Research in Management of Technology and Business Vol. 4 No. 1 (2023) 822–834

RMTB

Homepage: http://publisher.uthm.edu.my/periodicals/index.php/rmtb
e-ISSN : 2773-5044

Cyberjaya, Malaysia: Bridging the Gap Between User Acceptance and the 5G Technology Readiness

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DOI: https://doi.org/10.30880/rmtb.2023.04.01.056
Received 31 March 2023; Accepted 30 April 2023; Available online 01 June 2023

Abstract: 5G technology is the fifth generation of mobile networks inspired by the 4.0 Industrial Revolution's expanding capacity requirements for increased speed, broad coverage, and reliable security. It is much more than a fast mobile internet connection that allows for the consumption of copious amounts of data-based content. The primary concern of 5G in this study is the second-lowest download speed of 13.5 Mbps after the launch of 5G in Malaysia. This issue may affect user readiness and acceptance of 5G technology. The primary purpose is to identify the variables that influence user acceptance of 5G technology readiness in Cyberjaya. This study employed a quantitative methodology to collect secondary data from related publications. Via a quantitative research methodology, data were gathered from 382 members of the target population using a web-based survey questionnaire. To meet the aims of this research, descriptive statistics analysis and inferential statistics analysis are utilised to analyse the data. The study reveals the aspects that determine the 5G technology readiness of users. In addition, the study revealed that elements of user approval such as Performance Expectation, Effort Expectation, and Social Influence exist. The inability to generalise the findings to different mobile networks was one of the constraints of this study. Therefore, it was suggested that future researchers examine several forms of mobile networks to better comprehend the topic. This study's findings can lead to a greater comprehension of the viewpoints on user acceptance of 5G technology.

Keywords: 5G technology, User acceptance, 5G technology readiness

1. Introduction

Cyberjaya, which is close to Kuala Lumpur and is widely recognised as a Smart City in Malaysia, has been chosen as the focus of this study. Cyberjaya is one of only three cities to have 5G up and running. As a commercial hub, it is also on the list of places where 5G technology is needed. Consumers in Malaysia are still experiencing difficulties with 4G networks, according to the Communications and

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Multimedia Consumer Forum of Malaysia (CFM). As a result, the government is deploying the superior 5G infrastructure to fix the slow internet (NST Business, 2018). Just the three major cities of Kuala Lumpur, Putrajaya, and Cyberjaya in Malaysia have access to 5G. (Tariq, 2021). With the advent of cutting-edge 5G technology and the country's improved economic performance, Malaysia is now the site of increasingly massive new developments. Touch n Go RFID, which requires quick scanning speeds, self-driving electric vehicles, robots and machines, and high-speed internet access are all examples of developments that rely on 5G. Organizations and the government alike can benefit from 5G's ability to streamline processes, solve problems, and provide a variety of solutions for dealing with market uncertainty (Okoro, 2021). In spite of the obvious benefits of technology, its widespread adoption has been slow to date (Okoro, 2021). This could be due to factors like performance expectancy, effort expectancy, social influence.

In addition, technology has a positive impact during the Covid-19 pandemic. The pandemic has resulted in a dramatic increase in the number of people taking their classes and performing their jobs online, as well as the number of people using services like Shopee to order food from the comfort of their own homes. While the COVID-19 pandemic was in full swing, students had to find alternative ways to complete their coursework. Thus, 5G is essential for academic purposes. To improve education, 5G can bring augmented and virtual reality into the classroom. In addition, 5G is critical in the agricultural sector as it enables smart farming technologies with agricultural robots to increase efficiency across the entire agricultural value chain. 5G can also provide self-management features and facilitate access to reduce healthcare costs. Customers' reliance on increased download speeds will persist even after the Movement Control Order issued in response to the COVID-19 pandemic has been lifted (NST Business, 2018). All of these steps are necessary for 5G to achieve the best results.

In this study, the TRI model may be used to analyze and evaluate users' preparation for 5G technology based on the elements that contribute to their readiness. This model investigates the user's tendency to adopt new technology (Mokhsin *et al.*, 2022). Moreover, the discovered model employed in this study was based on the model produced by, and it is suited for the current investigation because it was meant to analyse the contributors and inhibitors that specifically lead to 5G technology readiness. Nonetheless, the present study's research model was derived from the TRI. Although there are other additional theories and approaches for measuring readiness accessible. However, this study chose TRI since it linked to individual ideas and not individual technological proficiency. In addition, the TRI model may distinguish between those who wish to adopt the new technology and those who do not by evaluating contributors and inhibitors.

