

**YANGON UNIVERSITY OF ECONOMICS  
DEPARTMENT OF MANAGEMENT STUDIES  
MBA PROGRAMME**

**THE EFFECT OF INFORMATION AND COMMUNICATION  
TECHNOLOGY (ICT) ADOPTION ON SMES PERFORMANCE IN  
NAY PYI TAW**

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**EMBA II – 5**

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**ACADEMIC YEAR (2019-2022)**

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This thesis submitted to the Board of Examiners in partial fulfillment of the requirements for the degree of Master of Business Administration (MBA)

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## ACCEPTANCE

This is to certify that the thesis entitled “**The Effect of Information and Communication Technology (ICT) Adoption on SMEs Performance in Nay Pyi Taw**” has been accepted by the Examination Board for awarding Master of Business Administration (MBA) degree.

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## **ABSTRACT**

The study aims to analyze the factors influencing ICT adoption and to examine the effect of ICT adoption on small and medium enterprises (SMEs) performance in Nay Pyi Taw. This study is conducted on a survey with 228 SMEs of 1,417 enterprises in Nay Pyi Taw registered in SME development department. Survey data are collected using a structured questionnaire and distributed to SMEs through both online and personal interviews by using a simple random sampling method. This study found that external pressure and government support have positively significant effect on ICT adoption by SMEs. Moreover, the study results indicate that the adoption of ICT has a significant impact on SMEs performance in Nay Pyi Taw. This study suggests that concerned SMEs and government to look at external pressure and government support factors with a view to achieving ICT adoption to improve firm performance. The government and SME department should conduct promotion programs to share information regarding ICT adoption and its usefulness in improving SMEs performance. This study provides a greater understanding of SMEs perception of ICT adoption in organizations. Those SMEs who are trying to promote their business online may find these results helpful in guiding their efforts.

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# **CHAPTER 1**

## **INTRODUCTION**

Information and Communication Technology (ICT) is a digital tool or innovation used for gathering and processing data and information dissemination (Bekinsale & Ram, 2006). ICT includes all kinds of technologies from software, hardware, telecommunications and information management systems to applications and devices. ICT can be used to get information electronically in a digital form by gathering, processing, producing and analyzing data, after that it can package, distribute, retrieve, store and transmit or receive information (Porter & Millar, 1985). ICT adoption is using information and communication technology (ICT) tools that are required to connect to the internet including computer hardware, software and networks.

Organizational performance is important because it helps for better asset management, and to increase customer value and organizational knowledge. Therefore, managers try to understand the factors or the ways how the organization gets high performance. High organizational performance can also improve productivity, organizational effectiveness and organizational ranking and image.

In this age of the 4th industrial revolution, information and communication technology (ICT) resources become a new global economic order for SMEs. ICT helps organizations to improve their performance both for financial and non-financial performance. ICT could improve the organization in terms of managerial and business capacities, marketing, innovation, product quality and compliance with international standards as well. Barua (1995) found that ICT usage impacts business positively and increases business performance.

Although SMEs face many difficulties including capital for infrastructure and IT knowledge to adopt ICT, the benefits of ICT for the organization are enormous for their operation and high performance. ICT like fiber network infrastructure and applications - Enterprise Resource Planning (ERP)- provides opportunities for the organization to operate their businesses online and enhance efficient resource management and communication within the company and with their customers as well.

ICT changed rapidly global production, a form of work and business practices, methods, communication, trade and consumption patterns of business organizations, society and individuals. Organizational sustainability mainly depends on the degree of ICT adoption. Today, organizations need to adopt ICT to achieve a high level of organizational performance.

Perceived benefits refer to the benefits perceived by SMEs. Perceived benefits are greater, the possibility of ICT adoption will be higher. According to OECD (2004), ICT can improve information and knowledge management and increase the fast, ease and reliability of payments for business-to-business (B2B) as well as business-to-consumer (B2C). Moreover, SMEs can exchange real-time information and build a closer relationship with stakeholders such as suppliers, customers and shareholders and do immediate customer feedback through ICT adoption.

Nowadays, SMEs realized that ICT and ICT applications affect organizations and its performance positively. According to Lauder and Westall (1997), ICT can give the opportunities such as cheaper and faster communications, better relationships with customers and suppliers, more marketing efficiently and effectively, the introduction of new products and services and better access to information and training. This study will consider perceived benefits as one of the influence factors that could affect the adoption of ICT.

Perceived costs refer to the cost of ICT adoption perceived by SMEs and that is significantly related to the adoption and utilization of the technology. Most SMEs lack capital and consider ICT as expensive one (Poon & Swatman, 1999). If the lower the cost of ICT adoption, ICT usage will be higher. Skillful employees are highly related to the adoption of ICT, normally, many SMEs lack the skills to use ICT and this lack of employee knowledge might delay or prevent ICT adoption.

External pressure is the pressure from business trading partners such as suppliers, customers and rivals. That is one of the most important factors that influence ICT adoption. According to Julien and Raymond (1994) and Thong and Yap (1995), when competitors, trading partners and the whole industry sector use ICT, the business is forced to adopt ICT and they are also likely to adopt it.

Government support also could be a factor affecting ICT adoption, the more government support, the higher ICT adoption rate. Some government support SMEs to

adopt ICT by giving tax incentives. Myanmar government is striving to step up from an agricultural country to an industrial country and encourage and support SMEs. Moreover, SME development policy is laid down for sustainable growth in order to participate in ASEAN Economic Community in line with the free trade agreement and to develop the country like other ASEAN countries.

ICT Refers to information and communication technology which may range from simple technology (phone, email) to highly sophisticated technology (computer-driven and Internet-driven automated equipment and applications). Adoption of the ICT refers to a means for the business to enable a global scale to compete with international rivals, with improved efficiency, and better relationships with trading partners (Chong et al., 2001).

SMEs performance refers to creating the value added by SMEs, as a percent of the total value added by enterprises. SMEs performance can be measured using financial and non-financial factors. The financial measures include profit before tax and turnover and the non-financial measures include customer satisfaction and customer loyalty, delivery and waiting time and employee's commitment to the organization. Organizational performance refers to the outcome of the organization and is measured by profit, sales, market share, productivity and firm competitiveness.

Using ICT enables SMEs not only to reduce costs and improve efficiency but also for creating relationships with customers and from which SMEs receive value propositions. ICT improves a firm's performance in terms of sales, growth, profitability and productivity through cost effective, organizational efficiency, enhance product or service quality, loyalty to the organization, better customer relationships and differentiation of products or services from rivals.

Today, organizations are adopting ICT for improving business and task efficiency and for improving engagement and better communication and faster feedback with their customers. Governments also adopt ICT applications and systems to provide better services for their citizen. In this study, the factors influencing ICT adoption and the effect of ICT adoption on SMEs performance in Nay Pyi Taw are conducted.

## **1.1 Rationale of the Study**

Small and medium enterprises (SMEs) are the backbone of the economy and a major source for generating employment, creating wealth, alleviating poverty and

regional growth and development. Many countries try to develop SMEs as one of their development plans.

Today, the world is changing with high competition, therefore, for SMEs, to survive in this fast-moving competitive world, SMEs need to adopt information and communication technology (ICT) to get higher competitiveness and innovation extend market reach, increased sales and profits, improved communication, improved company image, improved speed of processing, and increased employee productivity. Businesses in all economies are willing to expand regional and international markets, utilization of ICT enables businesses to communicate with trading partners around the globe virtually and acquire real-time business information and operate their business more effectively (Montazemi, 2006).

