EE4	337	1.00	5.00	3.5371	1.07430	-.415	.133	-.435	.265
BI1	337	1.00	5.00	3.5371	1.06036	-.316	.133	-.372	.265
BI2	337	1.00	5.00	3.4837	1.05808	-.397	.133	-.251	.265
BI3	337	1.00	5.00	3.5074	1.12100	-.267	.133	-.668	.265
EA1	337	1.00	5.00	3.5964	1.02225	-.591	.133	.074	.265
EA2	337	1.00	5.00	3.4985	1.05538	-.309	.133	-.503	.265
EA3	337	1.00	5.00	3.5460	1.06840	-.503	.133	-.209	.265
Valid N (listwise)	337								

$$\text{Sample size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N}\right)}$$

Figure 4.2

Sample size matrix of calculation

According to Sekaran, U., & Bougie, R. (2016), the response rate approximately from 60 to 70 percent more than targeted sample. It is representing 90% confidence level and 5% margin of error from the total target. For this present study, the researcher aims to collect 400 respondent of response rate while it required at least 90% above than target respondent. Figure 4.3 represented the calculation of sample size using survey monkey.

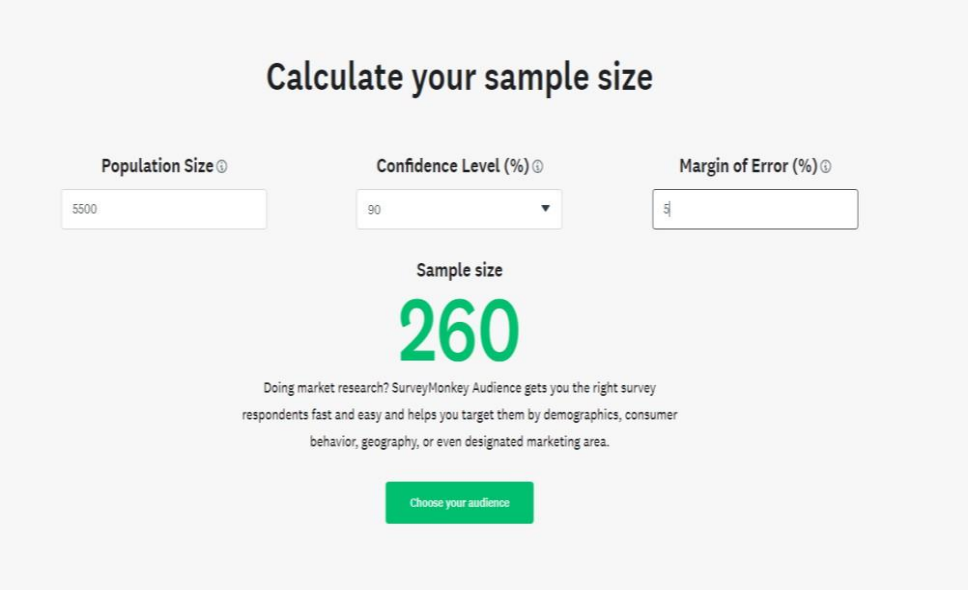

Figure 4.3

Survey Monkey result of calculation

Figure 4.4 illustrated the pie chart which represents the respondents who give response and do not give response towards the questionnaire. As can be seen, 94% of the respondents give response and another 6% of the respondents do not give response towards the questionnaire.

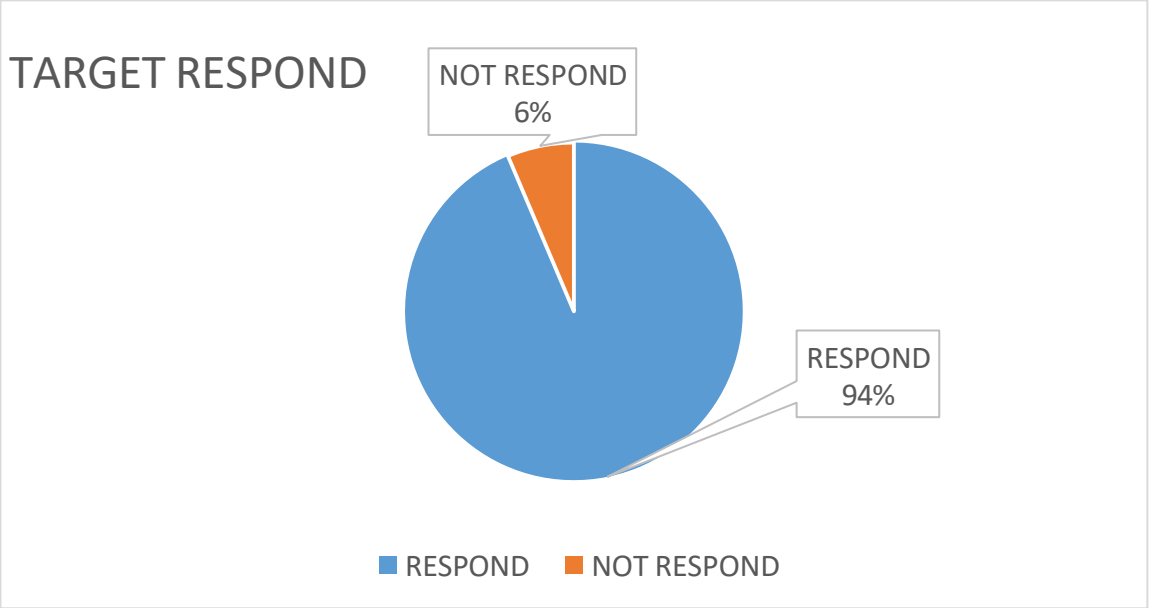

Figure 4.4

Respondent Response

4.5 Respondent Demographic Profile

The investigation towards the demographic profile among the respondents comprising gender, household income, marital status, education level, age and experience in working experience.

4.5.1 Gender

Table 4.4

Gender Frequency

Gender	Frequency	Percent%	Cumulative Frequency	Cumulative Percent
Male	173	52	173	52
Female	164	48	337	100

As presented in Table 4.4, it shows that 173 out of 337 respondents are male which represent a total of 52 percent of the total respondents. It shows that male dominate the study conducted.

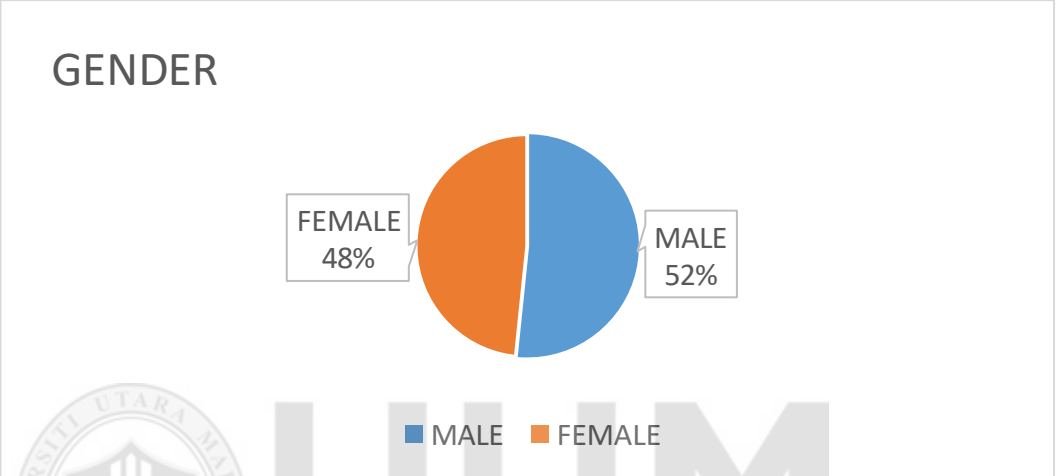

Figure 4.5

Gender Respondent

4.5.2 Household Income

Table 4.5

Household Income

Household Income	Frequency	Percent%	Cumulative Frequency	Cumulative Percent
Less 2000	75	16	75	16
Above 2000	207	62	282	78
Above 5000	55	22	337	100

Referring to Table 4.5, it indicates that the majority of the respondent's household income is above RM 2000 monthly which have a total of 207 respondent (62%).

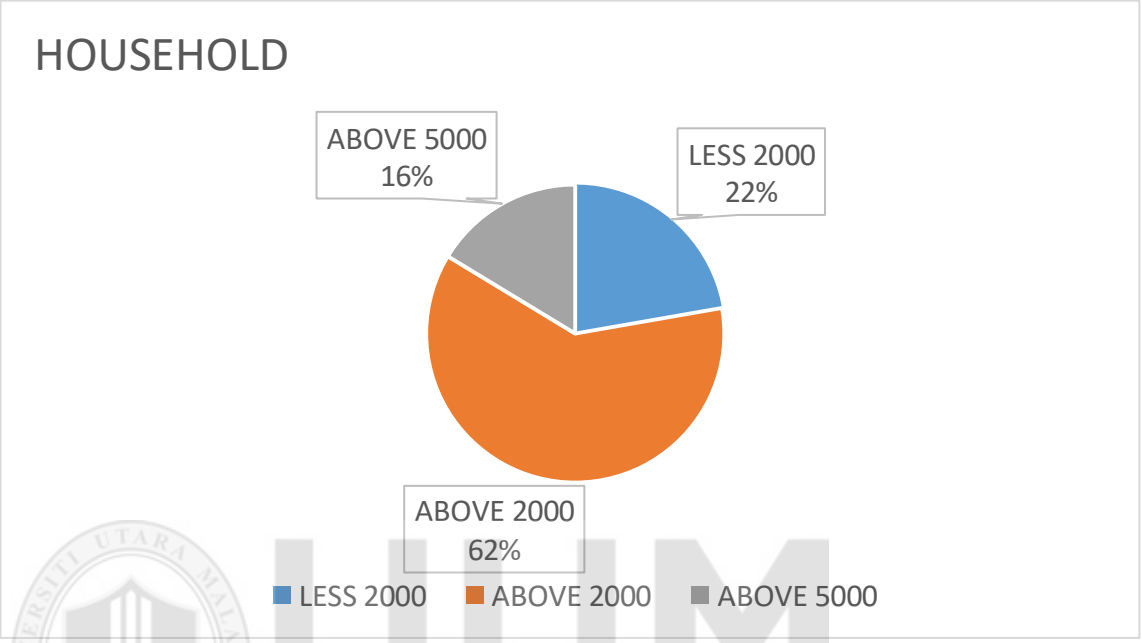

Figure 4.6

Household Income

4.5.3 Marital Status

Table 4.6

Marital Status

Status	Frequency	Percent%	Cumulative Frequency	Cumulative Percent
Single	61	18	61	18
Married	276	82	337	100

In terms of marital status, Table 4.6 shows that 276 respondents are married which represent 82 percent of the total respondents. About 18% of the respondents are single.

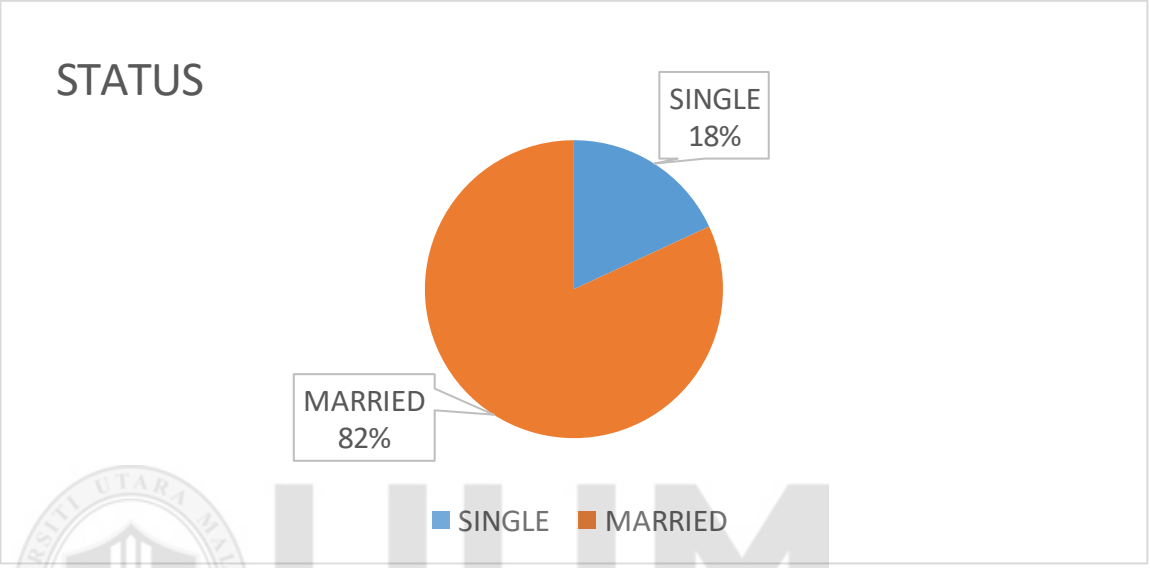

Figure 4.7

Marital Status

4.5.4 Education Level

Table 4.7

Education Level

Education Level	Frequency	Percent%	Cumulative Frequency	Cumulative Percent
Secondary School	68	20	68	20
Diploma	128	38	196	62
Degree and Above	141	42	337	100

Referring to Table 4.7, it shows that the majority of the respondent's education level is degree and above which comprising 141 respondent (42%).

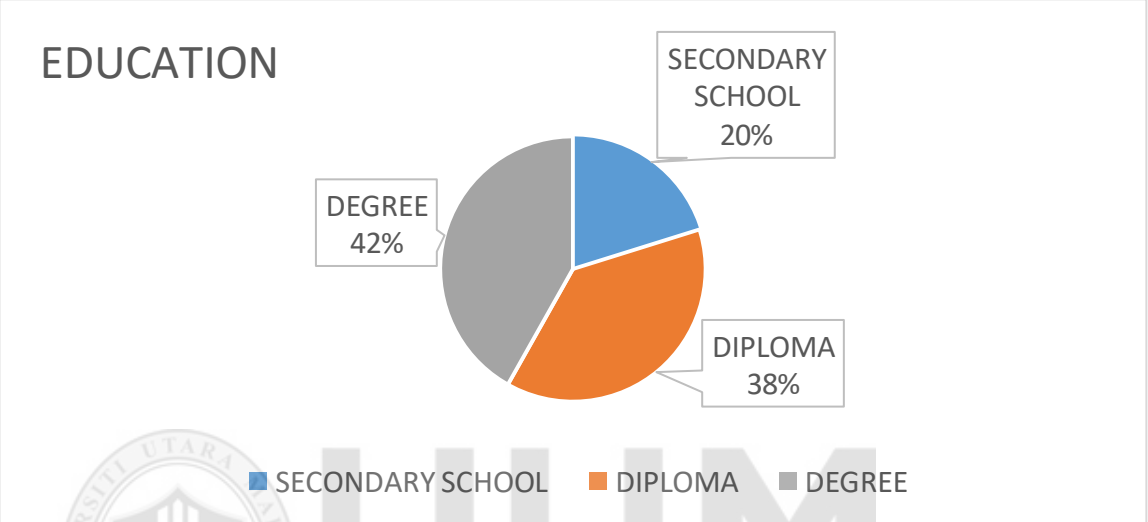

Figure 4.8

Education Level

4.5.5 Age

Table 4.8

Age

Age	Frequency	Percent%	Cumulative Frequency	Cumulative Percent
Less than 30 years	50	15	50	15
31 – 35	84	25	134	40
36 – 40	88	26	222	66

41 — 45	65	19	287	85
46 - 50	23	7	310	92
51 — 55	21	6	331	98
56 and above	6	2	337	100

As tabulated in Table 4.8, it can be seen clearly as majority of the respondents' age is 36 to 40 years old which made up of 88 respondents represents 26 percent.