User acceptance may be anticipated and explained in this research using UTAUT. This approach allows for a more comprehensive understanding of the factors influencing user acceptability. Incorporating elements like as compatibility, trust, and personal innovation, the UTAUT paradigm has been used to evaluate the adoption of driver support systems technology (Rahman *et al.*, 2018). Other research has demonstrated the influence of social factors on the uptake of 5G technology (Nordhoff *et al.*, 2018). Thus, the previously mentioned theories of technology acceptance are applicable to the development of a framework for 5G user acceptability (Bamufleh *et al.*, 2020).

The research has background of respondents being residents of Cyberjaya. Cyberjaya was chosen as the research location since it is one of just three cities where 5G has already been deployed and implemented. Cyberjaya, which is also known as a commercial centre, requires the adoption of 5G technology due to its rapid growth. Recent estimates by the Malaysian Investment Development Authority (MIDA) place Cyberjaya's population at approximately 140,000 people. Cyberjaya is a city located 20 minutes from Kuala Lumpur's city centre. In April of 2019, Communications and Multimedia Minister Gobind Singh Deo said that Cyberjaya will be the first smart city in Malaysia to receive 5G technology when the service network's pioneer test begins. During that time, the company would perform its own 5G technology tests with the aid of Malaysian Communications and Multimedia

Services (MCMC). Moreover, the implementation of 5G is currently available in Cyberjaya, and all businesses in the region can pay for 5G access.

According to (NST Business, 2018), 94.03 percent of all Malaysian populous areas supported 4G. 4G is a fourth-generation mobile network technology that is significantly faster and more dependable than 3G. Through its high-speed wireless Internet, it provides a number of features and services, such as video and audio messaging, shopping, and finance (Maeng *et al.*, 2019). Its high-speed and dependable network enables data transmission and reception. The name Magic refers to 4G wireless technology, a mobile multimedia platform that enables users to access the internet and other digital information on a variety of wireless devices. With the proliferation of smart gadgets, the Internet of Things (IoT), and wireless data traffic in 4G networks, there is a significant need and push for next-generation technology (5G) capable of processing large amounts of data in real time (Maeng *et al.*, 2019).

Through innovation, technology has grown rapidly during the past many decades. 5G is the latest technology available. 5G also refers to the fifth generation of mobile networks, which was motivated by increased capacity requirements. It is considerably more than a high-speed mobile internet service. 5G, also known as IMT-2020, introduces substantial technological advancements, including a 20-times-faster maximum transfer rate, 10-times-shorter latency time, 10-times-greater maximum number of connections, and 3-times-better frequency efficiency compared to 4G. (Maeng *et al.*, 2019). 5G's fast speed enables the use of vast quantities of data-based material such as ultra-high definition (UHD), virtual reality, and augmented reality. In addition, 5G's ultra-low latency can enable real-time applications such as telemedicine and connected vehicles that require instantaneous replies. In addition, 5G can serve as the foundational technology for the Internet of Things (IoT), Internet of Everything (IoE), smart homes, and smart cities due to its hyper-connectivity, which increases the number of Internet-connected terminals and sensors. To generate cross-industry and ecosystem applications and ensure national competitiveness on the future 5G market, the majority of governments have made substantial investments in establishing ICT infrastructure and developing new services (Cave, 2018).

In Malaysia, 5G only available in Kuala Lumpur, Putrajaya and Cyberjaya (Tariq, 2021). Therefore, the Technological Readiness Index (TRI) model should be used to gauge 5G technology readiness in order to adopt 5G throughout Malaysia. TRI was defined as the belief and utilisation of technologies to attain goals at home or at work (Mokhsin *et al.*, 2022). The four components of TRI are optimism, innovation, discomfort, and insecurity. (Davis *et al.*, 1989). The UTAUT model was established by Venkatesh *et al.* (2003) by using multiple models of technology acceptance and human behaviour, such as TAM and TRA (Chan & Lee, 2021). UTAUT consists of four constructs that govern technology intention and usage, including performance expectation, effort expectation, social influence, and facilitating factors (Mohd Sah *et al.*, 2021). According to the Malaysian Communications and Multimedia Commission (MCMC), the implementation of 5G can enhance the quality of life by providing better healthcare, transportation, smarter cities, and education, which will allow Malaysians to be more productive for a longer period of time as life expectancy rises. 5G is incredibly fast and able to accommodate a vast number of devices, allowing it to aid in the digitization of numerous industries. Table 1 summarizes the limitations of 4G and the benefits of 5G which can help overcome these limitations.