Nowadays, integration between countries or businesses is increased and reduced trade barriers. Moreover, SMEs have great opportunities to expand their market locally and internationally because of advanced ICT (Mutula & Brakel, 2006). In this respect, to enable competitive advantage in international markets, SMEs should use consider information and communication technology (ICT) as a tool (Mutsaers et al., 1998). Other studies also found that ICT enables the business to measure their performance in terms of process efficiency, service quality, cost savings, organization and process flexibility and customer satisfaction.

Today, businesses are deeply affected by information and communication technologies (ICT) and the adoption of ICT rates are increased. ICT can reduce trade barriers, create the greatest opportunities and help businesses to participate in the regional and international markets. ICT is key for the success of organizations and driving the engine of firm competitiveness and performance.

Lightfoot et al., (2011) also revealed that ICT enables to business for better performance in terms of prompt responsiveness, better resources allocation, create reliability product or service, innovative product or service design, electronic supervision, better supply chains, and exceptional service

Ministry of Industry, the focal ministry for SME development is responsible to promote, encourage and foster the development of private industrial enterprises by identifying and responding to their needs and business requirements. To enhance SMEs and support them, in 2014, the Center for SMEs Development was established. SMEs

Development Center was reorganized under the Directorate of Industrial Supervision and Inspection of Ministry of Industry with 53 SMEs Branches including 14 branches and 38 sub-branches throughout the country (website of Ministry of Industry, 2022).

SMEs in Myanmar are very initial state in using ICT. Most are using only simple ICT such as the internet, emails and social media to support firm performance and still lack of awareness of perceived benefits of ICT adoption. SMEs that target to reach local and international markets have to use ICT in order to make exporting, do business matching, and participate in trade fairs and exhibitions. The benefits of ICT adoption for small and medium sized enterprises include creating opportunities to expand and market access, improving operational efficiencies and making businesses more competitive and successful (Sarosa & Zowghi, 2003).

The research may help the government to identify the current situation of using ICT, the major reasons that hinder to adoption ICT by SMEs. After realizing the obstacles, they can provide appropriate information and supports that enhance ICT usage. Government can also support necessary assistance such as financial support, favorable policy, strategy and technical assistance. Moreover, the government can promote technological transfer, capacity building training, awareness programs and education to SMEs on how ICT generates benefits for SMEs.

## **1.2 Objectives of the Study**

The objectives of this study have two objectives and to examine the actual and current situation of information and communication technology (ICT) adoption by SMEs in Nay Pyi Taw and this study aims to achieve the following objectives:

- a) To analyze the factors influencing ICT adoption by SMEs in Nay Pyi Taw.
- b) To examine the effect of ICT adoption on SMEs performance in Nay Pyi Taw.

## **1.3 Scope and Method of the Study**

This study emphasis on the factors affecting ICT adoption on SMEs performance in Nay Pyi Taw. In this study, both primary and secondary data are used. The Roasoft sample size calculator is used for sample size. It was taking into account a confidence interval of 90 %, margin of error of 5%. A simple random sampling method is used for the sample. A structured questionnaire is developed for 228 SME owners or managers out of 1,417 SMEs in Nay Pyi Taw for primary data collection and received 159 complete

responses out of 228 SMEs. Data collection period is in October 2022. Secondary data is gathered from previous research papers, Ministry of Industry website, international journals, textbooks, MBA thesis, other relevant information resources and other websites. Data is analyzed by descriptive method and linear regression method.

#### **1.4 Organization of the Study**

This study organizes five different chapters. Chapter one consists the introduction about the factors influencing on ICT adoption, ICT adoption by SMEs, rationale of the study, objective of the study, scope and method of the study and organization of the study. Chapter two contains theoretical background of the study. The conceptual framework of the previous studies and the conceptional framework of the study and detail the conceptual framework and discusses the key elements to be studied. A more detailed description of the variables and its terms, namely the factors that influence ICT adoption by SMEs and reasons for, benefits of and inhibitors to ICT adoption by SMEs. Chapter three presents details about profile and information and communication technology (ICT) adoption on SMEs performance in Nay Pyi Taw. Chapter four presents the analysis on ICT adoption and SMEs performance in Nay Pyi Taw. Chapter five is the conclusion of the study with finding and discussions, suggestions and recommendations and limitations and needs for further research.

## **CHAPTER 2**

### **THEORETICAL BACKGROUND**

This chapter focus on the theoretical background used in this study. The theoretical background based in this study are Theory of Reasoned Action (TRA), developed by Fishbein and Ajzen (1975), the theory of Planned Behavior (TPB), developed by Ajzen (1991), Technology Acceptance Model (TAM), developed by Davis (1989) and Technological, Organizational and Environmental (TOE) Framework, developed by (Tornatzky et al., 1990).

This chapter illustrates information and communications technology (ICT), ICT adoption, theories of ICT adoption- technology acceptance model (TAM), technology organization environmental framework (TOE), factors influencing on ICT adoption and the relationship between ICT adoption and firm's performance, the conceptual framework and the findings of previous research studies, the conceptual framework of this study.

#### **2.1 Theories of ICT Adoption**

There are many theories that drive ICT adoption. In this study, the factors influencing on ICT adoption- perceived benefits and perceived cost are driven by Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM). The factors such as ICT knowledge and skill, external pressure and government support are driven by Technological, Organizational and Environmental (TOE).

##### **(a) Technology Acceptance Model (TAM)**

TAM theory describes various factors that affect the adoption of a given technology positively or negatively. The technology acceptance model is a prediction of user acceptance and adoption of ICT by perceived ease of using ICT and perceived usefulness of ICT (Davis, 1986). TAM theory is an adaptation of the TRA and has two key beliefs included in TAM theory mentioned above. In this study, perceived usefulness (perceived benefits) is examined.

## **(b) Technology Organization Environmental Framework (TOE)**

TOE is a theoretical framework that identified three groups of factors that influence ICT adoption- technological context, organizational context and environment context (Tornatzky & Fleischer, 1990). Technological context is existing technologies or new technologies concerned with the firm. Organizational context is measuring the organization in terms of scope, size and available resources within the organization. Environmental context refers to how a firm runs its business, responds to its industry, how to deal with its customers, suppliers, competitors and government. In this study, perceived benefits, perceived cost, ICT knowledge and skill are explored as organizational context and external pressure and government support as environmental factors.

## **2.2 Factors Influencing ICT Adoption**

The purpose of this study is to investigate factors affecting the intention to adopt ICT in the SMEs of Nay Pyi Taw in Myanmar. The influencing factors that may affect on ICT adoption in this study are perceived benefits, perceived cost, ICT knowledge and skill, external pressure and government support.

### **2.2.1 Perceived Benefits**

Perceived benefits refer to the extent to which an individual perceives that using a system will increase firm's performance level (Alyammahi, 2018). Perceived usefulness means "the degree to which a person believes that using a particular ICT would enhance job performance" (Davis, 1989). It can be seen that how actual use and intention to use of ICT are influenced (Lu et al., 2003).

Perceived usefulness is based on the theoretical model of self-efficacy theory (Bandura, 1982), behavioral decision theory (Beach and Mitchell, 1978), the theory of expectations, the theory of reasoned action (Ajzen and Fishbein, 1980) and the theory of planned behavior (Ajzen, 1999).

The higher the benefits perceived by SMEs, the greater adoption of ICT. Perceived benefits may be the factor that could affect ICT adoption in SMEs (Alam, 2009). According to Lymer et al., (1997) stated that ICT adoption in SMEs, will reduce

costs and increase productivity levels and small firms enable cost-effectiveness for better communications with trading partners and consumers.