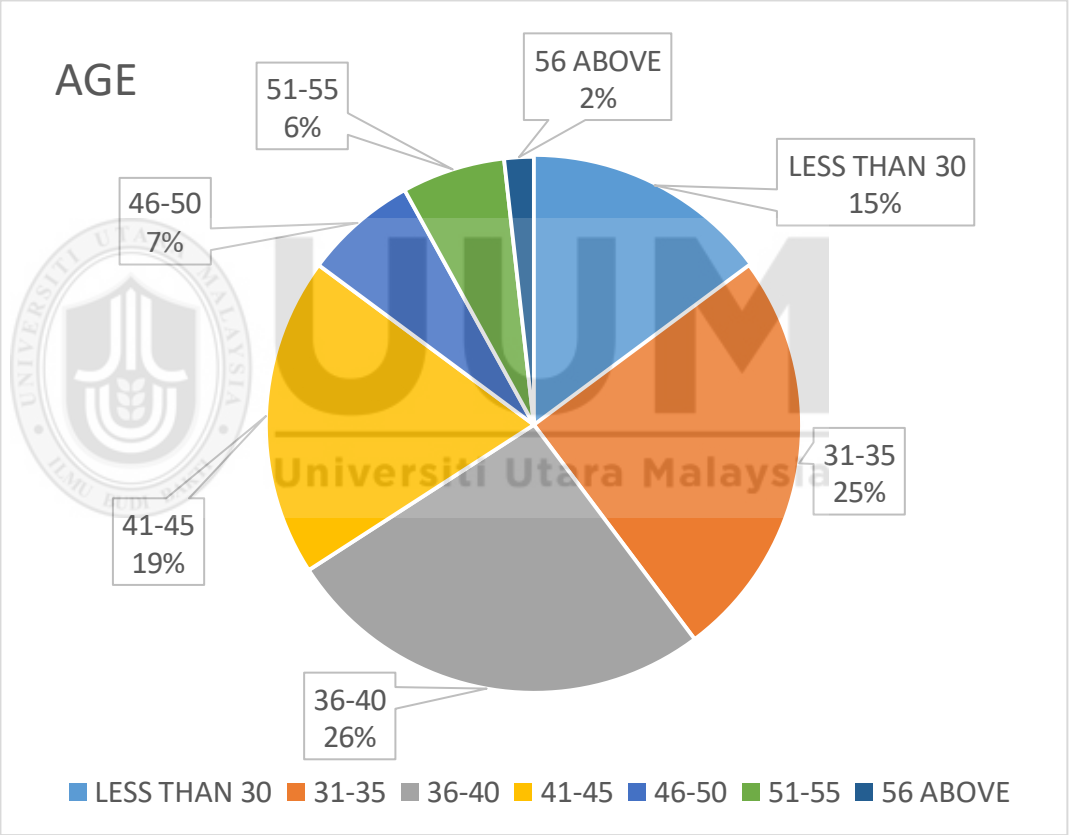

Figure 4.9

Age

4.5.6 Experience

Table 4.9

Experience

Experience	Frequency	Percent%	Cumulative Frequency	Cumulative Percent
10 years and below	218	65	218	65
11 years to 15 years	77	23	295	88
16 years and above	42	12	337	100

As presented in Table 4.9, it indicates that the majority of the respondent's working experience is 10 years and below which comprising 218 respondents (65%).

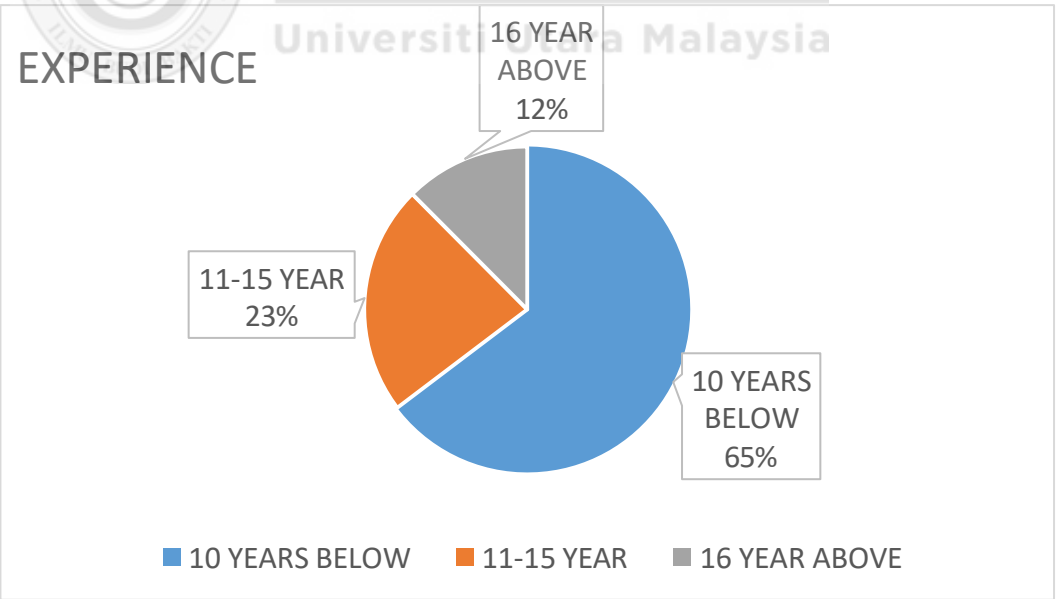

Figure 4.10

Experience

4.6 Central Tendency Measure

Central tendency is the typical central value in a probability distribution, or known as the average of the value. A mean and standard deviation of the result used to describe the data as a descriptive statistic (Rojon, C., & Saunders, M. N., 2012).

4.6.1 Performance Expectancy

Table 4.10

Central Tendencies Measure of Performance Expectancy

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
PE1	337	1.00	5.00	2.9792	1.18127	1.395
PE2	337	1.00	5.00	3.4807	1.11019	1.233
PE3	337	1.00	5.00	3.4125	1.11759	1.249
PE4	337	1.00	5.00	3.6053	1.09722	1.204
Valid N (listwise)	337					

As presented in Table 4.10, it shows the mean, standard deviation and variance for Performance Expectancy. The data above shows that PE4 has the highest mean value of 3.605 with a standard deviation value of 1.0972 and variance 1.204. Meanwhile, PE1 shows the highest standard deviation value of 1.838 with the lowest mean value of 2.979 and highest variance 1.395.

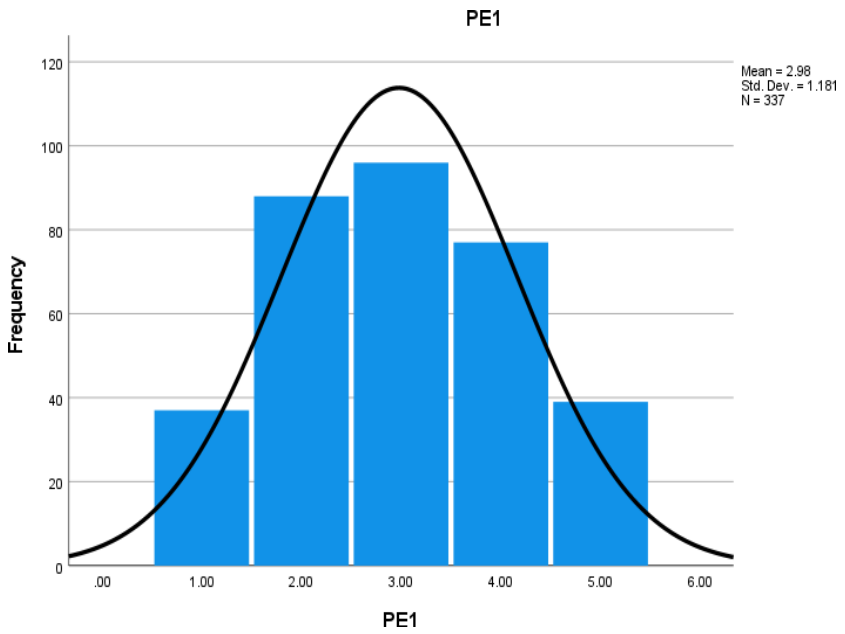

Figure 4.11

Performance Expectancy (PE 1)

Figure 4.11 shows the highest answer from respondent are 3 (neutral) which represented 87 respondent and 30% from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 31 respondent and 11 % from total percentage of respondent.

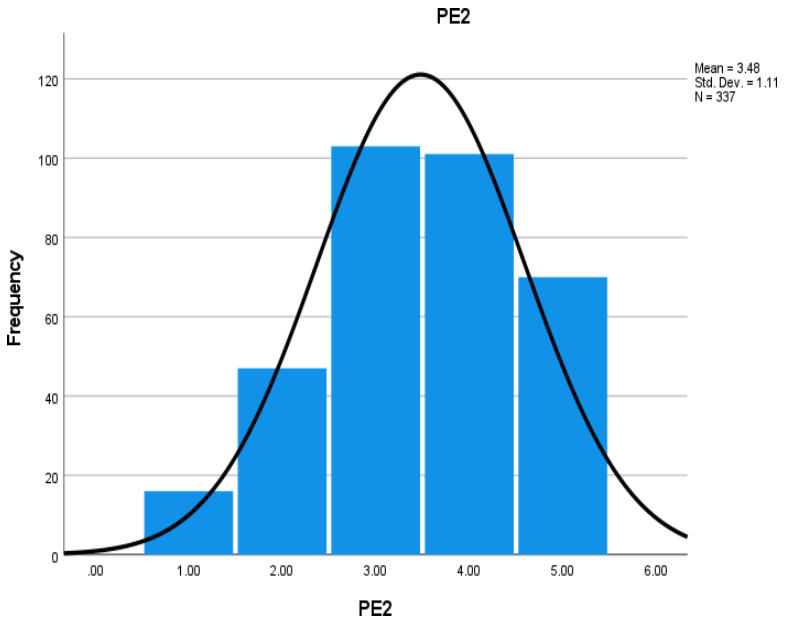

Figure 4.12

Performance Expectancy (PE 2)

Figure 4.12 shows the highest answer from respondent are 3 (neutral) which represented 102 respondent and 30% from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 20 respondent and 6 % from total percentage of respondent.

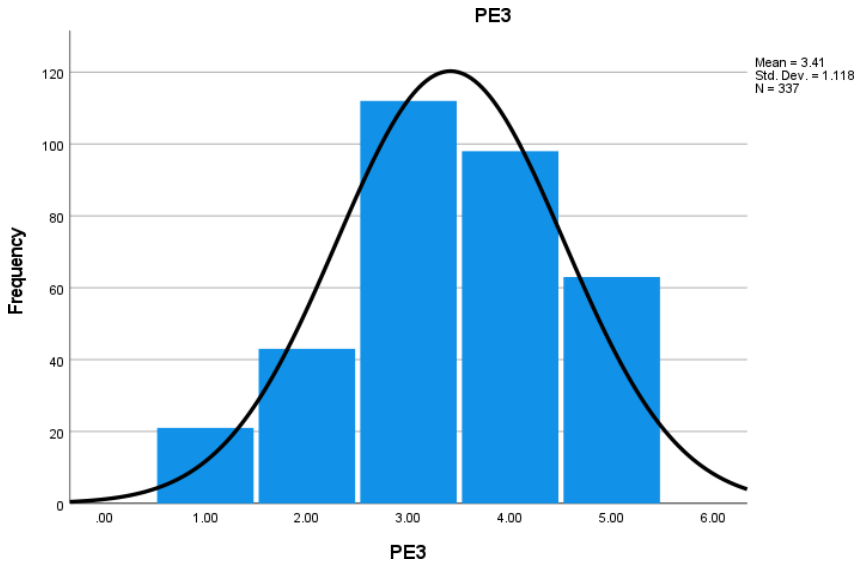

Figure 4.13

Performance Expectancy (PE 3)

Figure 4.13 shows the highest answer from respondent are 3 (neutral) which represented 115 respondent and 34% from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 20 respondent and 6 % from total percentage of respondent.

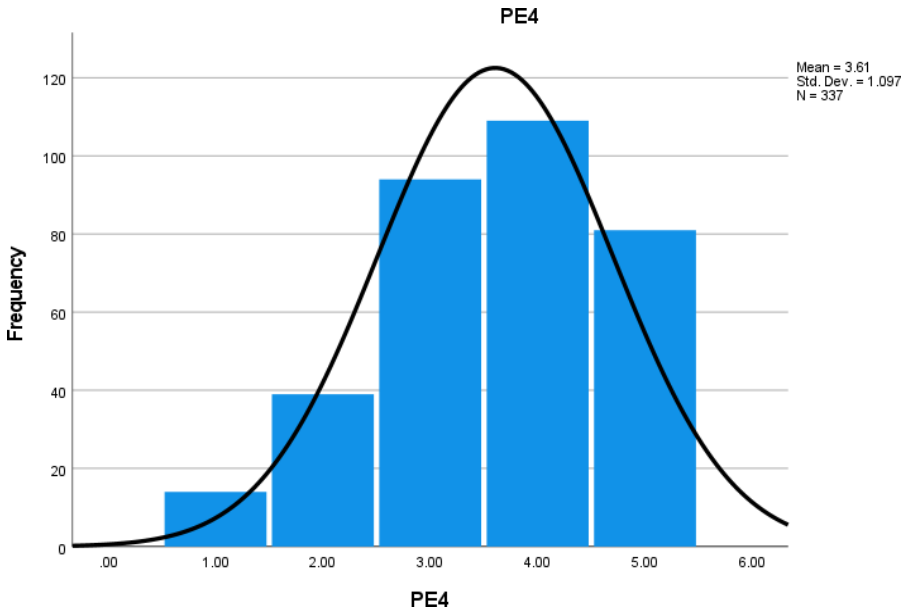

Figure 4.14

Performance Expectancy (PE 4)

Figure 4.14 shows the highest answer from respondent are 3 (neutral) which represented 115 and 34 % from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 20 respondent and 6 % from total percentage of respondent.