Internet and technology have grown essential to our daily life, so internet-related issues have become the primary worry in the current era. Even in markets that already provide 5G, the arrival of additional wireless airwaves in Malaysia should significantly increase speeds. 5G will provide significant latency improvements, hence enabling an entirely new universe of mobile use cases. However, 5G will take a long time to become as pervasive as 4G (Peter, 2019).

Table 1: The benefits of 5G which overcome the limitations of 4G (Chew *et al.*, 2020)

No.	Limitations of 4G	Benefits of 5G
1	Longer wait due to latency, lag, and the application getting stuck at regular intervals.	Low latency, high network speed, no lag.
2	Interference on 4G connection.	No interference in 5G connection.
3	Connectivity issues (varied connection strength, intermittent disconnection).	Steady, consistent, and high-speed connection strength.
4	No end-to-end control.	Can be customized specifically to AR/VR end-to-end needs.
5	Less scalable to high device requirements.	Scalable to high devices requirements.
6	Unavailability of a consistent high-speed network for remote learning. Fixed to space.	Network speed can be available for all locations with consistency. Does not have to be confined to a pre-determined space.
7	Inconsistent speed leads to high-end PC requirements in VR for local rendering.	High speed enables the use of all-in-one wireless device (lightweight with mobility) and replace PC with a cloud server.
8	No efficient method for locating and resolving Wi-Fi performance issues.	Can be customized for VR experience.
9	Signal interference, signal attenuation, and mutual influence of services.	No issues in 5G connection.

After the debut of 5G in Malaysia, the primary problem with 5G is the second-lowest download speed of 13.5 Mbps. Experiences with download speed play a crucial role in 5G readiness, which may influence the overall user acceptability of 5G technology. According to Open Signal's statistics data, Malaysia had faster average mobile download speeds than other countries before to the launch of 5G, but this is no longer the case by the end of 2021. (Fogg, 2022). As a result of the delayed launch of 5G, Thailand, Indonesia, and the Philippines have surpassed Malaysia in terms of average download speeds. Malaysia ranks second-lowest in download speed experience (13.5 Mbps) after the launch of 5G, which will impact 5G readiness.

Table 2: Statistic of download speed experience of 5G technology (Fogg, 2022)

	Download Speed Experience (Mbps)		
Country	**Before 5G launched**	**After 5G launched**	**Global Rank (out of 100)**
Singapore	39.3 Mbps	49.9 Mbps	9
Vietnam	14.1 Mbps	25.5 Mbps	45
Thailand	5.7 Mbps	17.4 Mbps	60
Philippines	8.0 Mbps	15.1 Mbps	67
Indonesia	6.9 Mbps	14.4 Mbps	68
Malaysia	11.5 Mbps	13.5 Mbps	70
Cambodia	5.6 Mbps	12.2 Mbps	76

In its early phases, 5G has not yet given services that are distinct from 4G, except for a higher transmission rate (Maeng *et al.*, 2019). This is one of the challenges that users have in achieving 5G ready, despite their high expectations for 5G's speed, bandwidth, and antenna, which can manage more people and data but can only transmit over short distances. Naturally, consumers will want quicker and more stable services than in the past, but if 5G costs grow, their choices may shift.

In particular, the rapid data transmission rate of 5G enables users to utilize more data, so consumers may incur a higher initial cost for their data usage than with previous generations (Maeng *et al.*, 2019).

Consequently, the cost of 5G can be a significant barrier to 5G readiness among customers. According to the CEO of Malaysia's first internet service provider, Digital Nasional Berhad's (DNB) proposed 5G network product tariffs are rather steep (Augustin, 2022). This risk could also have an effect on Cyberjaya's 5G readiness. In Malaysia, Tesla models are more expensive because fewer individuals have purchased Intel's 5G connectivity. Tesla was involved in an accident without any regulatory restrictions (Mitchell, 2021). This is not only a cost concern, but also a safety concern, as the government was not prepared to deploy 5G in conjunction with legislation governing electric vehicles.