Lauder and Westall (1997) revealed that ICT help SMEs with cheaper and faster communications, better relationships with customers and suppliers, more marketing promotion effectively and efficiently, introduction of new products and services and better information sharing. Barua (1995) found that a positive effect on ICT adoption in SMEs can increase organizational performance.

Davis (1986) defined it as the percentage of performance improvement expected from using the system and assessed through six indicators that represent the expected benefits of using the technology, namely- the speed in performing given tasks, the improvement in work performance, the improvement in productivity, the improvement in efficiency at work, the improvement in business process at work and the usefulness of technologies in the work environment.

Several studies have shown that the adoption of desktops and laptops, the use of e-mails (Limayem and Loukil, 1997), the increase in online business (Limayem et al., 1997) and the adoption of web applications depend on their perceived usefulness by users before they adopt them (Chang & Cheung, 2001). Indeed, the acceptance of ICT is influenced by the perception of its potential users. The more SMEs are believed that ICT adoption in their firms is improving SMEs performance, the more SMEs adopt and incorporate them into their work (Otieno, 2015).

### **2.2.2 Perceived Cost**

Perceived cost refers to the cost of ICT adoption perceived by SMEs as using technology will cost money (Chai et al., 2015). Perceived cost by SMEs is higher, ICT adoption will be lower. The perceived cost of an activity is defined as the unit cost that a consumer thinks the organization incurs by undertaking a particular activity. Perceived costs include money, time, and labor (Alam, 2009). The cost of adoption is an important factor in the adoption and utilization of the Web (Ernst & Young, 2001). Generally, the higher the costs of adoption of innovation, the slower the pace of innovation expansion is likely to be (Mansfield, 1968; Davis, 1979).

Perceived cost is another independent variable included in the framework. The reason perceived value is enclosed within the framework is as a result of it plays a vital

role for SMEs in the crucial adoption of ICT in their business. The SMEs will adopt ICT less when its initial investment cost is high (Dixon et al, 2002). Poon and Swatman (1996) and Reynolds (1994) indicated that most SMEs have difficulty obtaining financial assistance. resources. Any new technology like ICT may be considered too expensive by many SMEs because of their lack of financial resources (Poon & Swatman, 1999).

Tidd (1997) stated that SMEs have to face some difficulties and issues in ICT adoption because of their financial condition and technological competencies. According to Duncombe and Heeks (2001), a survey of US SMEs found that 90 % of SMEs surveyed lack of initial investment cost and ICT skills are the main obstacles for SMEs to adopt ICT. Some of them cannot afford to buy a computer or make efficient use of it in a short or even medium period of time.

### **2.2.3 ICT Knowledge and Skill**

ICT knowledge and skill refer to the ability of a person to contact with people through many kinds of advanced technologies, e.g- sending and receiving an email, calling with video online, searching the information on the internet, using a tablet, computer or smart phone, and more. ICT includes not only for advanced technologies but also includes older technologies such as radios, televisions and fixed line phones (Doyle, 2020). Reynolds et al. (1994) in their research found that SME owners and top managers are less likely to adopt ICT if their employees are not familiar with the common ICTs used in the business environment.

ICT adoption by SMEs is one of the factors influencing SMEs to adopt ICT. An organization needs to determine its employee's knowledge or skills of ICT because those knowledge or previous experiences may influence the organization's decision in adopting ICT. However, the ability of managers or owners to ICT knowledge or skills is increasing the opportunity for ICT use amongst SMEs (Alam, 2009). Owners and top managers of SMEs who have an acceptable level of ICT knowledge are more likely to encourage ICT adoption and use in their companies (Teo & Ranganathan, 2004). A higher level of appreciation of ICT benefits by the owner or key manager will directly influence considerations for further ICT adoption in the business (Montazemi, 2006). Previous studies by (Mutula and Van Brakel, 2007) emphasized the importance of skilled ICT personnel within the organization or from outsourcing firms to assist in deploying and using ICT.

Allison (1999) found that younger employees are willing to learn and implement new technology compared to older employees, additionally, the probability of employees using complicated ICT systems is lower amongst employees over forty years. The adoption of ICT systems and new infrastructure may require the organization to restructure its functions and organizational structure to fully implement the system (Cela, 2005). Harindranath, et al. (2008) found that a workforce that is highly educated is more likely to adopt and implement ICT initiatives in the organization.

The lack of suitably skilled employees and managerial staff with sufficient ICT knowledge is a significant factor that determines the implementation and use of ICT (MacGregor et al., 1996). Allison (1999) found that when companies have skilled and knowledgeable employees their ability to adopt and use ICT increases, thus leading to the successful adoption of ICT in their organizations. Paul and Pascale (2003) stated that ICT adoption in SMEs depends on SME owners and managers who are decision-makers to adopt ICT. It is vital for the organization to work out its employee's information or skills of ICT as a result of those knowledge or previous experiences might influence the organization's decision in adopting ICT. However, the ability of managers or owners in ICT knowledge or skill is increasing the opportunity for ICT use amongst SMEs (Alam, 2009).

If the employee lack ICT knowledge and skills, it may prevent ICT adoption by the SME owners (Reynolds, 1994). The lack of appropriate technical and managerial staff with sufficient ICT expertise is another major barrier for SMEs in adopting ICT. Allison (1999) agreed that a skilled and knowledgeable workforce was closely linked with the successful implementation of technology. A lot of researchers make sure the finding such as Cragg and King (1993) found that one of the most important factors that hinder to use ICT was employees lack of ICT knowledge.

#### **2.2.4 External Pressure**

Environmental pressure refers to the pressure arising from the institutional environment. For example, environmental pressure includes various encouragement, advice or pressures that a firm receives from its customers, suppliers, regulatory authority and other stakeholders. Environmental pressure comprises normative, mimetic and coercive pressures (Quaddus & Woodside, 2015).

External pressure like pressure from business trading partners is one of the important predictors that has strong influence on adoption of ICT. Lacking pressure from their trading partners, the business owner may perceive the technology as a waste of resources (Thong & Yap, 1995; Iacovau et al., 1995).

When a major supplier or customer adopts IT, the small business owner is more likely to adopt it (Kirby & Turner, 1993). Julien and Raymond (1994) and Thong and Yap (1995) also confirmed industry sector has been shown to be interested to adopt technology if competitors and trading partners or a whole industry are already adopted ICT, SMEs are likely to adopt ICT. Parker (1997) and Poon and Swatman (1996) revealed that SMEs are forced to use ICT by large enterprises. Therefore, this could be a factor driving the use of ICT if their trading partners force them to use it.

### **2.2.5 Government Support**

Government support means financial support provided by federal, provincial or municipal governments, including without limitation capital and operative grants, subsidies, owed or pardonable loans, reimbursable tax credits, and loan guarantees. Both industry and government bodies have a role to play in promoting and supporting small business networking and ICT (Alyammahi, 2018). Given the globalization of the ICT industry, there is a need to understand government role in contributing to the success of ICT development. A study carried out in Israel to identify three important factors that had contributed to the creation ICT industry in Israel (Vinig et al., 1998).

Furthermore, governments also play an important role in term of encouraging business to adopt e-commerce technology, through policies and regulations can drive the business, especially SMEs, to adopt IT technology. They can protect the parties involved in the business transaction, in this case the business or the 102 customers, regulate the use of the internet to make it a secure medium of transactions; and also provide incentives for companies to use e-procurement in their transactions (Zhu & Kraemer, 2005).