4.6.2 Effort Expectancy

Table 4.11

Central Tendencies Measure of Effort Expectancy

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
EE1	337	1.00	5.00	3.5460	1.07396	1.153
EE2	337	1.00	5.00	3.5282	1.04081	1.083
EE3	337	1.00	5.00	3.4837	1.07205	1.149
EE4	337	1.00	5.00	3.5371	1.07430	1.154
Valid N (listwise)	337					

Table 4.11 above shows the mean, standard deviation and variance for Effort Expectancy. The data shows that EE1 has the highest mean value of 3.546 with a standard deviation value of 1.0739 and variance 1.153. Meanwhile, EE4 shows the highest standard deviation value of 1.0743 with the second lowest mean value of
3.537 and highest variance 1.154.

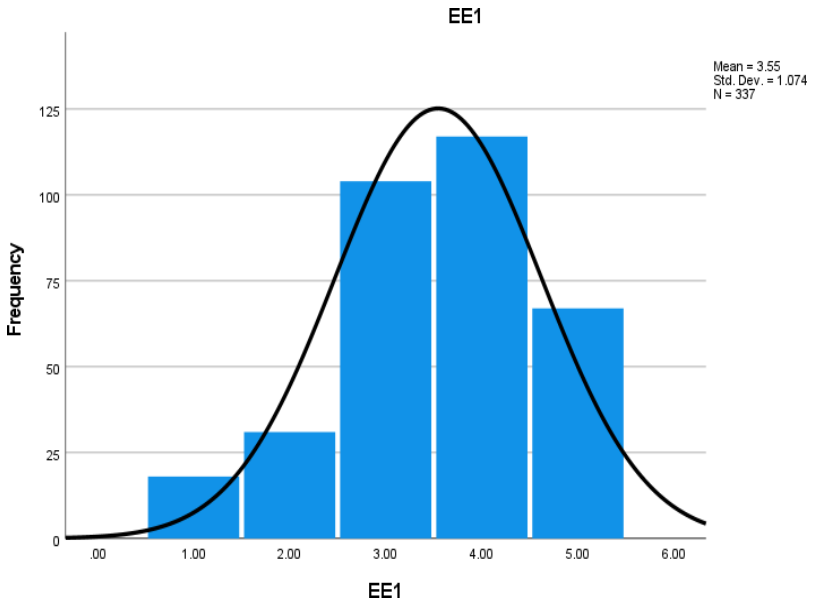

Figure 4.15

Effort Expectancy (EE 1)

Figure 4.15 shows the highest answer from respondent are 4 (agree) which represented 115 and 34 % from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 13 respondent and 4 % from total percentage of respondent.

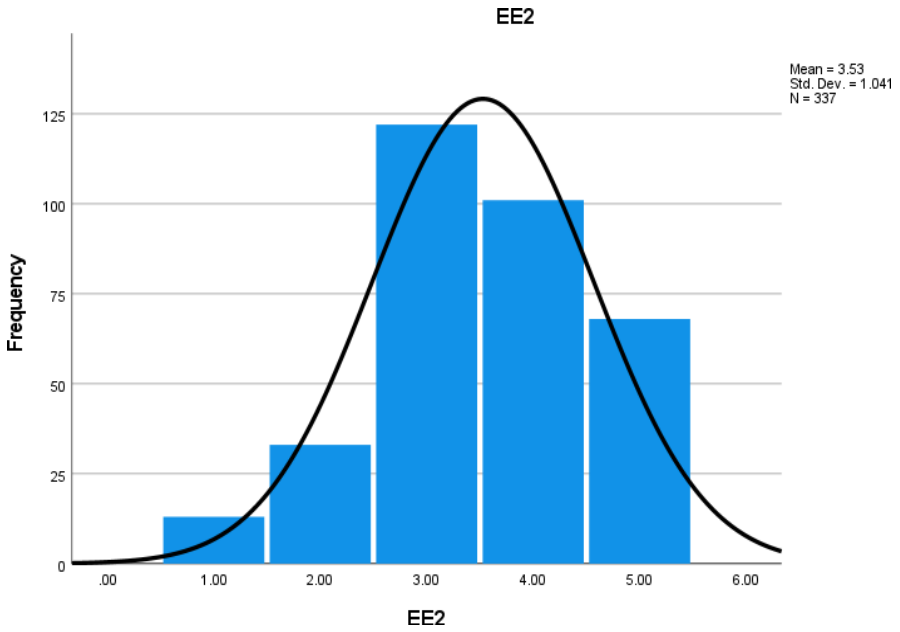

Figure 4.16

Effort Expectancy (EE 2)

Figure 4.16 shows the highest answer from respondent are 3 (neutral) which represented 112 and 33 % from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 12 respondent and 4 % from total percentage of respondent.

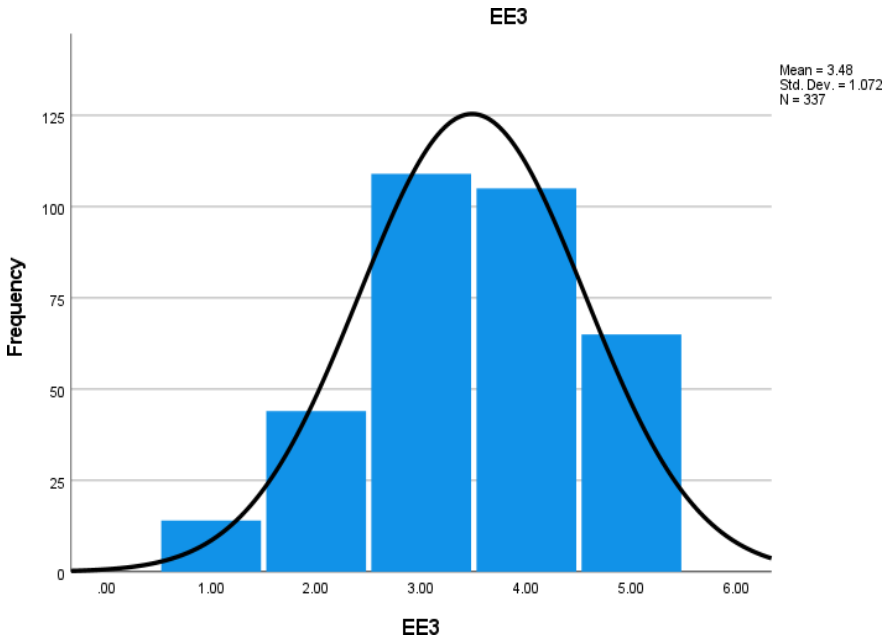

Figure 4.17

Effort Expectancy (EE 3)

Figure 4.17 shows the highest answer from respondent are 3 (neutral) which represented 111 and 33 % from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 12 respondent and 3 % from total percentage of respondent.

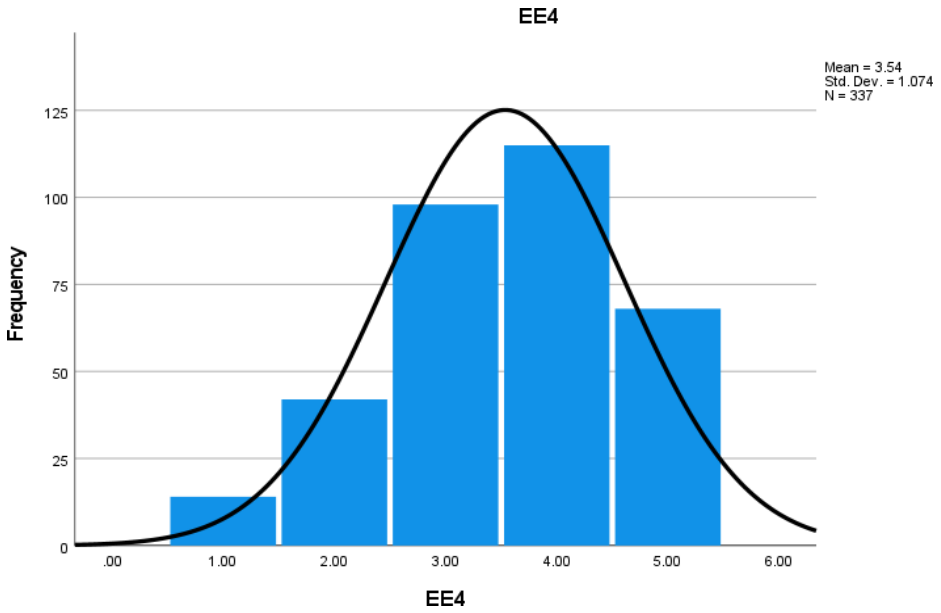

Figure 4.18

Effort Expectancy (EE 4)

Figure 4.18 shows the highest answer from respondent are 4 (agree) which represented 122 and 36 % from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 14 respondent and 4 % from total percentage of respondent.

4.6.3 Behavioural Intension

Table 4.12

Central Tendencies Measure of Behavioural Intention

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
BI1	337	1.00	5.00	3.5371	1.06036	1.124
BI2	337	1.00	5.00	3.4837	1.05808	1.120
BI3	337	1.00	5.00	3.5074	1.12100	1.257
Valid N (listwise)	337					

Table 4.12 shows the mean, standard deviation and variance for Behavioural Intention. The data shows that BI1 has the highest mean value of 3.537 with a standard deviation value of 1.0603 and variance 1.124. Meanwhile, BI 3 shows the highest standard deviation value of 1.1210 with the second lowest mean value of
3.507 and highest variance 1.257.

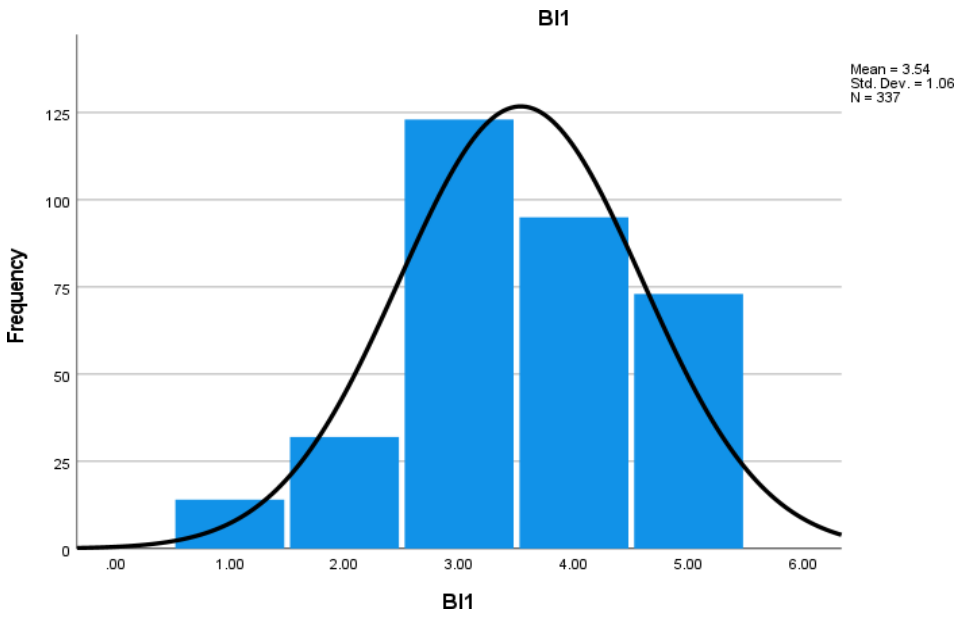

Figure 4.19

Behavioural Intention (BI 1)

Figure 4.19 shows the highest answer from respondent are 3 (neutral) which represented 132 and 39 % from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 14 respondent and 4 % from total percentage of respondent.

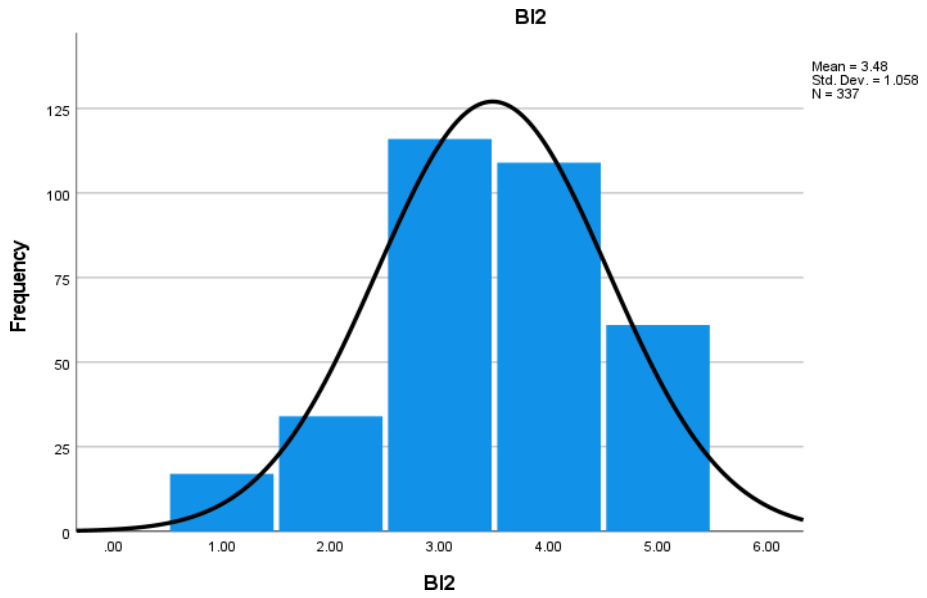

Figure 4.20

Behavioural Intention (BI 2)

Figure 4.20 shows the highest answer from respondent are 3 (neutral) which represented 118 and 34 % from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 16 respondent and 5 % from total percentage of respondent.

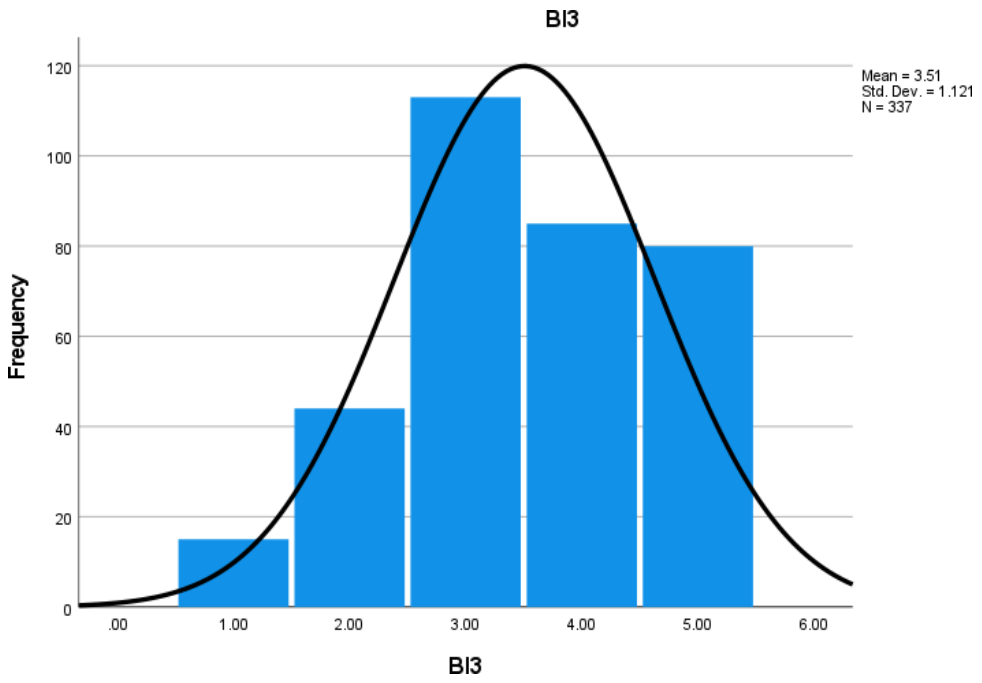

Figure 4.21

Behavioural Intention (BI 3)

Figure 4.21 shows the highest response from respondent are 3 (neutral) which represented 118 and 35 % from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 13 respondent and 4 % from total percentage of respondent.