In addition, 5G utilizes new technologies such as Virtualization, Software-Defined Networking (SDN), and Network Function Virtualization (NFV) to provide services to users. However, users encountered security issues that impeded 5G readiness due to the insecurity of shared infrastructure and function resources in 5G networks (Taheribakhsh *et al.*, 2020). According to MCMC, they are currently conducting a study on 5G infrastructure due to security concerns, which comprise the majority of their considerations (Bernama, 2019). This issue was highlighted as a result of the government's initiative to provide infrastructure that is accessible, of high quality, and affordable, as well as infrastructure that is secure.

Digital Nasional Bhd (DNB) in Malaysia has announced that Telekom Malaysia Bhd (TM) on behalf of Unifi Mobile and YTL Communications Sdn Bhd on behalf of Yes will be the first two operators in Malaysia to provide 5G access to their respective customers in coverage areas such as Putrajaya, Cyberjaya, and Kuala Lumpur (Ong, 2021). According to the Ministry of Finance, DNB will not use public funds to develop 5G and may not be able to make significant investments in these unprofitable areas with low download speeds. In addition, we can confirm that companies in Cyberjaya must pay or invest in order to adopt the Unifi or YES network for 5G access in their businesses, rather than having automatic access granted. In addition, the other four major telcos, including Celcom, Digi, Maxis, and U Mobile, reject the government's proposal and propose a parallel 5G network plan (Latiff, 2022). TM has also agreed to participate in DNB's 5G user trial, but the company has not disclosed when its 5G service will be available. Kuala Lumpur, Cyberjaya, and Putrajaya have only limited 5G coverage at this time. To make matters worse, all Samsung and iPhone devices cannot connect to the 5G network at this time, and the majority of supported devices are Chinese. Consequently, this is also one of the factors affecting 5G readiness.

Research is executed to address and answer defined problems. Hence, this research sought to answer the following research questions:

(i) What is the level of user acceptance on 5G technology and 5G readiness in Cyberjaya?

(ii) Is there significant relationship between user acceptance and 5G readiness?

Research is also established and pursued to achieve pertinent objectives which are aligned with the above research questions. Hence the research strives to achieve the below listed objectives:

(i) To measure the level of user acceptance on 5G technology and 5G readiness in Cyberjaya.

(ii) To examine the significant relationship between user acceptance and 5G readiness.

The research scope will be specific to Cyberjaya's 5G readiness. This study focused on the acceptance of 5G technology by users and their readiness to use 5G technology. This research will discuss variables in terms of performance expectancy, effort expectancy, and social influence, which is the UTAUT model adapted from Bamufleh *et al.* (2020) to evaluate the level of user acceptance, and optimism, innovativeness, discomfort, and insecurity, which is the TRI model adapted from Mokhsin *et al.* (2022) to measure the level of 5G readiness. Cyberjaya was chosen as the scope location because it is one of only three cities to have installed and implemented 5G. (Tariq, 2021). In addition to Cyberjaya's rapid growth, which necessitates the implementation of 5G technology, this location was

chosen for the research as a result of its reputation as a commercial district. Between August and September 2022, the researcher collected data by distributing online survey forms to Cyberjaya residents.

This study is essential for gaining insight into the perspectives of 5G user acceptance because, through customer participation, 5G technology can be improved and promoted for a better approach. As is well known, download speeds are not the only issue with 5G technology. However, the lack of 5G download speed experience still hinders the readiness of 5G networks. In addition, by examining the perspectives of user acceptance towards 5G readiness, which is a study that is rarely discussed, we will be able to approach the issue with greater seriousness. At this stage, the researcher must identify areas of conflict and dissatisfaction between the user and 5G technology, particularly from the perspective of 5G readiness. Moreover, the significance of this study lies in the fact that it enables 5G technology to analyse current user perspectives regarding the acceptance of 5G technology. Therefore, addressing the issues of 5G readiness will aid in the advancement of 5G technology, particularly in the form of more valuable services for the technology industry.

2. Literature Review

The focus of the literature review is an analysis of the research literature on the independent and dependent variables of the study. The hypotheses, models, and techniques used in this analysis were developed with the support of previously cited journal articles and published literature. The independent variable, user acceptance, has been introduced. We discussed performance expectations, effort expectations, and social influence, which are the dimensions of user acceptance. The dependent variables of this study, which are 5G readiness, are then highlighted, along with the dimensions used to measure each variable. This section illustrates the research hypotheses and conceptual framework for this study.