Dasgupta et al. (1999) cited by Zhu and Kraemer (2005) found that the business that operated in an environment of restrictive government policies seem to have low IT adoption. In addition, the government can also use its power to push the business to the adoption of certain technology.

### **2.3 ICT Adoption**

ICT adoption is defined as any usage technology that supports information sorting, information processing, information distribution and using information (Adu, 2002; Osterwalder, 2003; Beckinsale & Ram, 2006).

As described by Laudon and Traver (2014), the internet has eight unique features, which are ubiquity, global reach, universal standard, richness, interactivity, information density, personalization/customization, and social technology, which makes it superior to other technology innovations. This innovation is believed as one important factor that drives the globalization of business (Ruzzier & Hisrich, 2006).

Through its ability to eliminate geographical constraints, reduce advertising costs, improve communication internally and externally, and improve information availability, this technology offers many advantages for businesses, including SMEs to enter the global market easily and economically. This technology is recognized by many authors as an invaluable resource for SMEs in the internationalization process (Loane, 2006).

### **2.4 SMEs Performance**

SMEs performance refers to creating the value added by SMEs, as a percent of the total value added by enterprises. SMEs performance refers to the results of organizations activities (Kotane & Kuzimina-Merlino, 2017). SMEs performance was measured by using various indicators. Among these indicators, most use firm growth indicators such as growth in sales, employees, profit, assets, and equity.

Organizational performance is a significant factor to improve output and productivity and provide the information to achieve the goal, therefore, SMEs need to have strong organizational performance (Mahmudova & Kovacs, 2018). SMEs organizational performance depends on the firm's performance (Lo et al., 2016).

Organizational performance refers to the outcome of organizational processes in a given time. Profit growth, sales growth, market share, productivity growth and firm competitiveness are the dimensions of organizational performance. An organization's performance is defined as how well the organization is managed and the value the organization delivers to customers and other stakeholders (Moullin, 2003).

Cost effectiveness refers to organizations using ICT efficiently and affordably and whether they can generate greater benefits at low cost, they can save money or make a lot

of money by using ICT. Respondents were asked whether the adoption of ICT had reduced average production costs and total costs in their organization (Maxwell, 2012; Mitra & Chaya, 1996).

Organizational Efficiency refers to the process where the adoption of ICT makes customers feel more satisfied and want to remain loyal to the organization. Efficiency was measured by asking questions about whether the usage of ICT increased organizational efficiency in terms of daily operations. Respondents were asked whether the adoption of ICT enables efficient communications with suppliers and customers and so on.

For loyalty to organization, ICT contributes to electronic communication, collecting information and easy and first transaction processing and data exchange between online suppliers and customers at any time and anywhere, ultimately leading to loyalty to an organization. When organizations are able to provide better services to their customers by using ICT, customers likely to be loyal to organizations.

Enhanced service quality refers to smart systems making it easier and more convenient for individuals to do things, such as access information and services. ICT adoption can improve service quality in terms of convenience and easy with less effort accurately and quickly services. Then, enhanced service quality can increase profitability and long-term economic competitiveness

Better relationships with customers refer to ICT helps to keep better communication, relationships and contact with trading partners, especially with customers (Alyammahi, 2018). ICT helps SMEs to encourage and build better relationships with customers. ICT such as smart phone technologies can create trust, enhance satisfaction and finally builds superior relationship with customers. For example, mobile phones have enabled hotels, restaurants and private hospitals to contact their customers and develop and maintain better relationships.

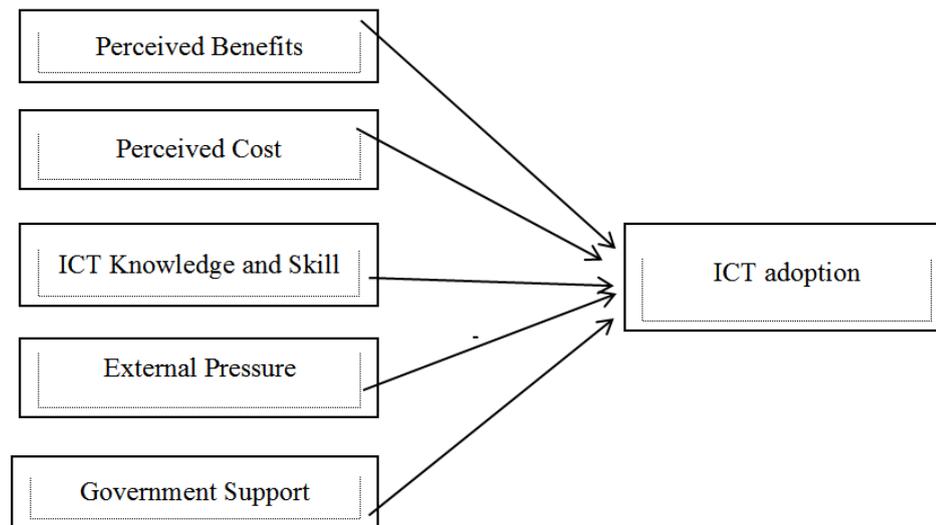
## **2.5 Empirical Studies of ICT Adoption on SMEs Performance**

The conceptual framework of this study comes out from some conceptual models developed by previous researchers. The conceptual framework is adapted from two previous researchers' models which are closely related to the basic assumptions of this study.

### 2.5.1 Influencing Factors on ICT Adoption

For part of influencing factors on ICT adoption, the study is based on two conceptual models. The first model is focus on influencing factors on ICT adoption by SMEs in Malaysia. This model is shown in Figure (2.1)

Figure (2.1) Conceptual Framework of Alam |



Source: Alam (2009)

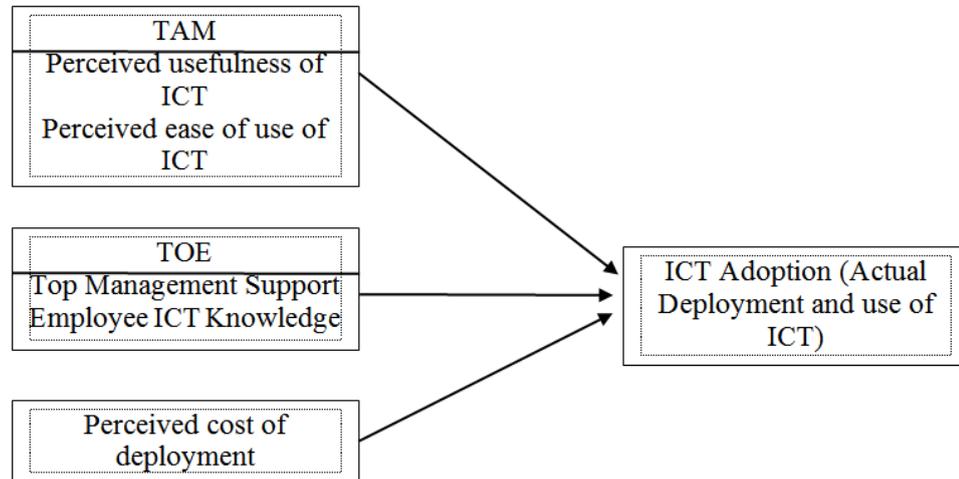
According to the study of Alam (2009), this study is to explore the factors which influence the adoption and usage of ICT by SMEs in Malaysia. This study also examines the relationship between ICT adoption and its five factors – perceived benefits, perceived cost, ICT knowledge, external pressure and government support.