4.6.4 Employee acceptance towards Industrial Revolution 4.0 among Small Medium Enterprise in Penang

Table 4.13

Central Tendencies Measure of Employee Acceptance towards Industrial Revolution

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
EA1	337	1.00	5.00	3.5964	1.02225	1.045
EA2	337	1.00	5.00	3.4985	1.05538	1.114
EA3	337	1.00	5.00	3.5460	1.06840	1.141
Valid N (listwise)	337					

Table 4.13 above shows the mean, standard deviation and variance for Behavioural Intention. The data shows that EA1 has the highest mean value of 3.596 with a standard deviation value of 1.02225 and variance 1.045. Meanwhile, EA3 holds the highest standard deviation value of 1.068 with the second lowest mean value of 3.546 and highest variance 1.141.

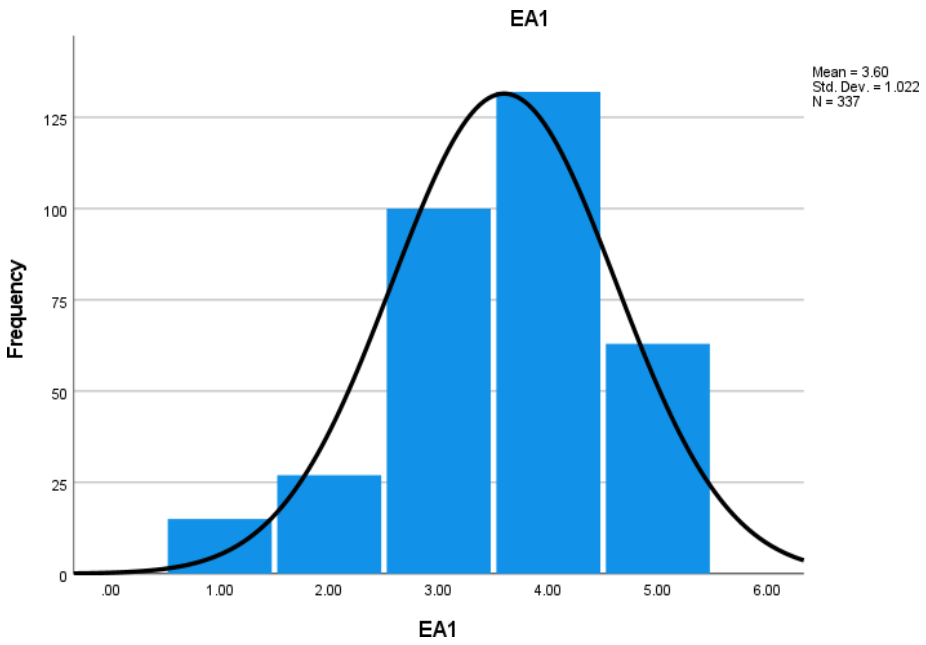

Figure 4.22

Employee Acceptance (EA 1)

Figure 4.22 shows the highest response from respondent are 4 (agree) which represented 131 and 39 % from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 13 respondent and 4 % from total percentage of respondent.

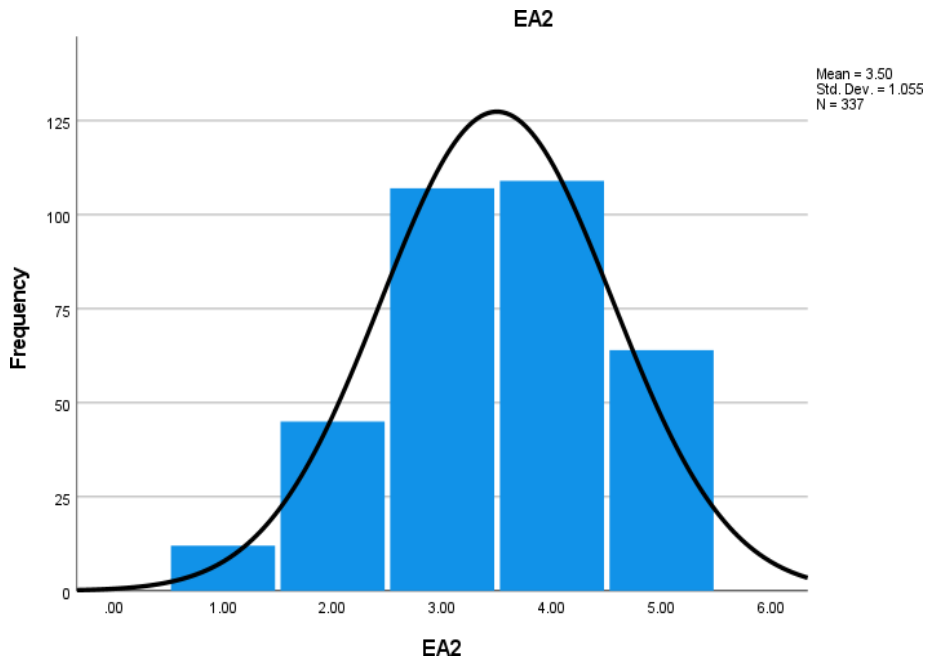

Figure 4.23

Employee Acceptance (EA 2)

Figure 4.23 shows the highest response from respondent are 4 (agree) which represented 115 and 34 % from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 11 respondent and 3 % from total percentage of respondent.

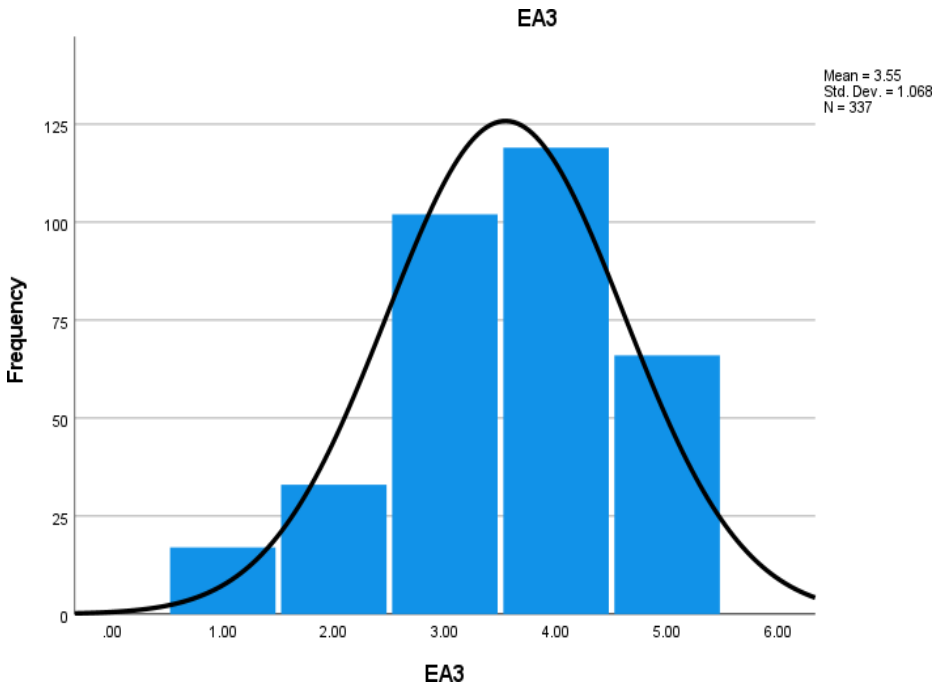

Figure 4.24

Employee Acceptance (EA 3). .

Figure 4.24 shows the highest response from respondent are 4 (agree) which represented 118 and 35 % from total percentage of respondent. Besides, the lowest are 1 (totally disagree) which represented 15 respondent and 5 % from total percentage of respondent.

4.7 Scale Measurement Research

The significant of scale measurement research can be defined in various definitions and categorization schemes which applied to variables described by normality testing and reliability testing.

4.7.1 Normality Testing

Table 4.14

Normality Testing

Descriptive Statistics					
	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
PE1	337	0.062	0.133	-0.876	0.265
PE2	337	-0.325	0.133	-0.598	0.265
PE3	337	-0.326	0.133	-0.507	0.265
PE4	337	-0.461	0.133	-0.465	0.265
EE1	337	-0.512	0.133	-0.187	0.265
EE2	337	-0.314	0.133	-0.330	0.265
EE3	337	-0.315	0.133	-0.497	0.265
EE4	337	-0.415	0.133	-0.435	0.265
BI1	337	-0.316	0.133	-0.372	0.265
BI2	337	-0.397	0.133	-0.251	0.265
BI3	337	-0.267	0.133	-0.668	0.265

EA1	337	-0.591	0.133	0.074	0.265
EA2	337	-0.309	0.133	-0.503	0.265
EA3	337	-0.503	0.133	-0.209	0.265
Valid N (listwise)	337				

4.7.2 Reliability Testing

In order to determine the reliability of the data, Cronbach's Alpha Value become the indicator. It used to measure consistency of the data. If the instrument is reliable, Cronbach's Alpha Value recorded is more than 0.6.

Table 4.15

Cronbach's Alpha Reliability Test all variable (overall)

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No of Items
0.939	0.940	13

As tabulated in Table 4.15, it shows the result of reliability test by looking at Cronbach's Alpha value. Based on the result, Cronbach's Alpha value recorded is 0.939 which indicates a good strength of reliability.

Table 4.16

Cronbach's Alpha Reliability Test all variable each variable

Construct	Cronbach's Alpha Value	Number of Item	Strength
Behavioural Intension	0.944	3	Good
Performance Expectancy	0.779	4	Acceptable
Effort Expectancy	0.887	4	Good
Employee Acceptance	0.935	3	Good

Table 4.16 shows the result of reliability test by looking at Cronbach's Alpha value. Based on the finding reported, all constructs show Cronbach's Alpha Value recorded more than 0.8 which indicates a good strength of reliability except Performance Expectancy which obtain 0.779 as it can be considered acceptable (Cortina, J, M., 1993).

4.7.2.1 Performance Expectancy

Table 4.17

Summary Statistic Performance Expectancy

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Covariances	.594	.536	.657	.121	1.226	.002	4

4.7.2.2 Effort Expectancy

Table 4.18

Summary Statistic Effort Expectancy

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Covariances	.750	.569	.894	.325	1.572	.021	4

4.7.2.3 Behavioural Intention

Table 4.19

Summary Statistic Behavioural Intention

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Covariances	.989	.927	1.051	.124	1.134	.003	3

4.7.2.4 Employee Acceptance

Table 4.20

Summary Statistic Employee Acceptance

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Covariances	.910	.857	.938	.082	1.095	.002	3

4.8 One sample T-Test

4.8.1 Performance Expectancy

Table 4.21

One Sample Statistic Performance Expectancy

One-Sample Statistics						
			Bootstrap[a]			
					95% Confidence Interval	
		Statistic	Bias	Std. Error	Lower	Upper
PE1	N	337				
	Mean	2.9792	-.0010	.0651	2.8487	3.1068
	Std. Deviation	1.18127	-.00239	.03437	1.11081	1.24681
	Std. Error Mean	.06435				
PE2	N	337				
	Mean	3.4807	-.0006	.0582	3.3650	3.5964
	Std. Deviation	1.11019	-.00287	.03528	1.03490	1.17621
	Std. Error Mean	.06048				
PE3	N	337				
	Mean	3.4125	.0001	.0607	3.2879	3.5312
	Std. Deviation	1.11759	-.00257	.03706	1.04094	1.18188
	Std. Error Mean	.06088				
PE4	N	337				
	Mean	3.6053	-.0019	.0617	3.4749	3.7180
	Std. Deviation	1.09722	-.00239	.03629	1.02077	1.16511
	Std. Error Mean	.05977				

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

4.8.2 Effort Expectancy

Table 4.22

One Sample Statistic Effort Expectancy

One-Sample Statistics						
			Bootstrap[a]			
					95% Confidence Interval	
		Statistic	Bias	Std. Error	Lower	Upper
EE1	N	337				
	Mean	3.5460	.0009	.0578	3.4243	3.6528
	Std. Deviation	1.07396	-.00273	.03974	.99118	1.14705
	Std. Error Mean	.05850				
EE2	N	337				
	Mean	3.5282	-.0005	.0573	3.4095	3.6379
	Std. Deviation	1.04081	-.00190	.03717	.96765	1.11298
	Std. Error Mean	.05670				
EE3	N	337				
	Mean	3.4837	-.0017	.0593	3.3650	3.5935
	Std. Deviation	1.07205	-.00190	.03762	.99145	1.13924
	Std. Error Mean	.05840				
EE4	N	337				
	Mean	3.5371	-.0016	.0596	3.4125	3.6469
	Std. Deviation	1.07430	-.00155	.03759	.99853	1.14709
	Std. Error Mean	.05852				
a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples						

4.8.3 Behavioural Intention

Table 4.23

One Sample Statistic Behavioural Intention

One-Sample Statistics						
			Bootstrap[a]			
					95% Confidence Interval	
		Statistic	Bias	Std. Error	Lower	Upper
BI1	N	337				
	Mean	3.5371	-.0017	.0581	3.4243	3.6499
	Std. Deviation	1.06036	-.00290	.03715	.97976	1.13168
	Std. Error Mean	.05776				
BI2	N	337				
	Mean	3.4837	-.0002	.0591	3.3680	3.5994
	Std. Deviation	1.05808	-.00277	.03723	.98222	1.13029
	Std. Error Mean	.05764				
BI3	N	337				
	Mean	3.5074	.0002	.0630	3.3858	3.6349
	Std. Deviation	1.12100	-.00265	.03483	1.04917	1.19034
	Std. Error Mean	.06106				

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

4.8.4 Employee Acceptance

Table 4.24

Summary Statistic Employee Acceptance

One-Sample Statistics						
			Bootstrap[a]			
					95% Confidence Interval	
		Statistic	Bias	Std. Error	Lower	Upper
EA1	N	337				
	Mean	3.5964	.0030	.0547	3.4926	3.7062
	Std. Deviation	1.02225	-.00172	.03999	.93802	1.10109
	Std. Error Mean	.05569				
EA2	N	337				
	Mean	3.4985	.0013	.0576	3.3858	3.6171
	Std. Deviation	1.05538	-.00010	.03416	.98827	1.12295
	Std. Error Mean	.05749				
EA3	N	337				
	Mean	3.5460	.0008	.0571	3.4392	3.6558
	Std. Deviation	1.06840	-.00040	.03790	.99417	1.13913
	Std. Error Mean	.05820				

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

4.9 Inferential Analysis

4.9.1 Pearson's Correlation Analysis between Performance Expectancy and Behavioural Intention

Table 4.25

Pearson's Correlation Analysis (Behavioural Intention and Performance Expectancy).