2.1 User Acceptance

The UTAUT model plays an important role in determining the level of user readiness and acceptance for 5G technology. Using the UTAUT model as a framework, the performance expectation, effort expectation, and social influence are the primary determinants of user acceptance of 5G technology.

(a) Performance Expectancy

According to Venkatesh *et al.* (2003), performance expectation refers to a person's belief that using 5G technology will assist him or her in achieving work performance improvements. Perceived usefulness (TAM/TAM2 and C-TAMTPB), extrinsic motivation (MM), job-fit (MPCU), relative advantage (IDT), and outcome expectations (SCT) are the various models pertaining to performance expectation (Venkatesh *et al.*, 2003). The central expectation of performance is task completion. Performance expectation is the range of an individual's perception based on the utility of technology. Because usefulness is difficult to quantify, numerous studies have proposed a variety of methods for determining and testing the relationship between PE and acceptability (Qiao *et al.*, 2021). The extent to which users' expectations are met influences whether they will continue to use 5G technology. Therefore, the following hypothesis is generated:

H1: Performance expectancy has significant relationship with 5G technology readiness.

(b) Effort Expectancy

Effort Expectancy refers to the amount of effort a person experience when utilizing 5G technology (Raza *et al.*, 2021). Perceived ease of use (TAM/TAM2), complexity (MPCU), and ease of use (lOT)

are the other existing models that capture the concept of effort expectancy (Venkatesh *et al.*, 2003). When analyzing the effort required by 5G technology, it is essential to evaluate user characteristics, knowledge, and functionality. Masculinity/femininity, individualism/collectivism, power distance, and uncertainty avoidance are variables in culture dimensions from the user's perspective (Qiao *et al.*, 2021). All of these factors contribute to an individual's 5G readiness. Consequently, a hypothesis is constructed as follows.

H2: Effort expectancy has significant relationship with 5G technology readiness.

(c) Social Influence

Social Influence refers to the extent to which a person believes it is important for others to believe he or she can use 5G technology (Venkatesh *et al.*, 2003). Social Influence as a direct predictor of 5G technology adoption is represented as subjective norm in TRA, TAM2, TPB/DTPB, and C-TAM-TPB, social factors in MPCU, and image in IDT (Venkatesh *et al.*, 2003). Social Influence's role in technology acceptance decisions is complex and influenced by a number of factors. According to additional research, Social Influence has no significant effect on 5G readiness. Nonetheless, there is a direct relationship between Social Influence and 5G Readiness in terms of the use of 5G technology (Raza *et al.*, 2021). In addition, a person's readiness to utilize 5G technology is heavily influenced by government regulations and their enforcement capacity. Consequently, government agencies and Social Influence have a considerable effect on user acceptance (Qiao *et al.*, 2021). Therefore, the following hypothesis is generated:

H3: Social Influence has significant relationship with 5G technology readiness.

2.2 5G Readiness

5G readiness is the capacity of an individual to utilize 5G technology. It can be evaluated and measured using the TRI model in accordance with the factors that contribute to their preparedness. This model investigates the user's propensity to adopt new technologies (Mokhsin *et al.*, 2022). In addition, this model was created to examine the contributors and inhibitors that specifically lead to 5G technology readiness. However, many other theories and models exist for measuring 5G readiness. However, this study chose TRI because it referred to individual beliefs and not individual technological proficiency. In addition, the TRI model can distinguish between those who want to use the new technology and those who do not by investigating contributors and inhibitors.

(a) Optimism

Optimism refers to a favorable attitude toward technology and the belief that it affords individuals greater control, flexibility, and productivity in their daily lives (Mokhsin *et al.*, 2022). For instance, if a person is optimistic, they believe technology is beneficial and are unconcerned about its negative effects. Instead of fleeing, they typically accept the situation. They tend to accept the situation rather than evade the fact that more people are willing to adopt new technologies. Hence, it leads to a more positive attitude.

(b) Innovativeness

Innovativeness is the propensity to be a technological pioneer and thought leader (Mokhsin *et al.*, 2022). It refers to the willingness of individuals to test out new technologies. They are likely to be an early adopter if they are more innovative and believe they will lose out on benefits if they do not try the new technology. In general, people enjoy experimenting with new technologies and have a favorable impression.