The results find that perceived benefits, ICT knowledge and government support significantly influenced the adoption of ICT while perceived cost and external pressure are not insignificant in finding its adoption. This study also provides a greater understanding of SMEs’ perception of ICT adoption in their service business and is helpful to SMEs who are interested in promoting their business online. This paper identifies the major reasons that may help the industry or government to support useful information and encourage enhanced ICT usage.

The model examines the factors that would influence ICT adoption. In this model, five independent variables are perceived benefit, perceived cost, ICT knowledge and skill, external pressure, and government support. ICT adoption is the dependent variable.

The next model is about the influencing factors on ICT adoption and the actual deployment and use of ICT among SMEs operating in Nairobi. This model is shown in Figure (2.2).

**Figure (2.2) Conceptual Framework of Otieno**



Source: Otieno (2015)

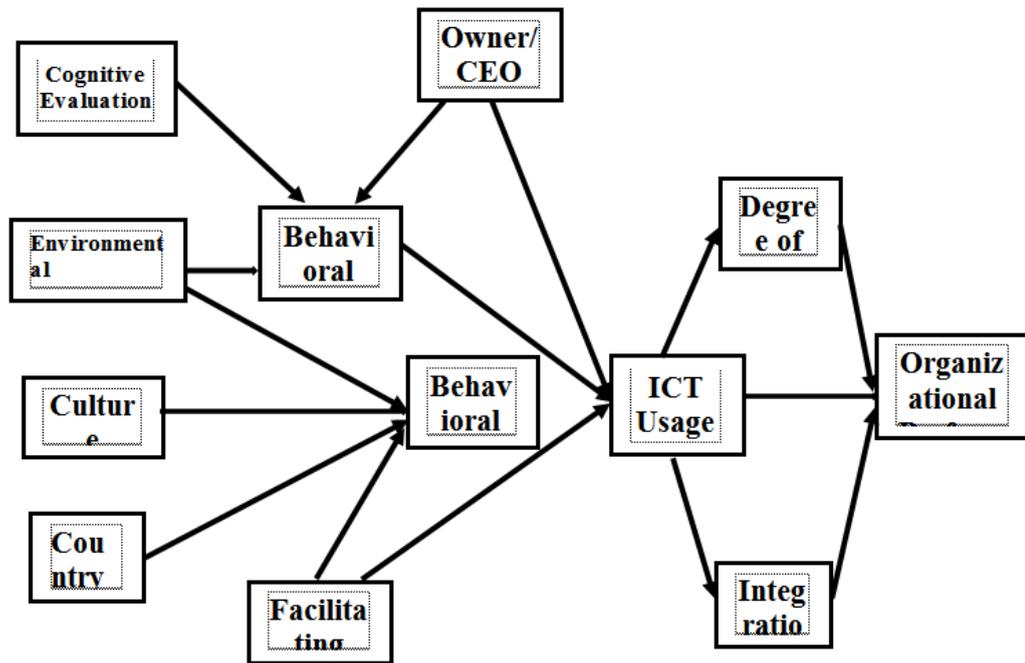
According to the study by Otieno (2015), it explores the factors influencing on ICT adoption and the actual deployment and use of ICT. This study aims to identify the factors that influence the adoption of ICT among SMEs operating in Nairobi. This study analyzed TAM model factors (Perceived usefulness of ICT and Perceived ease of use of ICT) and TOE framework factors (Top management support and employee ICT knowledge) and their influences on the adoption of ICT. In this study, perceived usefulness, top management support and perceived ease of use are significant factors of ICT adoption and acceptance of ICT by SMEs and employee ICT knowledge had no significant on ICT adoption by SMEs.

### **2.5.2 Relationship Between ICT Adoption and SMEs Performance**

For part of the relationship between ICT adoption and a firm's performance, this study is based on three conceptual models.

This model analyzes the diffusion of ICT of SMEs in Bangladesh from innovation adoption to post-adoption, by analyzing the actual adoption of ICT and its usefulness for value creation. The research also studied mediating effects of integration and utilization on SME performance. This model is shown in Figure (2.3).

Figure (2.3) Conceptual Framework of Azam



Source: Azam (2014)

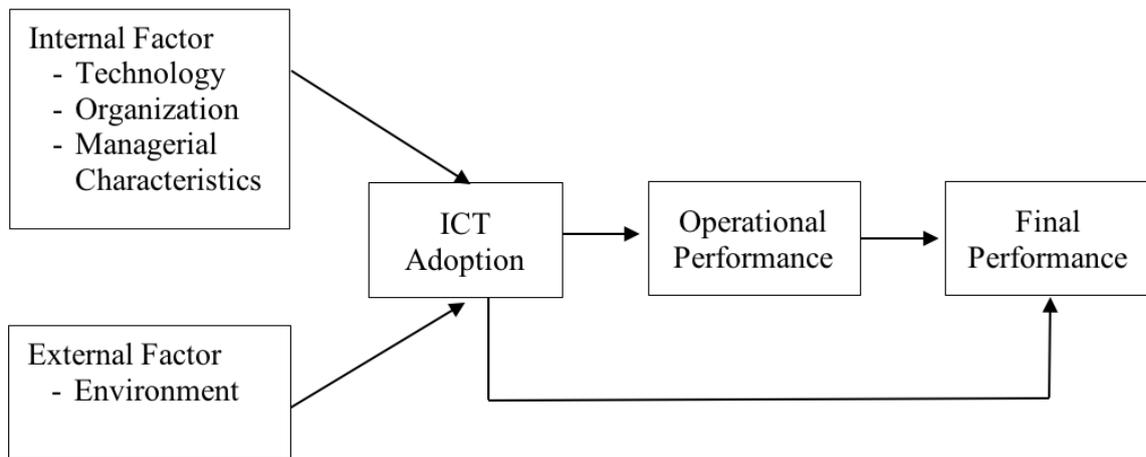
According to Azam (2014), Diffusion of ICT and SME Performance- the mediating effects of integration and utilization, reviewed many innovation diffusion theories and institutional theory, specifically, theory of reasoned action (TRA) (Fishbein and Ajzen, 1975), diffusion of innovations (DOI) theory (Rogers, 1983), theory of planned behavior (TPB) (Ajzen, 1985), technology acceptance model (TAM) (Davis, 1986), unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003), technology, organization and environment (TOE) framework (Tornatzky & Fleischer, 1990); institutional theory (DiMaggio & Powell, 1983) and resource-based theory (Barney, 1991).

More especially, to explore the cognitive factors influencing ICT adoption by SMEs, the effects of culture and environmental pressure on the adoption and usage of ICT, the effects of facilitating condition and country readiness on ICT adoption and use to examine the role of behavioral expectation in explaining ICT usage and the contribution of ICT usage to SME performance. After that, studied the mediating effects of ICT integration and utilization in explaining the contribution of ICT usage to SME performance.

The research found that ICT usage by SMEs in Bangladesh does not immediately ensure firm performance. Only Integration and proper utilization of the technology enhanced firm performance. There were strong and significant effects of cognitive evaluation, facilitating conditions, country readiness and environmental pressure on SMEs expectations of using ICT. Moreover, the expectation has a positive and strong impact on actual user behavior. This study clearly indicated that integration and utilization of ICT are more important than simply the usage of ICT.

The next model is emphasized the factors affecting ICT adoption and its effect among Indonesian SMEs. This model is shown in Figure (2.4).