Correlations					
				PEAVE	BIAVE
PEAVERAGE	Pearson Correlation			1	.490**
	Sig. (2-tailed)				.000
	N			337	337
	Bootstrap[b]	Bias		0	.000
		Std. Error		0	.051
		90% Confidence Interval	Lower	1	.385
			Upper	1	.586
BIAVERAGE	Pearson Correlation			.490**	1
	Sig. (2-tailed)			.000	
	N			337	337
	Bootstrap[b]	Bias		.000	0
		Std. Error		.051	0
		90% Confidence Interval	Lower	.385	1
			Upper	.586	1

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

b. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

H0*: Performance Expectancy has a positive relationship between Behavioural Intention and Performance Expectancy.*

H1*: Performance Expectancy has a negative relationship between Behavioural Intention and Performance Expectancy.*

Referring to Table 4.25, it shows the correlation between Performance Expectancy and Behavioural Intention is 0.490. It indicates that Performance Expectancy has a positive relationship with Behavioural Intention. When Performance Expectancy increase, Behavioural Intention will increase and vice versa. From the finding reported, Performance Expectancy has a moderate relationship with Behavioural Intention. The significant value is
0.000 which means that there is a significant correlation between Performance Expectancy and Behavioural Intention. It means that increases or decreases of Performance Expectancy significantly affect the increases or decreases of Behavioural Intention. Therefore, H0 is accepted.

4.9.2 Pearson's Correlation Analysis between Effort Expectancy Behavioural and Intention

Table 4.26

Pearson's Correlation Analysis (Behavioural Intention and Effort Expectancy).

Correlations					
				EEAVE	BIAVE
EEAVERAGE	Pearson Correlation			1	.507**
	Sig. (2-tailed)				.000
	N			337	337
	Bootstrap[b]	Bias		0	.000
		Std. Error		0	.053
		90% Confidence Interval	Lower	1	.396
			Upper	1	.610
BIAVERAGE	Pearson Correlation			.507**	1
	Sig. (2-tailed)			.000	
	N			337	337
	Bootstrap[b]	Bias		.000	0
		Std. Error		.053	0
		90% Confidence Interval	Lower	.396	1
			Upper	.610	1
**. Correlation is significant at the 0.01 level (2-tailed).					
b. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples					

H0*: Effort Expectancy has a positive relationship between Behavioural Intention and Effort Expectancy.*

H1*: Effort Expectancy has a negative relationship between Behavioural Intention and Effort Expectancy.*

As presented in Table 4.26, it shows the correlation between Effort Expectancy and Behavioural Intention is 0.507. It indicates that

Effort Expectancy has a positive Relationship with Behavioural Intention. When Effort Expectancy increase, Behavioural Intention will also increase. From the finding shown, Effort Expectancy has a moderate relationship with Behavioural Intention. The significant value is 0.000 which means that there is a significant correlation between Effort Expectancy and Behavioural Intention. It means increases or decreases of Effort Expectancy significantly affect the increases or decreases of Behavioural Intention. Therefore, H0 is accepted.

4.9.3 Pearson's Correlation Analysis between Behavioural Intention and Employee Acceptance

Table 4.27

Pearson's Correlation Analysis (Behavioural Intention and Employee Acceptance).

Correlations					
				BIAVE	EAAVE
BIAVERAGE	Pearson Correlation			1	.799**
	Sig. (2-tailed)				.000
	N			337	337
	Bootstrap[b]	Bias		0	-.001
		Std. Error		0	.027
		90% Confidence Interval	Lower	1	.738
			Upper	1	.847
	Pearson Correlation			.799**	1
	Sig. (2-tailed)			.000	

EAAVERAGE	N			337	337
	Bootstrap[b]	Bias		-.001	0
		Std. Error		.027	0
		90% Confidence Interval	Lower	.738	1
			Upper	.847	1
**. Correlation is significant at the 0.01 level (2-tailed).					
b. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples					

H0*: Behavioural Intension has a positive relationship between Behavioural Intention and Employee Acceptance.*

H1*: Behavioural Intention has a negative relationship between Behavioural Intention and Employee Acceptance.*

Referring to Table 4.27, it shows the correlation between Behavioural Intention and Employee Acceptance towards IR 4.0 is 0.799. It indicate that Behavioural Intention has a positive relationship with Employee Acceptance. When Employee Acceptance increase, Behavioural Intention will also increase. From the finding shown, Employee Acceptance has a moderate relationship with Behavioural Intention. The significant value is

0.000 which means that there is a significant correlation between Behavioural Intention and Employee Acceptance. It shows increases or decreases of Behavioural Intention significantly affect the increases or decreases of Employee Acceptance. Therefore, H0 is accepted.

4.9.4 Pearson's Correlation Analysis between Performance Expectancy and Employee Acceptance

Table 4.28

Pearson's Correlation Analysis (Performance Expectancy and Employee Acceptance).

Correlations					
				PEAVE	EAAVE
PEAVERAGE	Pearson Correlation			1	.518**
	Sig. (2-tailed)				.000
	N			337	337
	Bootstrap[b]	Bias		0	-.003
		Std. Error		0	.052
		90% Confidence Interval	Lower	1	.403
			Upper	1	.609
EAAVERAGE	Pearson Correlation			.518**	1
	Sig. (2-tailed)			.000	
	N			337	337
	Bootstrap[b]	Bias		-.003	0
		Std. Error		.052	0
		90% Confidence Interval	Lower	.403	1
			Upper	.609	1
**. Correlation is significant at the 0.01 level (2-tailed).					
b. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples					

H0*: Performance Expectancy has a positive relationship between Employee Acceptance and Performance Expectancy.*

H1*: Performance Expectancy has a negative relationship between Employee Acceptance and Performance Expectancy.*

Based on the finding presented in Table 4.28, it shows the correlation between Performance Expectancy and Employee Acceptance is 0.414. It indicate that Performance Expectancy has a positive relationship with Employee Acceptance. When Performance Expectancy increase, Employee Acceptance will also increase and vice versa. From the finding shown, Performance Expectancy has a moderate relationship with Employee Acceptance. The significant value is 0.000 which means that there is a significant correlation between Performance Expectancy and Employee Acceptance. It shows increases or decreases of Performance Expectancy significant affect the increases or decreases of Employee Acceptance. Therefore, H0 is accepted.

4.9.5 Pearson's Correlation Analysis between Effort Expectancy and Employee Acceptance

Table 4.29

Pearson's Correlation Analysis (Effort Expectancy and Employee Acceptance).

Correlations						
					EE1	EA1
EE1	Pearson Correlation				1	.432**
	Sig. (2-tailed)					.000
	N				337	337
	Bootstrap[b]	Bias			0	.001
		Std. Error			0	.063
		90% Confidence Interval		Lower	1	.305
				Upper	1	.558
EA1	Pearson Correlation				.432**	1
	Sig. (2-tailed)				.000	
	N				337	337
	Bootstrap[b]	Bias			.001	0
		Std. Error			.063	0
		90% Confidence Interval		Lower	.305	1
				Upper	.558	1
**. Correlation is significant at the 0.01 level (2-tailed).						
b. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples						

H0*: Effort Expectancy has a positive relationship between Employee Acceptance and Effort Expectancy.*

H1*: Effort Expectancy has a negative relationship between Employee Acceptance and Effort Expectancy.*

As presented in Table 4.29, it shows the correlation between Effort Expectancy and Employee Acceptance is 0.432. It indicate that Effort Expectancy has a positive Relationship with Employee Acceptance. When Effort Expectancy increase, Employee

Acceptance will also increase. From the finding reported, Effort Expectancy has a moderate relationship with Employee Acceptance. The significant value is 0.000 which means that there is a significant correlations between Effort Expectancy and Employee Acceptance. It shows increases or decreases of Effort Expectancy significantly affect the increases or decreases of Employee Acceptance. Therefore, H0 is accepted.

4.10 Regression Analysis

Table 4.30

Models Summary Table Dependant Variable

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.811[a]	.657	.654	.60096
a. Predictors: (Constant)				
b. Dependent Variable: Employee Acceptance				

The finding reported there is a significant relationship between Performance Expectancy, Effort Expectancy, Behavioural Intension and Employee Acceptance towards IR 4.0. The result shows the positive correlation between R values involved independent variable towards dependent variable is 0.811. The factors influence the employee Acceptance towards Industrial Revolution is the interest of

employee.

Table 4.31

Models Summary Table Mediating Variable

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.358[a]	.128	.126	.99147
a. Predictors: (Constant),				
b. Dependent Variable: Beavioural Intention				

The result shows the positive correlation between R values involved independent variable towards dependent variable as R-value recorded is 0.358. The factors influence the employee Behaviour towards Industrial Revolution is Behaviour Intention.

4.10.1 ANOVA

Table 4.32

Model Summary table for ANOVA Dependant Variable

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regressio n	230.852	3	76.951	213.071	.000[b]
	Residual	120.263	333	.361		
	Total	351.116	336			

a. Dependent Variable: Employee Acceptance
b. Predictors: (Constant),

As tabulated in Table 4.32, the ANOVA analysis indicates 76% confidence. It implies that the chance of assuming that there is a discrepancy in an outcome was 76%. The variable provides an important contribution towards employee acceptance towards industries 4.0.

Table 4.33

Model Summary table for ANOVA Mediating Variable

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48.477	1	48.477	49.314	.000[b]
	Residual	329.310	335	.983		
	Total	377.786	336			
a. Mediating Variable:						

Referring to Table 4.32, it indicates 48% confidence. It implies that the chance of assuming that there is a discrepancy in an outcome was 48%. The variable provides an important contribution towards Behavioural Intention.

4.10.2 Standardize Regression Coefficients

Table 4.34

Standardize Regression Coefficients Table Dependant Variable

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.680	.133		5.098	.000
	PE	.129	.031	.149	4.180	.000
	EE	-.006	.037	-.006	-.161	.872
	BI	.722	.037	.749	19.707	.000
a. Dependent Variable: Employee Acceptance						

As presented in Table 4.34, it shows the most significant is BI (B= 0.749, p=0.000). It shows there is a positive relationship between Independent and dependent which is the employee acceptance towards IR 4.0 in Halal Small Medium Enterprise at Penang.

Table 4.35

Standardize Regression Coefficients Table Mediating Variable

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	90.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.512	.181		8.341	.000	1.213	1.811
	PE	.170	.045	.189	3.780	.000	.096	.244
	EE	.428	.049	.434	8.655	.000	.347	.510
a. Mediating Variable: Behaviour Intention								

Referring to Table 4.35, the most significant is PE (B= 0.434, p=0.000). It shows there is a positive relationship between independent and mediating which is behavior intention.

4.10.3 Normally-Distributed Errors

As presented in Figure 4.24, the histogram shows regular distribution. Referring to Figure 4.25, linear distribution presented.