(c) Discomfort

Discomfort is the perception of a lack of control over technology and the sensation of being overwhelmed by it (Mokhsin *et al.*, 2022). Anxiety induced by a person's perceived lack of control over technology. This depicts situations in which individuals are uncomfortable with technology and believe it controls them. Consequently, they experience anxiety when using technology.

(d) Insecurity

Insecurity is a distrust of technology, stemming from skepticism about its ability to work properly and concerns about its potentially harmful consequences (Mokhsin *et al.*, 2022). It is described as when the individuals lack trust in technology because they believe that some certain technology does not function properly. They always think that they are at risks when using new technologies, hence they always tend to feel insecure towards new technologies.

2.3 Conceptual Framework and Hypotheses

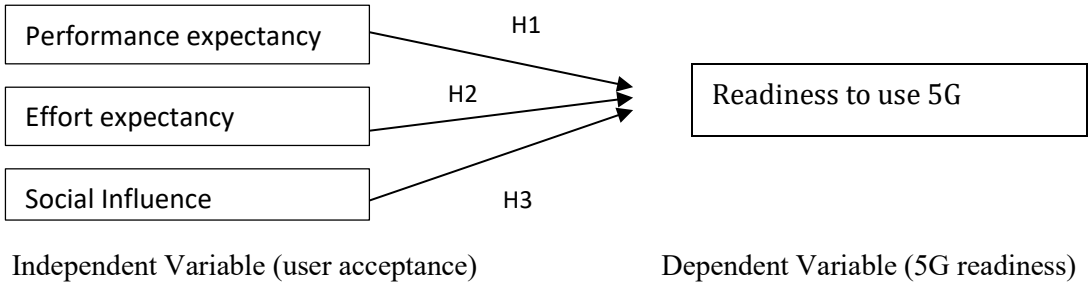

Figure 1: Proposed conceptual framework

H1: Performance expectancy has significant relationship with 5G technology readiness.

H2: Effort expectancy has significant relationship with 5G technology readiness.

H3: Social Influence has significant relationship with 5G technology readiness.

3. Research Methodology

3.1 Research Design

The researcher used a quantitative approach to support the theory of the conceptual framework. In this research, the researcher used convenient sampling to collect the data from the targeted population which is the 5G technology user in Cyberjaya. To determine the relationship between the independent and dependent variables, the researcher used an online survey through the use of Google Form to be distributed to the individuals who have experienced the 5G technology to collect the primary data for this study. The research focused on the user's perspectives based on 5G readiness and acceptance. Thus, the target population of this research is individual. Type of time horizon applied in this research is cross-sectional. The period where the researcher collected the data starts from early of August to end of September 2022 hence the time is limited within this timeframe.

3.2 Research Process

The research process is a flow chart which consists of a series of actions or steps necessary in order to effectively carry out the research. First, the researcher began with determining the problem or difficulties of a certain field. Following that, a survey of relevant literature was undertaken to support

the study topic, and the research's conceptual framework was developed to formulate the research hypotheses that will be described in the next phase. To design an investigation, researchers have to make decisions on data collection methods, sampling methods, questionnaire construction measurements, and data analysis procedures. The information gathered is then being analyzed. Finally, the researcher completes the report by sharing the findings. Figure 2 shows the flow of the common steps in the research process.

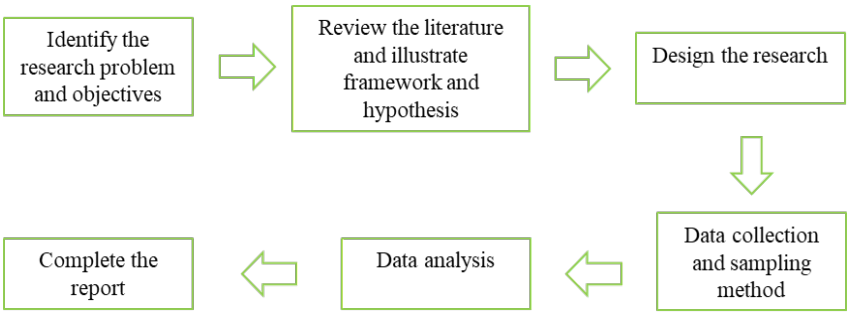

Figure 2: Steps in the research process

3.3 Data Collection

The researcher used a survey-based question to be distributed to the targeted sample which is the 5G technology user in Cyberjaya. The survey will be focused on the user's perspectives on 5G acceptance towards their readiness on using 5G technology. In doing so, the researcher used Google Form which is a web-based app used to create forms for distributing to the respondents and data collection. Among the reasons the researcher employs this technique is because the web-based form (Google Form) is an excellent free option that can be shared to the targeted respondents via link, email and others. Moreover, the gathered data using this form was stored in a spreadsheet which significantly reduces the time taken for the researcher to categorize and pre-analyze the data. In addition, an online survey-based questionnaire was relatively easier to understand and interpret based on the respondents' feedback compared to the other data collection techniques, especially for quantitative research.