**Figure (2.4) Conceptual Framework of Chairoel et al.**

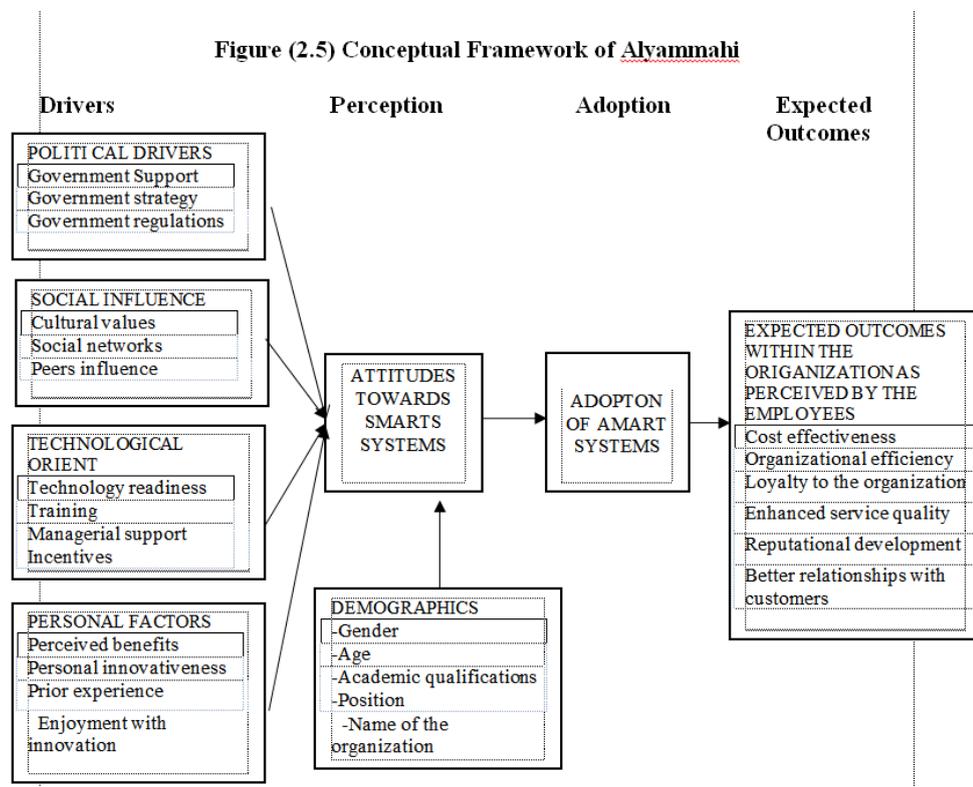


Source: Chairoel et al., (2015)

In this study, the characteristic of technology, organization and managerial are included as internal factors in ICT adoption and environmental factors are included as the external factors. And the effect of ICT adoption gave contributions to improving the effectiveness and efficiency of organizations. the organization's performance could be measured based on the performance of business processes (operational performance) and financial performance (final performance).

The environment (external factors) plays a significant role in the adoption of new technologies is considered in IT innovation adoption in an organization. External factors refer to trading partners (buyer and supplier) and government policies. The next model is empirical testing on the model of smart system adoption and its impact on organizational performance in the UAE. This conceptual model contributes to a better understanding of

the factors (political, social, technological and personal) that drive employees' acceptance of technological innovation in the workplace. This model is shown in Figure (2.5).



Three political factors – government support, government strategy and government regulations – are external factors that may affect attitudes about innovation and its acceptance. According to empirical findings, only one variable – government support – significantly affected individual attitudes toward smart adoption and usage.

Three cultural factors – cultural values, social networks and peers influence – may influence employees attitudes toward smart system adoption and usage. Results show that all these variables did not significantly affect employees attitudes toward smart system adoption and acceptance.

There were four technological factors – technological readiness, training, managerial support and incentives. In these four factors, training and incentives only significantly affect employees attitudes toward smart system adoption and acceptance.

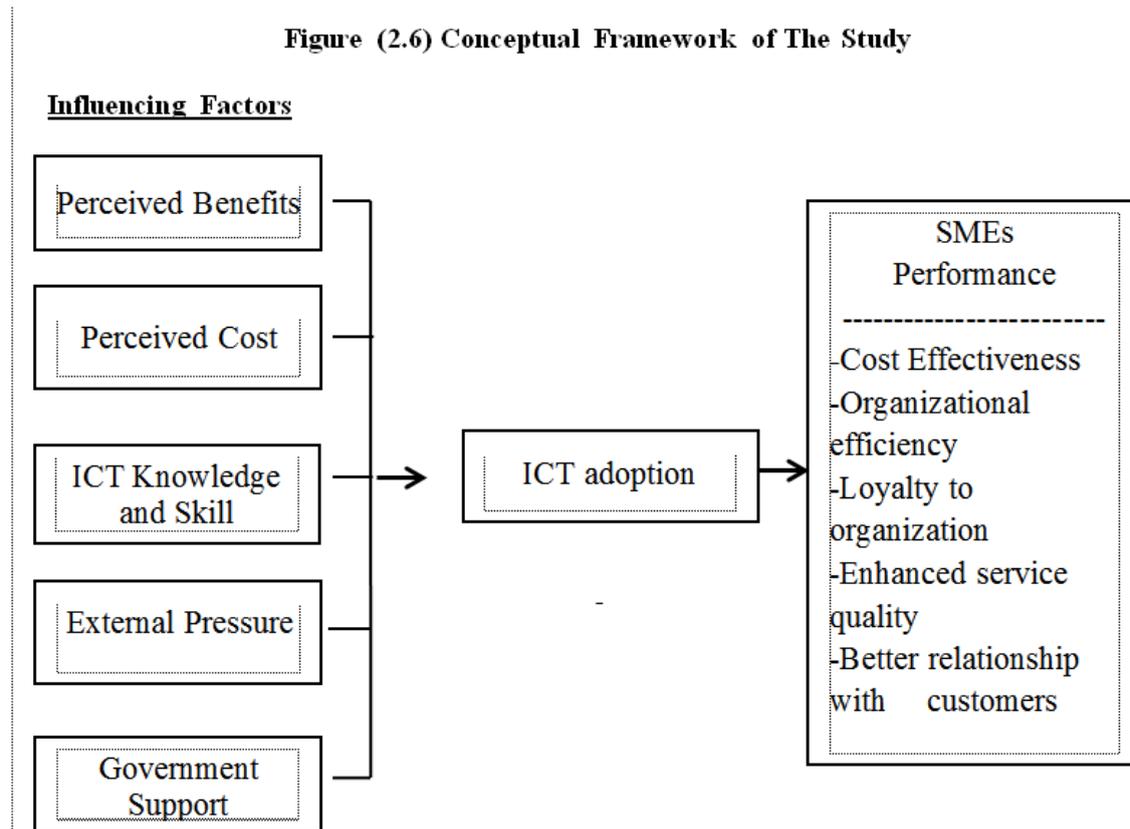
Four personal factors – perceived usefulness, personal innovativeness, prior experience and enjoyment of innovation –revealed that all of these variables were statistically significant. Six outcome variables – cost effectiveness, organizational efficiency, loyalty to the organization, enhanced service quality, reputational development

and better relationships with customers – were confirmed that all of these variables do significantly affect attitudes towards smart system adoption and acceptance. Finally, demographic variables were tested to establish whether they have any impact on attitudes toward ICT adoption. Results indicate demographic characteristics had no significant effect.

## 2.6 Conceptual Framework of the Study

In this study, the factors influencing ICT adoption are divided into individual factors and organizational factors. The individual factors are the perceived benefits of ICT and perceived cost. The organizational factors are employee knowledge and skill, external pressure and government support. The conceptual framework is shown in bellowed Figure.