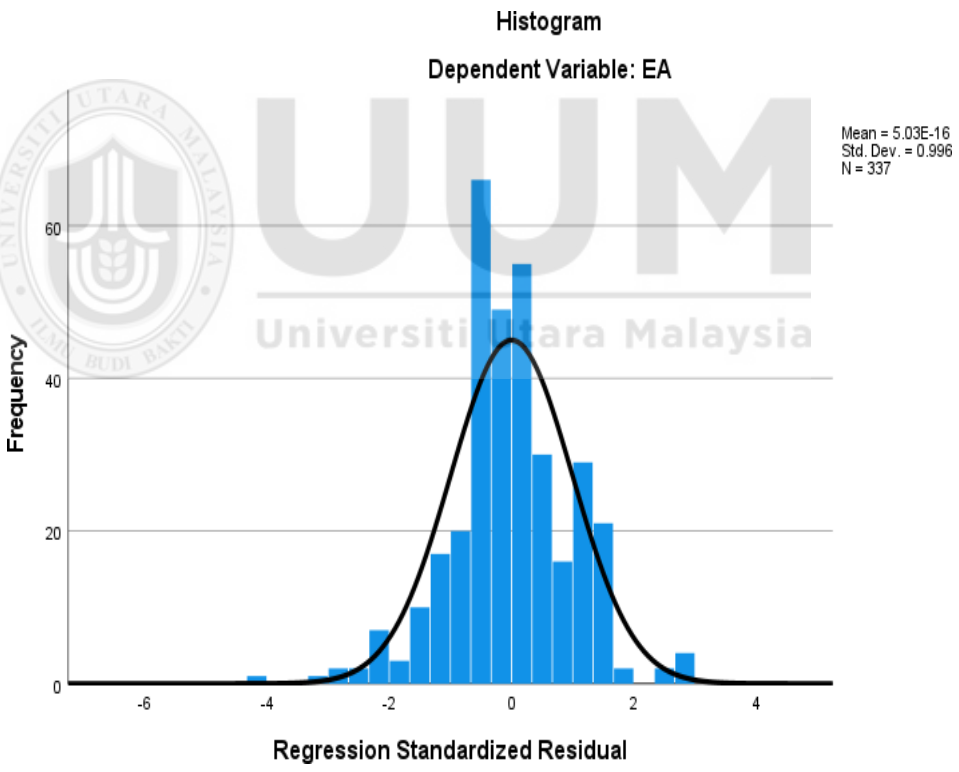

Figure 4.24

Histogram for Regression Standardized

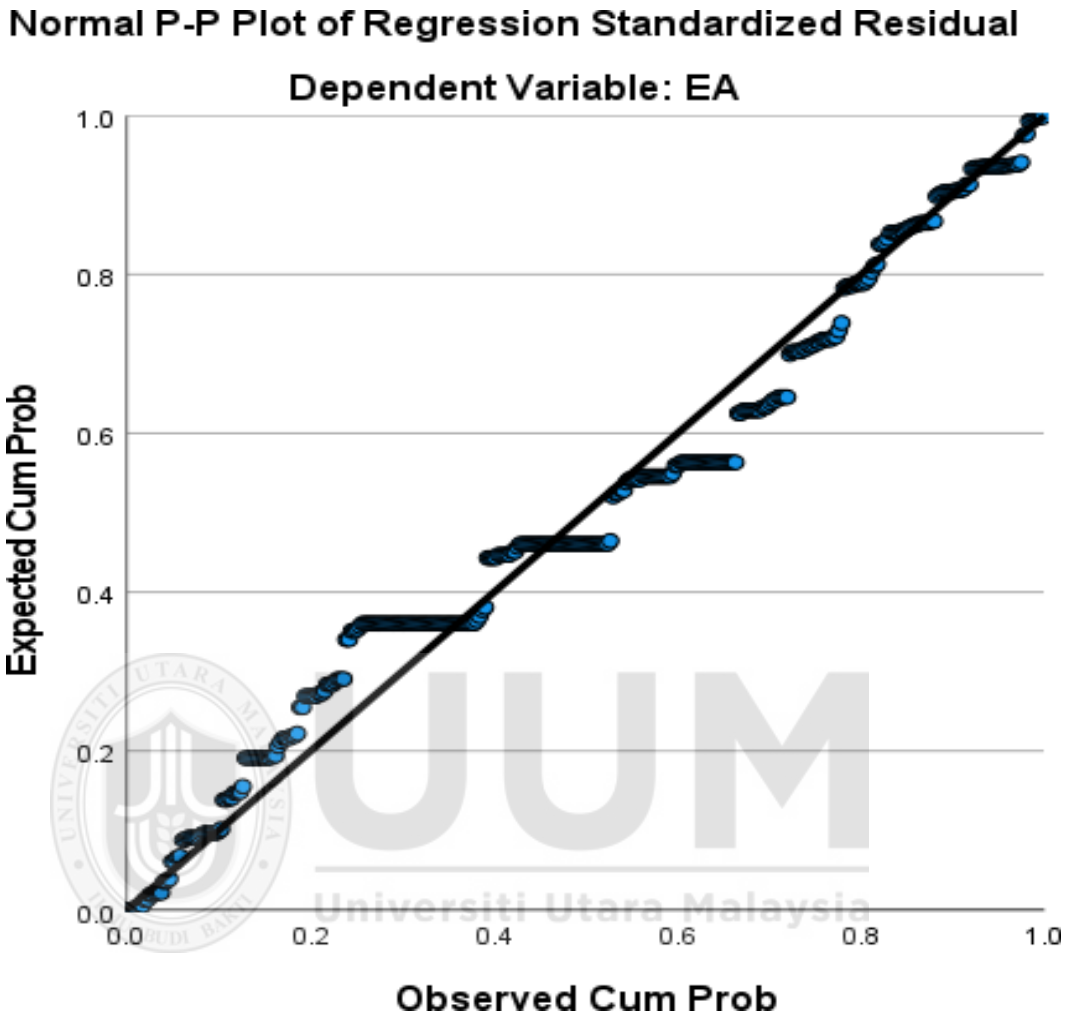

Figure 4.25

Normal P Plot of Regression Standardized Residual

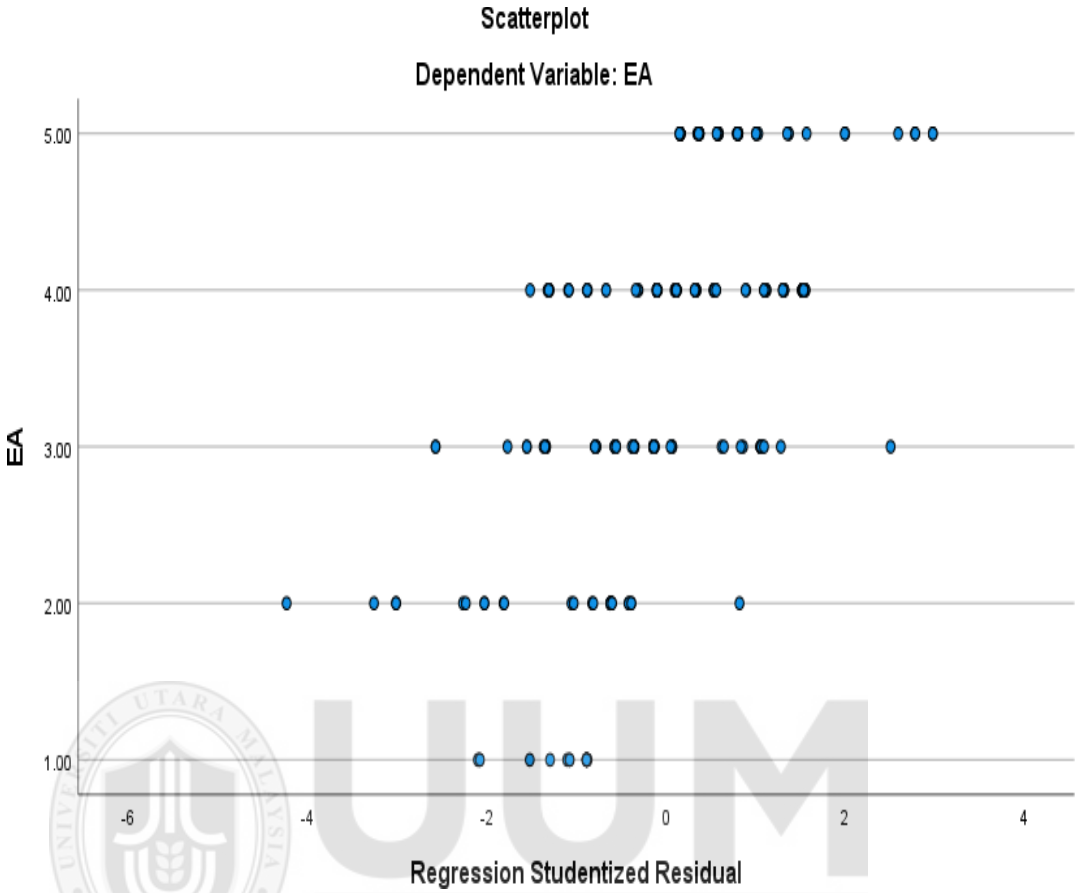

Figure 4.26

Regression Standardized Predicted Value

4.11 Conclusion

Overall, based on the finding reported, it is obtained from the analysis conducted using IBM SPSS Statistics 27. Based on the result, it shows all of the Independent Variables (IV), Mediating Variable have a significant relationship with Employee Acceptance towards Industrial Revolution 4.0. For the next chapter, it focused on the discussion regarding the implications of the study, recommendation for future studies and limitation of studies.

CHAPTER 5

CONCLUSION AND

RECOMMENDATION

5.1 Introduction

The chapter conclude every point for this study and recommendations consist of a review for the results obtained from the analyzed data. The information provided based on the research objectives that were outlined in Section 4. This chapter conclude the details and give review from the previous chapter.

This section also contains a summary and limitation of the results. Understanding the description and the impact from the results is significant. In addition, there are few drawbacks faced by the researcher during conducting this research. With that, the recommendation for future research provided for the research on Small Medium Enterprise determinants which affects business performance.

5.2 Suggestion

Researcher use the observation method to gather information and data. The researcher make an observation within the scope of research which is Penang Small Medium Enterprise worker behaviour towards the implementation of Industry Revolution 4.0.

Researcher look for the employee of Small Medium Enterprise around Penang especially in area Perai Industrial Park, Perda Tasek Gelugor and Penang Halal Park Bukit Mertajam to conduct the study.

Employee wants their company to invest and adopted an automated technology such as automated Remote-Control Machine which accessible with online order which can automated moving the conveyor direct when they get an order easily and prevent more dump storage in the warehouse. It negatively affects the goods as it spoils quickly. Employee also requested for a class for them to study on a new technology especially technology from Industrial Revolution 4.0 to acknowledge them as well as exposed them on how to utilize it.

5.3 Recapitulation of the study

This purpose of study is to define that lower level of employee are readily to accept the new culture that would change them to accept the advancement of technology. This study contributes to the evaluation through the employment of Unified theory, which is a novel approach on Industrial Revolution 4.0 acceptability in Malaysia. There have already been a few researchers who have been using Unified Theory Acceptance and Use of Technology to assess technology acceptability in respective studies, but it is still uncommon in Malaysian small and medium business.

Questionnaire were distributed to Small Medium Enterprise via Google Form and collect data was analyzed by SPSS Version 27. In accordance with the study framework, an assessment was carried out. Performance Expectancy and Effort Expectancy as Independent Variable, while, Employee Behavioural Intention as Mediating Variable and Employee Acceptance Towards Industrial Revolution 4.0 as Dependant Variable.

5.3.1 Review of Findings

H1 (a): <u>There is positive relationship between Performance Expectancy and Behavioural Intention</u>

Based on the studies, Performance Expectancy was claimed to have positive relationship with Behavioural Intention. According to. Venkatesh et al. (2003) argues that quality standards influence by the use of technology as it gives ease to carry out certain activities.

Performance expectancy is adapted from a wide range of concepts, such as perceived utility, extrinsic motivation, role function, relative benefits and expectations of outcome. With the comfort had by the users through the usage of technology, it will increase the expectations of the performance of the technology and accepting the implementation of IR 4.0.

H1 (b): There is positive relationship between Performance Expectancy and Employee Acceptance towards IR 4.0

Based on studies conducted, Performance Expectancy have a positive relationship between Acceptances towards Industrial Revolution 4.0. The conceptual structure was created using the existing theories involving performance expectancy, information quality, and internet-based collaboration development.

The extent to resulting in a person believes adopting a system will contribute to improve their employment performance (Venkatesh et al., 2003). Through the implementation of IR 4.0, it gives ease in various aspects. For example, give ease to do work.

H2 (a): There is positive relationship between Effort Expectancy and employee Behavioural Intention to accept IR 4.0.

Effort expectancy is the level of individual's understanding on the ease of users through the adoption of technology. When users feel that the use of technology is easy, the level of expectation
for its good performance increases. The use of technology in IR

4.0 is easier and effectively eases work processes compared with traditional methods. In line with that, users tend to use technology in their workplace. In UTAUT, effort expectancy has an influence on behavioural intention (Venkatesh et al.,2003). The finding is supported by previous research in which expectancy performance has been shown its influence towards behaviour intention. Hence, the hypothesis is proposed.

H2 (b): There is positive relationship between Effort Expectancy and employee Behavioural Intention to accept IR 4.0.

Based on studies conducted, Effort Expectancy have a positive relationship between Behavioural Intention to accept IR 4.0. Effort Expectancy is the level of comfort and usability people experience when utilizing a particular information system which known as the effort expectation (Venkatesh et al., 2003).

Effort to utilize new technology are being describe as their passion to use the technology. Their behaviour can be precisely seen when workers demonstrate a keen interest through their actions and attitude toward adopting contemporary technology.

H3: There is a positive relationship between Employee Acceptance and employee behavioural intension to accept IR 4.0.

Behavioral Intention has been interpreting as how their behavior of life and how they intent to do their favorable job. They are usually extensively linked to stronger conventional beyond description. Whenever the actions of a staff member reflect the current trend of including a device in their daily existence. Additionally, staff members are adopting in using technology and have trouble in adjusting to new innovative technology.

Industry 4.0 is a term used to describe the conversion of entities into electronic representations as a result of the spread of cutting-edge technology that could result in contemporary standards, products, efficiency, and performance for customers and businesses to satisfy the needs of the new market and service paradigms (Khan, A., & Turowski, K.,2016). Consequently, since individuals are aware of how often they're utilizing the electronic gadget as well as have the intention to employ a minimum of basic IR 4.0 technology in the initial stages. Accordingly, this argument is aligned with previous research. The acceptance towards new advance technology is support by previous research in which the employee acceptance shown to accept Industrial Revolution 4.0.

5.4 Most Significant Factor

5.4.1 Control Variable

Household Income became the most influential variable for control variable due to the capability of individuals to survive as the economic uncertainty. Despite this, many organizations are reluctant to initiate action in order to enhance themselves due to financial concerns to implement Industrial Revolution 4.0.

5.4.2 Independent Variable

Effort Expectancy become the most significant factors as Independent Variable. It is due to the highest Cronbach's Alpha value and the highest correlation between Behavioral Intention and Employee Acceptance towards Industrial Revolution 4.0. Based on the analysis, it shows that the highest Cronbach's have strongest internal reliability. It shows that there is a significant relationship between Effort Expectancy and Behavioral Intention as well as Employee Acceptance towards Industrial Revolution 4.0.

Other than that, the regression coefficient shows that the most significant variable is Effort Expectancy due to the positive strength relationship between Effort Expectancy to Behavioral Intention and Employee Acceptance towards Industrial Revolution 4.0.

5.4.3 Variable

Behavioural Intention being the most significant factors. It is due to the highest Cronbach's Alpha value and the highest correlation between Employee Acceptance towards Industrial Revolution 4.0. From the analysis, it shows that the highest Cronbach's have strongest internal reliability. It shows there is a significant relationship between Behavioral Intention and Employee Acceptance towards Industrial Revolution 4.0.

Other than that, the regression coefficient shows that the most significant variable is Behavioural Intention which shows the positive strength relationship between Behavioural Intention and Employee Acceptance towards Industrial Revolution 4.0.

5.4.4 Mediating Effect on the relationship between Acceptance Expectancy (Performance Expectancy and Effort Expectancy).

According to the finding reported from t-value as presented in Table 4.32, it shows that mediating variable are positively supported and significant towards both the Independent variable and Dependent variable with t-value
4.180. It shows that measured t-value is higher than the requirements regarding the mediating effect which have been more than 1.0 with p-value 0.00.

The finding are in line with the study conducted by Abdullah, D. B., Abdullah, M. Y., & Salleh, M. A. M. (2017). Zhou, K., Liu, T., & Zhou, L. (2015) Lewandowska, A., Berniak-Woźny, J., & Ahmad, N. (2023) and Venkatesh, V., & Zhang, X. (2010). As reported, performance expectancy and effort expectancy mediates by mediating effect.

5.4.5 Mediating Effect on the relationship between Behavioural Intention

Referring to Table 4.32, it shows t-value recorded is 19.707. The outcomes demonstrate that the mediating variable has considerable positive support for the independent and dependent variables. It is aligned with the criteria for the mediating effect as more than 1.0 alongside p-value 0.00 shown there is a positive support toward mediating variable. The finding in line with the finding reported by Chung, M., & Kim, J. (2016).Kusumawati, A., & Riskinanto, A. (2019) Zhou, K., Liu, T., & Zhou, L. (2015) and Venkatesh, V., & Zhang, X. (2010) as the variable mediates both acceptance.

5.5 Implications

5.5.1 Managerial Implication

In this research, the behavioural Intention was related by all the variables which are Performance Expectancy, Effort Expectancy and Employee Acceptance. The findings from the data collected are useful to improve in a Malaysia economic stagnation by having good understanding on what factors will increase the behaviour intention of the worker.

In order to increase the expectancy of worker performance, the management should improve their morale and motivation to give the best performance from

their services. The improvement can be done by organizing motivation class in facing the new technology of Industrial Revolution 4.0.

Furthermore, the effort of the workers already exists. It is important for employers to strive in order to increase the use of new Industrial Revolution 4.0 technology. It also important to improve the value of their services in order to attract customers which will help the company to grow.

To maintenance company profitability, the port management should influence worker to implement industrial 4.0 technology by training and also give bonus for the worker who can implement and increase their productivity of their work.

Eventually, the employer should consider on invest more on buying new technology from Industry 4.0 technology which employee is more exposed to manage the system and handling the technology.

5.5.2 Government Implication

The government must allocate more for facilities budget as it would help them grow. Due to the lack of funds, most facilities used old technology. In line with that, it is a need for more productive technology as it could increase the productivity of the Small Medium Enterprise.