3.4 Research Instrument

An adopted questionnaire was used to perform descriptive analysis. A survey questionnaire was utilized to gather to obtain the essential data in the most accurate and consistent way feasible in this study. The research instrument can be measured through which the researcher collects information. The survey questionnaire should concentrate on the study's objectives. This should include ensuring that each question is specific, objective, and understandable, as well as asking and gathering the appropriate types of information. According to Ikart (2019), it stated that closed ended queries aid in the collection of demographic and other fact-based data, which can then be used to identify individuals or circumstances.

This research is divided into three sections: section A, section B, and section C. Section A examines the demographics of respondents, while section B examines user acceptance, and section C examines the readiness of individual to use 5G technology. On section A, the nominal scale is employed, but on sections B and C, the 5-point Likert scale is used. The tables in appendix present construct and instrument measurements from each item of the survey questionnaire based on previous studies.

3.5 Sampling Design

In this research, the sampling techniques that have been used is quota sampling. This is because, quota sampling is the most suitable technique for large population or infinite and limited time to conduct sample survey (Yang & Banamah, 2014). Quota sampling is one of the most common types of nonprobability sampling which also known as non-random sampling methods (Iliyasu & Etikan, 2021).

This sampling refers to selection with controls which researcher determines the number of each category and ensures that the required numbers of quotas are collected from each selected population subgroup. However, there is basically no randomization of unit selection within the subgroups (Anieting & Mosugu, 2017). There is no population list used in this sampling, but a quota is set, typically using survey data. For example, consider the scenario where 50% of the youth population aged 15–29 years old is known to be male and where 50% of each sex is in the 22–29 age range (Anieting & Mosugu, 2017). One of the issues with quota samples is the difficulty in including certain respondents while excluding others.

3.6 Population and Sample Size

The population that targeted for this research is the individuals who are staying in Cyberjaya which is about 140,000. Cyberjaya has been chosen to conduct this research. The sampling design with the smallest optimal sample size is selected as the best sampling design, and it must be used in the area with the corresponding optimal sample size (Kermorvant *et al.*, 2020). Choosing the right sample size remains a difficult task for researchers. Since sample size has such a strong influence on statistical methods, it must be carefully considered. Based on previous study, it showed that authors such as Collis and Hussey have argued that sample size should be carefully considered when using research methods such as structural equation modelling, which further analyses confirmatory factor analysis, casual modelling with latent variables, structural path analysis, and multiple regression analysis (Rahi, 2017). In light of these claims, the sample size for this analysis was determined by using the most commonly quoted rule of thumb in academic literature. According to Krejcie and Morgan (1970), the required sample size for a population of 140,000 people is 383.

3.3 Data Analysis

There are two types of methods in quantitative data analysis which is descriptive and inferential analysis. In this research, the usage of descriptive analysis was to help in describing and understanding the features of a specific data set in a meaningful way through a short summary on the sample and measures of the data. The data gathered is demonstrated in simpler interpretation in the form of mean, percentage, standard deviation and result interpretation. The data collected from the respondents was examined through the usage of IBM SPSS Statistics version 26 for complex statistical data analysis. For pilot testing, the researcher conducted a reliability test to test the internal consistency. For the reliability analysis, the Alpha of Cronbach was used to test the scale of reliability. Besides, a normality test was conducted to check whether the questionnaires were normally distributed. The data analysis applied in this research is bivariate analysis including descriptive analysis and inferential analysis. Descriptive analysis is including measures of central tendency (mean score, median and mode) and measures of dispersion (range, variance and standard deviation). Correlation coefficient was performed based on the normality test result to test the correlation and significance influence between the variables in this study.