**Figure (2.6) Conceptual Framework of The Study**



Source: Own Compilation Adapted from Previous Research Papers (2022)

Figure (2.6) illustrates the conceptual framework of this study. Those five factors – perceived benefits, perceived cost, ICT knowledge and skill, external pressure and government support are considered independent variables. ICT adoption is considered a dependent variable. Meanwhile, ICT adoption can be measured in terms of actual uses of ICT in an organization. And organizational performance is measured in terms of cost effectiveness, organizational efficiency, loyalty to organization, enhanced service quality and Better Relationships with Customers.

## **CHAPTER 3**

### **PROFILE AND INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ADOPTION OF SMES IN NAY PYI TAW**

This chapter composes the profile of small and medium enterprises, information and communication technology (ICT) adoption by SMEs in Nay Pyi Taw and their performance. This chapter focuses on collecting data from owners and managers of SMEs in Nay Pyi Taw and also describe the profiles of respondents, the research design and the reliability test.

#### **3.1 Profile of Small and Medium Enterprises (SMEs) in Nay Pyi Taw**

Small and Medium Enterprises- SMEs are important for the economic development of both developed and developing countries. According to Charlton Myanmar (2022), 99 percent of all enterprises in Myanmar are SMEs. Myanmar SMEs contribute 50 percent to 95 percent to employment and 30 percent to 53 percent to GDP. According to Ministry of Industry, 35,858 or 79.6 % of registered private enterprises in SME development department are classified as SMEs.

The Central Committee for SME Development is organized to encourage SME development, develop SME policies, laws, and strategies, get better relationships with stakeholders, and coordinate donor funds and projects targeted at SMEs. It is also responsible for getting financial assistance to SMEs from both the government and private banks and for establishing an SME support network throughout the country (website of Ministry of Industry,2022).

##### **3.1.1 Definition of SMEs**

SMEs refer to small and medium sized enterprises. There are two common ways of defining SMEs. One is defined based on financial turnover and the other is defined based on the number of employed. For the purpose of this study, SMEs are defined by the number of people employed and capital investment by the firm, and SMEs are defined according to the SME Development Law 2015 of the government of Myanmar.

<b>SR.NO</b>	<b>Description</b>	<b>Small Business</b>	<b>Medium Business</b>
1	<b>Manufacturing Industry I</b> Number of Employees Capital Investment (Million Kyats)	< 50 < 500	51 – 300 501 – 1000
2	<b>Labour-intensive/ Contract Manufacturing</b> Number of Employees Capital Investment (Million Kyats)	< 300 < 500	301 – 600 501 – 1000
3	<b>Wholesale Business</b> Number of Employees Capital Investment (Million Kyats)	< 30 < 100	31 – 60 101 – 300
4	<b>Retail Business</b> Number of Employees Capital Investment (Million Kyats)	< 30 < 50	31 – 60 51 – 100
5	<b>Service Business</b> Number of Employees Capital Investment (Million Kyats)	< 30 < 100	31 – 60 101 – 200
6	<b>Other Businesses</b> Number of Employees Capital Investment (Million Kyats)	< 30 < 50	31 – 60 51 – 100

Sources: [www.msnewebportal.com](http://www.msnewebportal.com) (2022)

On 9 April 2015, the government enacted the small and medium enterprises (SME) development law (SME Law). The SME law defines small enterprises as having between K50 million and K500 million in capital and between 30 to 300 employees. The enterprises as having capital between K50 million and K1 billion or having employees from 60 and 600 employees are defined as medium enterprises (website of Ministry of Industry,2022).

### **3.1.2 Registered Private Industrial Enterprises**

Small and medium enterprises across industrial wide such as food products, beverages, apparels, wood products and textiles that are registered in SME development department are shown in Table (3.2).

**Table (3.2) Registered Private Industrial Enterprises**

SR.N O	COMMODITY GROUP	NO OF INDUSTRIAL ENTERPRISES			
		large	Medium	Small	Total
1	Food products	3,570	5,572	15,064	24,206
2	Beverages	967	661	14	1,642
3	Tobacco Products	48	53	40	141
4	Textiles	164	474	1,045	1,683
5	Wearing Apparels	850	416	126	1,392
6	Leather Products	137	41	69	247
7	Wood Products	598	650	1,004	2,252
8	Paper products	161	90	49	300
9	Reproduction	147	240	179	566
10	Petroleum Products	21	193	13	227
11	Chemical Products	267	162	131	560
12	Pharmaceuticals	56	39	15	110
13	Rubber & Plastic products	615	570	220	1,405
14	Non-metallic	586	914	576	2,076
15	Basic Metals	437	721	1,821	2,979
16	Fabricated Metal Products	209	376	2,117	2,702
17	Electronic Products	13	1	0	14
18	Electrical Equipment	80	20	33	133
19	Machinery & Equipment	50	116	363	529
20	Trailers & Semi-trailers	60	21	26	107
21	Transport Equipment	22	12	11	45
22	Furniture	58	97	349	504
23	Other Manufacturing	108	166	128	402
24	Repair M. E	144	653	3,824	4,621
	Total	<b>9,341</b>	<b>12,300</b>	<b>27,053</b>	<b>48,694</b>

Sources: [www.msmewebportal.com](http://www.msmewebportal.com) (2022)

Table (3.2) shows SMEs in the whole country in Myanmar that are registered in SME development department. Table also shows the types of industries and food products industry, beverages industry, apparel industry, wood product industry and rubber and plastics industries are more than other industries.

### 3.1.3 SMEs Member List

SMEs member lists in regions and states across the country that are registered in SME department are shown in Table (3.3).

**Table (3.3) SMEs Member List**

SR.NO	STATE/ REGION	SMALL	MEDIUM	TOTAL
1	Kachin	764	64	828
2	<u>Kayah</u>	285	75	360
3	<u>Kayin</u>	500	54	554
4	Chin	1,876	17	1,893
5	<u>Saging</u>	2,351	411	2,762
6	<u>Taninthayi</u>	1,433	76	1,509
7	<u>Bago</u>	2,778	512	3,290
8	Magway	2,889	262	3,151
9	Mandalay	5,478	1,303	6,781
10	Mon	1,085	195	1,280
11	Rakhine	913	61	974
12	Yangon	4,330	3,229	7,559
13	Shan	3,312	829	4,141
14	<u>Ayeyawady</u>	3,059	1,208	4,267
15	Union Territory <u>Naypyitaw</u>	1,114	303	1,417
	<b>TOTAL</b>	<b>32,167</b>	<b>8,599</b>	<b>40,766</b>

Sources: [www.msmewebportal.com](http://www.msmewebportal.com) (2022)

Table (3.3) shows SMEs member list in each state and region in the whole country in Myanmar. SMEs in Yangon and Mandalay are 7,559 and 6,781 enterprises respectively and more than other states and regions.

### **3.2 Information and Communication Technology (ICT) Adoption of SMEs in Nay Pyi Taw**

SMEs can get the benefit of enhancing operational performance such as decreasing production lead time, improving flexibility and resource planning, saving costs, better relationship and coordination between suppliers, customers and employees by using ICT such as mobile phones, telephones, basic computers, laptops, software, hardware, the Internet, broadband, social media, e-commerce, ERP, integrated management information system, CRM, cloud computing, big data, and AI. Moreover,

ICT adoption can improve the profitability of the firms, a positive effect on non-financial performance and financial performance as well.