After that, the government should give an access to authority in order to invest more in terms of the implementation of the new technology of Industry 4.0. With that, it also can increase the revenue of government tax.

Furthermore, government can attract foreign collaboration by conducting a Memorandum of Agreement (MOA) or Memorandum of Understanding (MOU) with others countries in implement the technologies of IR 4.0. It can improve the country in new technology understanding and also improve mutual understanding between countries.

Next, government an additional moratorium affecting certain small to medium-sized businesses that could compete once more to relocating back in deteriorate for some Small Medium Enterprise.

The government must stimulate more growth in IR4.0 and expand investment in implement 5G in Malaysia and not only concentrating on a few areas, but also attempting to diversify into different areas in order to reduce the risks of being taken down by other countries. Government should continue to encourage and reward those port authority who have the creativity, versatility and bravery to make change in technology advancement.

5.6 Recommendation from Findings

Based on the findings, the researcher can conclude that the employee is readily to accept the current of new technology especially the technology from Industrial Revolution 4.0 such as Artificial Intelligence. The implementation either from employer management or government should be increase due to globalization of the technology in the era of industries' 4.0 especially after in era of pandemic Covid -19 which caused the dependability towards technology getting increase.

The globalization of new technology especially in Artificial Intelligence and Augmented Reality contributes to the effectiveness and readiness of manufacturing goods. A lot of employees recommend to implement it within the organization.

5.7 Recommendation for Future Studies

The discussion on limitation lead to the recommendation for future studies. It allows future researcher in Malaysia as well as different countries who would like to conduct the similar study to gain better result in their research.

First of all, the data collected might need to focus in every state in a country. For this research, it only focuses on one state, with that, it does not reflect the whole result in a country. Therefore, the researcher encourages the future researcher to collect data from the whole country to get more accurate result.

Second, if there is a sufficient of time, the researcher provides suggestion towards the future researcher to use longitudinal study. As mentioned in the limitation of study, this study is a cross-sectional study which only reflect result of the current period of time. Future researchers should investigate how certain things can change at various points in life and discuss some of the explanations why these developmental changes are taking place. It will determine whether the factors affecting the business performance will change or remain the same towards the result.

Finally, researcher would like to suggest for future study to add up with other theory that are related with the present research. The research will become more comprehensive and outstanding findings obtained.

5.8 Research Contribution

This research paper supports the importance of research in a few ways. Firstly, it is one of the earliest studies to replicate UTAUT in a new field of research. Referring to the publication published in 2003, UTAUT has been mentioned over 450 times, as shown by Web of Science. According to Al-Gahtani, T.A. (2006), many studies have attempted to investigate the generalizability of UTAUT by replicate it in industries. However, none of the experiments have accurately duplicated the model. For example, prior replications, it had constraints in employing a portion of the models, evaluating constructs with scales other from those used in the original UTAUT study, and not include dependencies.

5.8.1 Theoretical Contribution for Academic

The implementation of acceptance expectancy which is a combination between performance expectancy and effort expectancy is new research across other studies. Acceptance Expectancy are being refer as a class of two independent variable which is Performance Expectancy and Effort Expectancy which have been related due to research are focused about the level of expectancy. While, the acceptance towards Industrial Revolution 4.0 is being contribute to replace the use of behaviour in UTAUT theory. Acceptance towards IR 4.0 can be described as an indicator towards new industrial stage in which a number of developing technologies are convergent to create digital solutions.

Furthermore, this study is aims to understand the constraints related to technology acceptance in education, and particularly in UTAUT. In this research, the researcher found that UTAUT does not work in the same way as in Penang Small Medium Enterprise. The application of UTAUT theory in the field of Halal Small and Medium Enterprises is important as it contributes to the improvements of Penang Halal SMEs as it aims to archive in Indonesia — Malaysia — Thailand Growth Triangle. The researchers' efforts aligned with the progress to gain understanding for the particular research program by added new understanding regarding the diversity which contributes to the improvement in terms of performance.

5.8.2 Research Contribution for Small Medium Enterprise

In most developing economies, Small and medium-sized enterprises (SMEs) play an integral part which contribute to the development of the economy. As shown by World Bank (2018), legal smaller businesses in developing countries make up a significant portion which is more than 60% of overall workforce and 40% of gross domestic product (GDP). Whenever formalised SMEs were factored up, those figures getting increase. SMEs, which represent up four out of the next five available employment in developing countries, produce the outstanding remuneration systems. The company can gain knowledge on how employee would accept the transformation of new technological advancement.

5.9 Limitation of Study

5.9.1 Research Resources Findings

The researchers have faced a number of constraints and there are the limitation of time which hinder the collection data from secondary sources. For example, the researcher have to face with the issues of pandemic Covid 19 to enrich the recession of economy after Covid-19 from beginning of Overnight Policy Rate (OPR) and other issues have caused many companies to take precautions to accept development of their companies by refuse initiative of accepting any studies for the adoption of new technology which give impact towards the students in collecting the data from Penang Small Medium

Enterprise.

Therefore, researcher has difficulty to do a survey using hard copy of distributed questionnaire. Therefore, the researchers are required to use google form. Researchers need to be more dependent on the articles that discuss about the employee behavioral intention towards IR 4.0 in Penang Small Medium Enterprise which present the journal related to the study.

5.9.2 Method limitation

As the theory adopted is Unified Theory Acceptance towards Technology, it is important to make the research became more comprehensive with clearer findings. After that, the research theory is needed to be combine with other theory in order to improve the finding obtained.

Besides, the researchers are concentrating on those individuals who insist choose to employ industrial technology despite having advanced in its application throughout the past, despite the fact that the aforementioned technology predates the Industrial Revolution 4.0. Consequently, it is challenging to find a substantial sample size.

5.9.3 Long Period of Time

Since the researcher is a final year student, time to conduct the research is limited as the researcher need to attend classes, tests and perform other assignments as well. The researcher also often engaged in other assignments deadline which resulting to the limitation of time to conduct the research. Furthermore, the researcher also conducts this research in a short term due to corona virus attack which could affect the result of this research as it only reflects the result of this specific period of time.

Besides, due to COVID-19 pandemic, there may have been an alterations throughout behavior which lead more people in using internet connectivity and working from home. This conduct can interfere with the researcher's ability to meet respondents and gain their involvement.

5.9.4 Access limitation

Access limitation is one of the biggest issue in collecting data as those limitations are come from industries which is they think that researcher want to sell their data where researcher get to other third party. Those issues make the company feel threatened. Researcher could make some good engagement to meet people and they feel comfortable to accept researcher who came to them and distribute questionnaire. This situation give limitation towards the researcher to get

another company cause they need to meet a single company once they available.

5.9.5 Limitation of Study (Scope)

The present research addresses the concerns on the acceptance of employee behaviour intention towards Industrial Revolution 4.0 among Penang Halal Small Medium Enterprise. The samples are employee of Penang Halal Small Medium Enterprise which drawn from the entire Halal Small Medium Enterprise as their company are related to applying new Industrial Technology which match the Industrial Revolution 4.0 technology in Malaysia. The acquisition of employee data is limited to employees of Penang Halal SME.

Besides, the researcher has narrow down the scope of data acquisition to a study on the level of acceptance of Penang Halal SME workers towards the Industrial Revolution 4.0 such as the employer progress and are they likely to accept the new cultural of new advance technology which offered a lot of advantages such as job ease to handle and understand or managerial implication of IR 4.0 towards their worker. This present study has limitation as it focused on the area of Halal SME and Industries 4.0.

5.10 Conclusion

In conclusion, this research is aimed to identify the worker behavioral intension towards a new technology advancement in port management and determine the relationship between all independent variables and dependent variable which has been discussed in this chapter. The findings shows that all the independent variable have a positive relationship with dependents variable and mediating variable. Furthermore, this research also provides the implications of the study in terms of managerial, government implications and recommendation from findings.

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APPENDIX

APPENDIX A

QUESTIONAIRE MASTER

UNIVERSITI UTARA MALAYSIA SCHOOL OF TECHNOLOGY MANAGEMENT AND LOGISTICS

RESEARCH PAPER
SESSION 2022

Student Name : MUHAMMAD LUTFI BIN ZAINAL ABIDIN
Matric No : S82568

This Questionnaire Are Private and Confidential Information

Assalamualaikum and greetings everyone.

I am Muhammad Lutfi Bin Zainal Abidin. I am a postgrad student from School of Technology, Management and Logistics, UUM. I am currently doing a study on Acceptance towards Industrial Revolution 4.0 among SME that deal with halal production in Penang. I would kindly invite you to participate in answering my questionnaire. Your response are invaluable to my study. All information given will be treated unanimously and strictly confidential Thank you for your kind corporation to participate.

https://docs.google.com/forms/d/e/1FAIpQLSft8wcBc-UzjpukUqhjoFVTPfarWnx8WlXGWzCGjylOHKMCUQ/viewform?usp=sf_link

Questionnaire

Research Question (Adapted from Venkatesh et al. (2010)

Section A

1. What is your gender? Apakah Jantina Anda?

- [ ] • Male
- [ ] • Female

2. Martial Status / Status Perkahwinan?

- [ ] • Married / Sudah Berkahwin
- [ ] Single / Bujang

3. What is your age range? Apakah Julat Umur Anda?

- [ ] • Less than 30 years
- [ ] • 31 -35 years
- [ ] • 36 - 40 years
- [ ] • 41 – 45 years
- [ ] • 46 – 50 years
- [ ] • 51 – 55 years
- [ ] • 56 years and more

4. Race / Kaum?

- [ ] • Malay
- [ ] • Chinese
- [ ] • Indian
- [ ] • Others / lain

4. What is your education level? / Apakah tahap pendidikan Anda?

- ☐ Secondary school and below / Sekolah menengah dan ke bawah
- ☐ Diploma and equivalent / Diploma dan setaraf?
- ☐ Degree and above / Ijazah dan keatas?

5. Houshold Income/ Pendapatan isi rumah?

- ☐ • Less 2000 / Bawah 2000
- ☐ • Above 2000 / Atas 2000
- ☐ Above 5000 / Atas 5000

6. How long have you been working at this company? / Berapa lamakah anda bekerja di Syarikat ini?

- ☐ • 10 years and below
- ☐ • 11 ~ 15 years
- ☐ • 16 years and more

Section B

This section is related to worker of Small Medium Enterprise around Penang Malaysia

Please Circle one number per line to indicate the extent to which you agree or disagree with the following statement.

[1 = Strongly Disagree (SD); (2) = Disagree (D); (3) = Neutral (N); (4) = Agree (A); (5) = Strongly Agree (SA)]

Bahagian ini amat berharga untuk para pekerja Perusahaan Halal Kecil dan Sederhana di kawasan Pulau Pinang

Sila Bulatkan satu nombor setiap baris untuk menunjukkan sejauh mana anda bersetuju atau tidak bersetuju dengan pernyataan berikut.

[1 = sangat tidak setuju (SD); (2) = Tidak setuju (D); (3) = Neutral (N); (4) = Setuju (A); (5) = sangat setuju (SA)]

1. EMPLOYEE PERFORMANCE EXPECTANCY VARIED TOWARDS STUDY

In its most basic form, performance expectancy draws attention to a person's belief that adopting they otherwise would benefit from a programme that would help them lead to better results gain (Venkatesh et al., 2003).

Performance improvement or performance decline that can be felt by employees is better or worse evaluated

Dalam bentuk yang paling asas, jangkaan prestasi menarik perhatian kepada kepercayaan seseorang bahawa menerima pakai mereka sebaliknya akan mendapat

manfaat daripada program yang akan membantu mereka membawa kepada keuntungan keputusan yang lebih baik (Venkatesh et al., 2003).

Peningkatan prestasi atau penurunan prestasi yang dapat dirasakan oleh para pekerja lebih baik atau lebih buruk dinilai

	Determination Instruments					
1.	I would use such system such as SAP Success Factor that will help me reduce my work; it will make may job easier to become a specialist in this area. Saya menggunakan teknologi/sistem baru seperti SAP Success Factor yang akan mengurangkan kerja saya; ianya akan memudahkan urusan saya untuk menjadi pakar dalam bidang tesebut.	1	2	3	4	5
2.	This new technology/system will ease my work. Teknologi/sistem baru yang ada ini akan memudahkan urusan saya	1	2	3	4	5
3.	It is simple to explore the use of new technology if I can use this new technology.	1	2	3	4	5

	Ianya adalah mudah untuk menerokai cara penggunaan teknologi baru jika saya dapat mengguanakan teknologi baru ini					
4.	I shall use this new technology/system because it enables me to become more proficient. Saya akan menggunakan teknologi/sistem baru ini kerana ianya banyak memudahkan saya menjadi lebih mahir	1	2	3	4	5

2. EMPLOYEE EFFORT EXPECTANCY VARIED TOWARDS STUDY

In IR 4.0, effort expectation is described as well as the convenience through which the proposed system can be implemented (Venkatesh et al., 2003).

Enforcement that people use to accept. Efforts translated into increased use of new technology

Dalam IR 4.0, jangkaan usaha diterangkan serta kemudahan sistem yang dicadangkan boleh dilaksanakan (Venkatesh et al., 2003).

Usaha yang diterjemahkan kedalam peningkatan pengunaan teknolgi baru

	Determination Instruments					
1.	I think, my involvement through this device can become very clear. Saya fikir, penglibatan saya melalui peranti ini boleh menjadi sangat jelas.	1	2	3	4	5
2.	I feel that with this new technology it can make me be more proficient. Saya merasakan dengan teknologi baru ini dapat menjadikan saya lebih cekap	1	2	3	4	5

3.	I feel that this new technology is easy. Saya merasakan teknologi baru ini mudah	1	2	3	4	5
4.	I feel that it is easy for people like me to understand better the way to use the platform. Saya merasakan ianya lebih mudah untuk orang seperti saya untuk faham dengan lebih baik cara-cara pengunaan platform	1	2	3	4	5

3. EMPLOYEE BEHAVIOURAL INTENTION VARIED TOWARDS STUDY

The measure through which an individual acknowledges that he or she will lock in on a particular behaviour is term "considered" is used to describe how something is regarded the intention of he or she. Behavioural control (Venkatesh et al., 2003). Venkatesh et al. designed items to measure this characteristic (2010).

Ukuran di mana seseorang individu mengakui bahawa dia akan mengunci tingkah laku tertentu adalah istilah "dipertimbangkan" digunakan untuk menggambarkan bagaimana sesuatu itu dianggap sebagai niat dia. Kawalan tingkah laku (Venkatesh et al., 2003). Venkatesh et al. item yang direka untuk mengukur ciri ini (2010).