Table 3: Objectives and techniques of analysis

No.	Objectives	Techniques of analysis
1	To measure the level of user acceptance on 5G technology and 5G readiness in Cyberjaya.	- Survey questionnaire - Quantitative - 5 Point Likert Scale - Descriptive analysis • Mean score
2	To examine the significant relationship between user acceptance and 5G readiness.	- Survey questionnaire - Quantitative - 5 Point Likert Scale - Inferential analysis • Spearman correlation coefficient

4. Results and Discussion

4.1 Level of User Acceptance and 5G Readiness

Table 4 demonstrate the results for identifying the level of 5G readiness (dependent variable) and user acceptance (independent variable) which are performance expectancy, effort expectancy and social influence. Based on Table 4, 5G readiness had a total of 144 respondents (73.8%) are having high level and 51 respondent (26.2%) are having moderate level in Cyberjaya which is ranked by central tendency level under the level of agreement with mean measurement.

Besides that, Table 4 shows that 177 respondents (90.8%) are having high level and 18 respondents (9.2%) are having moderate level of performance expectancy in Cyberjaya. Furthermore, effort expectancy occurs the same result as performance expectancy with 177 respondents (90.8%) are having high level and 18 respondents (9.2%) are having moderate level in Cyberjaya. Last but not least, there are also a total of 149 respondents (76.4%) are having high level, 37 respondents (9.2%) are having moderate level and 9 respondents (4.6%) are having low level of social influence in Cyberjaya.

Table 4: Level for the variables

Dimension	High	Moderate	Low	Mean
Dependent variable				
5G readiness	144 (73.8%)	51 (26.2%)	-	3.94
Independent variable				
Performance expectancy	177 (90.8%)	18 (9.2%)	-	4.25
Effort expectancy	177 (90.8%)	18 (9.2%)	-	4.20
Social influence	149 (76.4%)	37 (19.0%)	9 (4.6%)	3.92

4.2 Relationship Between User Acceptance and 5G Readiness

(a) H1: Performance Expectancy Has Significant Relationship with 5G Technology Readiness

According to the obtained and analyzed data, with the r- value (r) for Spearman's correlation coefficient of 0.269 and p- value is less than 0.05, it represents that there is a weak relationship between performance expectancy and 5G readiness. The outcome indicated that the hypothesis for this research was accepted which means that there is a significant relationship between the two variables at 0.01 level of significant. Besides that, the finding was also supported by the responses from survey questionnaire by people in Cyberjaya.

Table 5: Correlation coefficient of performance expectancy and 5G technology readiness

			Performance Expectancy	5G Readiness
Spearman's rho	Performance Expectancy	Correlation Coefficient	1.000	0.269**
		Sig. (2-tailed)	.	0.000
		N	195	195
	5G Readiness	Correlation Coefficient	0.269**	1.000
		Sig. (2-tailed)	0.000	.
		N	195	195

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

(b) H2: Effort Expectancy Has Significant Relationship with 5G Technology Readiness

Based to the collected and analyzed data, with the r- value (r) for Spearman's correlation coefficient of 0.240 and p- value is less than 0.05, it represents that there is a weak relationship between effort expectancy and 5G readiness. The outcome indicated that the hypothesis for this research was accepted which means that there is a significant relationship between the two variables at 0.01 level of significant. Furthermore, the finding was also supported by the responses from survey questionnaire by people in Cyberjaya.

Table 6: Correlation coefficient of effort expectancy and 5G technology readiness

			EffortExpectancy	**5G Readiness**
Spearman's rho	Effort Expectancy	Correlation Coefficient	1.000	0.240**
		Sig. (2-tailed)	.	0.001
		N	195	195
	5G Readiness	Correlation Coefficient	0.240**	1.000
		Sig. (2-tailed)	0.001	.
		N	195	195

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

5. Conclusion

In conclusion, the study's findings and conclusions supported with its hypotheses and aims. The Spearman's correlation coefficient shows a significant link between user acceptance and 5G readiness in Cyberjaya. In a nutshell, user acceptance enhances 5G technology readiness. Thus, Cyberjaya should focus on improving performance expectancy, effort expectancy and social influence. Besides that, the study concludes that the user acceptance has a relationship with the 5G technology readiness which will tell off on the performance expectancy, effort expectancy and social influence of the people.

Furthermore, this study takes the industry differences into consideration, so that they could improve the function of 5G to satisfy the need of 5G user to be accepted based on their performance expectancy, effort expectancy and social influence which will give great impact on the 5G technology.

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