	Determination Instruments					
1.	I aspire to use the latest IR 4.0 technology. I feel it makes my job easier. Saya bercita-cita untuk mengunakan teknologi terkini IR 4.0. Saya merasakan ianya akan memudahkan urusan saya	1	2	3	4	5
2.	I am confident I will be using the latest IR 4.0 technology. Saya yakin saya akan menggunakan	1	2	3	4	5

	teknologi terkini IR 4.0					

--------- 3.	I hope to benefit from IR 4.0 technology. Saysa Berharap dapat manfaat dari teknologi IR 4.0	1	2	3	4	5

4. ACCEPTANCE TOWARDS INDUSTRIAL REVOLUTION 4.0 AMONG EMPLOYEE PENANG HALAL SMALL MEDIUM ENTERPRISE VARIED TOWARDS RESEARCH

Acceptance is described as a state of mind whereby a person perceives they are interested in and intend to do something that related of utilise Industrial Revolution 4.0. (Venkatesh et al., 2003).

Penerimaan disifatkan sebagai keadaan minda di mana seseorang merasakan mereka berminat dan berhasrat untuk melakukan sesuatu yang berkaitan dengan Revolusi Industri 4.0. (Venkatesh et al., 2003).

	Determination Instruments					
1.	My Interest towards the new system or new technology is facilitated when the new system is being introduced Minat saya terhadap sistem baru atau teknologi baru menjadi lebih mudah apabila sistem baru itu didedahkan	1	2	3	4	5
2.	I feel it will increase my knowledge related to IR 4.0 Saya merasakan ianya akan meningkatkan pengetahuan saya berkenaan IR 4.0	1	2	3	4	5
3.	I am interested and will use new technology more, especially the latest technology from IR 4.0 Saya berminat dan saya akan perbanyakkan pengunaan teknologi	1	2	3	4	5

	baru terutama teknologi yang terkini dari Industri 4.0					

APPENDIX B

Descriptive Statistic of Pilot Test 100 Respondent

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PE1	100	1.00	5.00	2.9800	1.10992
PE2	100	1.00	5.00	3.5300	1.02942
PE3	100	1.00	5.00	3.5500	.92524
PE4	100	1.00	5.00	3.6700	.95405
EE1	100	1.00	5.00	3.6600	.92354
EE2	100	1.00	5.00	3.7700	.91954
EE3	100	1.00	5.00	3.6600	.91254
EE4	100	1.00	5.00	3.7700	.95193
BI1	100	1.00	5.00	3.6800	.98350
BI2	100	1.00	5.00	3.7600	.96525
BI3	100	1.00	5.00	3.6900	.96080
EA1	100	1.00	5.00	3.7500	.95743
EA2	100	1.00	5.00	3.7100	.96708
EA3	100	1.00	5.00	3.7500	.96792
Valid N (listwise)	100				

APPENDIX C

Visit Letter

Perbadanan Kemajuan Wilayah Pulau Pinang 1,
Lorong Kampung Gajah 2,
Kampung Gajah,
12200 Butterworth, Pulau Pinang 07/10/2023

Dear Sir/Madam,

Permission to Conduct a Research at Halal Small Medium Enterprise in Penang

With reference to the above matter, my name is Muhammad Lutfi bin Zainal Abidin, and I am a Master of Science (Operation Management) student from Universiti Utara Malaysia. The research I wish to conduct for my Master thesis is "The Study of Employee Acceptance Towards Industrial Revolution 4.0 among Halal Small Medium Enterprise in Penang". This research will be conducted under the supervision of Log Nizamuddin bin Dato' Zainuddin and Dr Md Abdul Kafi.

I am hereby seeking your consent to do the research at Penang. Attach herewith is a copy of the research proposal for your reference.

I am looking forward for your kind response. Thank you and best wishes.

Your sincerely,

.....
Muhammad Lutfi Bin Zainal Abidin
Hp no. 0137226609
Email: mlza1997@gmail.com ./ mlutfi@s.uum.edu.com.my

APPENDIX D

Tuan Mohamad Hazahari Bin Md Haris,

Dear Sir,

Permission to address Information from Lembaga Kemajuan Wilayah Pulau Pinang (PERDA)

Greetings from School of Technology Management and Logistics (STML), Universiti Utara Malaysia.

This is to inform that our students from Master of Science (Operation Management) would like to conduct a Research at your esteemed company. Details of students as per below.

Name: Muhammad Lutfi Bin Zainal Abidin
ID: S828568
Duration: 3 Years

Highly appreciate your cooperation to guide and support him during his intended visit and we are fully understand that this students was subject to your company rules and regulation. This students are conducted research title The Study of Employee Acceptance Towards Industrial Revolution 4.0 among Penang Halal Small Medium Enterprise in Penang.

Should you need further details on the project and visit, kindly please liaise his telephone number (+60137226609) or email mlza1997@gmail.com.

Thank you

Your sincerely,
Muhammad Lutfi Bin Zainal Abidin
Nizammuddin Bin Dato Zainuddin
Dr Adam Bin Saifuddin

School of Technology Management & Logistics
Tel : +604-928 7002 / Email: stml@uum.edu.my

APPENDIX E

HARI USAHAWAN PERDA (PERDA HIKE)

PENANG INTERNATIONAL HALAL EXPO

APPENDIX F

JOURNAL EMPLOYEE ACCEPTANCE TOWARDS INDUSTRIAL REVOLUTION 4.0 AMONG HALAL SALL MEDIUM ENTERPRISE IN PENANG

UUM 2024 JOURNAL OF TECHNOLOGY

A STUDY OF EMPLOYEES BEHAVIOURAL INTENSION TOWARDS INDUSTRIAL REVOLUTION 4.0 AMONGS HALAL SMALL MEDIUM ENTERPRISE IN PENANG

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Abstract

Industry 4.0 is a strategic initiative recently introduced by the Malaysia government. The goal of the initiative is transformation of industrial manufacturing through digitalization and exploitation of potentials of new technologies. An Industry 4.0 production system is thus flexible and enables individualized and customized products. The aim of this research is to test the applicability of the Unified Theory of Acceptance and Use of Technology (UTAUT) towards employee intention to accept the IR 4.0. In the context of this research, the variables in UTAUT which consisting of performance expectations, effort expectancy as independent variables will be examine to test their connection with behavioral intent as mediating variable to accept IR 4.0 explicitly in Malaysia's employee context and Employee Acceptance towards Industrial Revolution 4.0 as dependent variable. A total of 337 questionnaires will be distributed towards employee among Halal Small Medium Industries in industry area Penang Malaysia. This research includes 5 proposed hypotheses and the Statistical Package for the Social Sciences (SPSS) will be used to analyze the data.

Keywords: UTAUT theory; Industry 4.0; Small Medium Enterprise; Halal; Penang; Statistical Package for the Social Sciences; 3 proposed hypothesis ; 377 respondent

1.0 INTRODUCTION

Industry 4.0 is the manufacturing industry's new motto. This covers the entire phase of the value chain in the manufacture and delivery of goods and services. The concept's developers seem to have a good grip on the system's engineering (hardware and software), but the human factor does not seem to be properly considered. A mediator serves as a facilitator to assist those concerned in expressing needs and requirements. Acceptance is achieved through the formation of ownership in the process. This system allows society to effectively influence and control the development and use of the idea of Industry. The

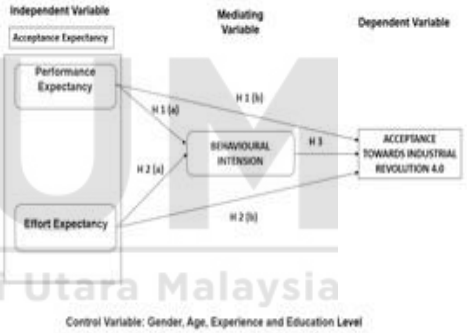
implementation of Industry 4.0 has made some people feel threatened and reluctant to accept the transition because there are fears about robots taking on human roles as an autonomous system is one of Industry 4.0's main pillars. In the coming years, low-skilled workforce would be slowly replaced by robots, and the workers were worried about this change in the industry. It's a concern that some people do not see it that way because they think the machines are replacing people in the workplace and they do not understand the industry's need for highly skilled talent. Students need to be introduced from the primary level to Industry 4.0 by teaching them some fundamentals of coding and design of applications in class. Those skills and knowledge will later train them for Industrial Revolution 4.0 and supply them to the job market. Globalization and the entry of more nations to the World Trade Organization have fuelled growth in seaborne trade. This has been witnessed by the Small Medium Enterprise sector in the past few decades. Small Medium Enterprise performance is important, which is reflected in the following aspects. First, it cover more half newer economy for people who are starting a business.

2.0 UTAUT MODELS FOR VARIEABLE

Based on a systematic review and comparison of the models, Venkatesh et al. (2003) suggested an adaptive model, namely the UTAUT model, which could explain 70% of the user intention variability. The findings of this empirical study showed that the UTAUT model is the most powerful method for evaluating acceptance of technology. The UTAUT demonstrate comprises of six primary develops, to be specific performance expectancy ("PE" from now on), effort expectancy ("EE" from now on), behavioural intention ("BI" from now on) Employee Acceptance ("EA" from now) to utilize the framework, and utilization behaviour. The UTAUT design comprises four key components and four moderators. PE, EE, SI, and FC (Venkatesh et al., 2003) are the four defining components of BI and application actions according to the model. The moderators that influence the use of technology are

Theoretical Framework:

race, age, ability and willingness to use them.



3.0 RESULTS AND DISCUSSION

From the total of 5000 sample size needed to represent the cross-section of the population based on Krejcie and Morgan's (1970), this research only managed to obtain 337 response. This indicates that this research gain 25 percent of the response rate from the respondents needed. Due to current pandemic Covid 19, it is difficult for researcher to go face to face to collect data. According to Baruch, Y., & Holtom, B. C. (2008), current analysis indicates that research conducted on organizational representatives or top executives have a higher

chance to obtain lower response rate. The author further stated that the benchmark of response rate for this type of research is approximately from 30 to 40 percent. Perhaps, this indicate that although this research only managed to obtain only 25 percent of response rate while it require at least 30 percent. However, it is nearly reached the target of the respondents.

Hypothesis Analysis

1) Hypothesis: *Performance Expectancy has a positive relationship between Behavioural Intension and Performance Expectancy.*

The correlation between Performance Expectancy and Behavioural Intension is positive. This indicate that Performance Expectancy has a positive relationship with Behavioural Intension. Thus, when Performance Expectancy increase, Behavioural Intension will also increase and vice versa. From the data shown, Performance Expectancy has a moderate relationship with Behavioural Intension. The significant value is 0.000 which means that there is a statistically significant correlations between Performance Expectancy and Behavioural Intension. This means that, increases or decreases of Performance Expectancy do significantly impact the increases or decreases of Behavioural Intension.

2) Hypothesis: *Effort Expectancy has a positive relationship between Behavioural Intension and Effort Expectancy.*

The correlation between Effort Expectancy and Behavioural Intension is positive. Thus, when Effort Expectancy increase, Behavioural Intension will also increase. From the data shown, Effort Expectancy has a moderate relationship with Behavioural Intension. The significant value is 0.000 which means that there is a statistically significant correlations between Effort Expectancy and Behavioural Intension. This means that, increases or decreases of Effort Expectancy do significantly impact the increases or decreases of Behavioural Intension. Therefore, Hypothesis is accepted.

3) Hypothesis: *Behavioural Intension has a positive relationship between Behavioural Intension and Employee Acceptance.*

The correlation between Social Influence and Behavioural Intension is 0.500. This indicate that Social Influence has a positive relationship with Behavioural Intension. Thus, when Social Influence increase, Behavioural Intension will also increase and vice versa. From the data shown, Social Influence has a moderate relationship with Behavioural Intension. The significant value is 0.000 which means that there is a statistically significant correlations between Social Influence and Behavioural Intension. This means that, increases or decreases of Social Influence do significantly impact the increases or decreases of Behavioural Intension.

4) There is positive relationship between Performance Expectancy and Behavioural Intension

Based on the studies, Performance Expectancy was claimed to have positive relationship with Employee Acceptance. According to. Venkatesh et al. (2003) argue that quality standards calculate to what degree the use of technology can support users in carrying

out certain activities Performance expectancy is adapted from a range of concepts, such as perceived utility, extrinsic motivation, role function, relative benefits and expectations of outcome. The comfort ability of users feel comfortable when using technology, it will increase the expectations of the performance of the technology and accepting the IR 4.0.

5) Hypothesis: *Effort Expectancy has a positive relationship between Employee Acceptance and Effort Expectancy.*

The correlation between Effort Expectancy and Employee Acceptance is positive. Thus, when Effort Expectancy increase, Employee Acceptance will also increase. From the data shown, Effort Expectancy has a moderate relationship with Employee Acceptance. The significant value is 0.000 which means that there is a statistically significant correlations between Effort Expectancy and Employee Acceptance. This means that, increases or decreases of Effort Expectancy do significantly impact the increases or decreases of Employee Acceptance. Towards Industrial Revolution 4.0. Therefore, Hypothesis is accepted.

"Social influence" includes deliberate or unintended efforts to change the values, attitudes, or actions of another person. Unlike persuasion, which is usually intentional and needs some degree of knowledge on the part of the target, there may be inadvertent or unintentional social influence. Social influence often works through processing on the periphery. The target may therefore be unaware of the attempt to influence it. Unlike achieving adherence, which is typically target-driven, social control is often not target-driven, and the outcomes may be incompatible with, or contrary to, the objectives of a communicator. Therefore, if employees realize that other people or their colleague easily have an intention to accept IR 4.0, they might not refrain and influence them also towards accepting IR 4.0. Accordingly, this argument is supported by previous research in which social influence has been shown to influence behaviour intention.

4.0 CONCLUSION

Review of Findings:

Managerial Implications

In this research, the behavioural Intension was related by all the variables which are Performance Expectancy, Effort Expectancy and Social Influence. The findings from the data collected are useful to improve in a Malaysia economic stagnation which to understand what factors will increase the behaviour intension of the worker.

To maintenance company profitability, the SME management should influence worker to implement industrial 4.0 technology by training and also give bonus for the worker who can implement and increase their productivity of their work.

Eventually, the employer should consider on invest more on buying new technology from Industry 4.0 technology which employee is more exposed to manage the system and handling the technology.

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Eventually, the employer should consider on invest more on buying new technology from Industry 4.0 technology which employee is more exposed to manage the system and handling the technology.

5.0 ACKNOLEDGEMENT

In the name of Allah the most gracious and the most merciful, first and foremost. I would like to please my biggest praise to Allah S. W. T who has given me the patient, strength, determination and courage to implement this task. I would like to express my deepest appreciation to all those who provided me the possibility to complete this Final Year Project.

A special gratitude I give to my Final Year Project Supervisor lecturer, Sir Nizamuddin Bin Zainudin Dr. Md Abdul Kafi and Dr. Adam Bin Saifudin. Whose contribution in stimulating suggestions and encouragement, helped me to coordinate my project especially in writing this report. My beloved thanks goes to my family members who have been by my side throughout the completion of this project giving me full support and encouragement. I have to appreciate the guidance given by other supervisor as well as the panels especially in our project presentation that has improved our presentation skills thanks to their comment and advices.

Lastly, thanks to all my friends for giving me their support and time to help me a lot in completing this research and not forget to my parents that give full support and motivation for me to keep on motivated to finish this research. Once again, I want to thank everyone that involve and help me in completing this research.

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