### **3.2.1 Information and Communication Technology (ICT)**

ICT refers to information and communication technology which include from a simple digital phone or computer operation to highly sophisticated computer-driven and Internet-driven equipment. ICT refers to ‘any technology used to support information gathering, processing, distribution and use’ (Beckinsale & Ram, 2006).

ICT also includes any communication device or application such as radio, television, smart phones, computers, network, hardware, software, satellite systems and so on and various applications such as zoom meetings, google meet and online learning (Rouse, 2013). Moreover, ICT can be viewed as all forms of technologies and products such as telecommunications and information management, applications and devices used for creating, producing, analyzing, processing, packaging, distributing, retrieving, storing, transmitting and receiving information in a digital form (Nicol, 2003).

ICT help firms to improve organization performance, for example, phones, computers, the Internet, and social media help SMEs to build online communities and access different online networks, which in turn help to connect them with local and global markets for communication, networking and collaboration on a scale wider than before.

Innovation and using advanced ICT of SMEs in Nay Pyi Taw are still low rate. ICT to support their operations. Many enterprises, especially those targeted to expand the market locally or the export market need to upgrade their products and services to match with global standards by using ICT. Therefore, SMEs center actively encourages ICT use by Myanmar SMEs by holding trade fairs and exhibitions and let participation of international suppliers and business visitors, offering national awards, helping with technology transfer, business matching and exhibitions, training for capacity building, getting financial access, doing SMEs registration, advisory and consulting service. The government creates the promotion of innovation and ICT using both competition and inter-company cooperation.

Most SMEs in Nay Pyi Taw use simpler technologies but widely- used such as mobile phones, computers, the internet and so on (Viber, Facebook, Messenger, email

and Website) rather than advanced technologies such as big data, Artificial Intelligence, E-commerce, Cloud Computing, Enterprise Resource Planning (ERP), etc.

SMEs in Nay Pyi Taw use communication-related ICT tools such as fixed-line or mobile phone at the first stage of ICT adoption to establish communication with their suppliers and customers. They also use essential information technologies such as personal computers or laptops with necessary software and hardware in the second stage. In the third state, SMEs use enhanced communication-related ICT tools such as email, Internet browsing, file sharing, and voice over the internet, Facebook, Facebook Messenger, Viber, WhatsApp, Telegram, We chat, LinkedIn and Skype which can get easily on the internet. Only fewer SMEs progress to the fourth stage of adopting advanced ICT tools (ETs) such as ERP, CRM, and big data tools.

For guest house enterprises in Nay pyi Taw, create their own Facebook page, post and upload the image, information and videos about the decoration of rooms and beds, the price, the services and the facility they provided such as breakfast and etc. They also advertise on it regarding the discount rate, the loyalty program and the promotion plan of the guest house. The guests connect through the phone or Facebook messenger or Viber and make inquiries regarding the services and the room rate. They also take booking through the phone or the Internet. The guest house accepts payments not only in cash but through mobile banking, the KBZPay Application.

In the transportation service industry in Nay Pyi Taw, most SME firms, only create their own Facebook page and post information about the route, time, price and connect numbers. They make communication with their passengers via phone and messenger for seats and booking and then accept the payment through mobile banking and KBZPay App.

Medical clinic firms also use ICT such as Facebook pages and advertise the information of their clinics such as available services, service time, contact number and location on it. They share knowledge about diseases and their impact, how to protect against that diseases and the dos and don'ts for a healthy lifestyle. Bookings are accepted through phone and Viber.

Especially, in this pandemic period and inflation time, real estate industries establish their own Facebook pages, then, post advertisements about the property and related services like buildings, rental houses, the price and other related information

regarding the land, square feet, the location, the contact number and so on. They contact their customers via phone, messenger and Viber and share information with them. Moreover, they post the daily activities for sold out. They can't deny getting many benefits through ICT adoption in their business.

For private schools, they have their own Facebook page and Website. They disclose about the school regarding the fees, timetable, school activities and the services they provided. They can create good worth of mouth and good comments about the school on Facebook. They also post their success journey - the information and photos of outstanding students who attended and passed with flying colors from their school. The firms also make payments and accept school fees through the internet (mobile banking and KBZPay App and etc.).

Some clothing and electrical products shops (aircon, refrigerator, washing machine and etc.), broadcast on Facebook live from their own page or personal account. The customer places the orders online or buys during live sale and makes payments from mobile banking, KBZPay, Wave Pay and delivers the sale items the next days. Nowadays, during the pandemic period, ICT is a very useful technology and most are quite compatible and friendly with the diverse uses of ICT.

### **3.3 Profile of Respondents**

The study sought information on various aspects of respondents' backgrounds such as age, gender, level of education, position, category of the business and types of business. In the study, 228 SMEs of 1,417 enterprises in Nay Pyi Taw have been surveyed. A total of 159 SME owners, and managers returned their questionnaires. This survey was for general information purposes and was not a direct objective of the study.

**Table (3.4) Demographic Data of the Respondents**

Sr. No	Demographic Factors	No. of respondents	Percentage
Total		159	100
1	<u>Gender</u>		
	Male	69	43
	Female	90	57
2	<u>Age (Year)</u>		
	Under 25	8	5
	Between 26 to 30	33	21
	Between 31 to 45	82	52
	Between 46 to 50	33	20
	Above 51	3	2
3	<u>Education level</u>		
	High School	9	6
	Under graduate	11	7
	Bachelors' degree	88	55
	Post graduate	51	32
4	<u>Position</u>		
	Owner	42	26
	Owner-Manager	12	8
	Manager	105	66
5	<u>Category of Business</u>		
	Small Business	95	60
	Medium Business	64	40
6	<u>Types of Business</u>		
	Production	22	14
	Services	137	86

Source: Survey Data (2022)

It was found that the female respondents are more than male respondents at SMEs in Nay Pyi Taw and 57% and 43% respectively. Most SMEs in Nay Pyi are retail stores and shops such as apparel, shoes, cosmetics, stationery, groceries stores and beauty salons, therefore, most owners are female. The most dominant age group among respondents is 31 to 45 years old at 52 percent, 46 to 50 years are 20 percent, 26 to 30 years at 21 percent, under 25 is 5 percent and above 55 is with 2 percent. Nowadays, the young generations are more familiar with and interested in accepting technology in

Myanmar. Most of the respondents 55% are bachelor's degree holders, 32% were postgraduate and 6% are in high school. The rest of the respondents 7% are undergraduates. This implies that the most of respondents were educated. Because, the literacy rate of Myanmar is nearly 98% and the majority of people are educated. Then, Most SMEs owners are educated and when they recruit managers, they choose only for those who possess at least a bachelor degree. Therefore, the most of respondents are educated.

Most of the respondents are managers of SMEs and representing 66%. 26% of respondents are owners and the rest of the respondents 8% are owner-managers. Most owners lack of time and they assigned their managers to reply to the survey questionnaires. SMEs in Nay Pyi Taw are small enterprises and represent 60% and more than 40 % of medium enterprises. Most SMEs are services industries and represent 86 % while production represents 14%. The majority of SMEs in Nay Pyi Taw are sole proprietorships and retail stores and have financial constraints, a lack of large investment costs for their firms. For these reasons, most SMEs are small enterprises and because of the nature of Nay Pyi Taw - a union territory- service industries are more than production industries.

### **3.4 Research Design**

This study mainly focuses on SME owners and managers in Nay Pyi Taw who registered in SME development department. Therefore, this study aims to analyze the effect of influencing factors on information and communication technology (ICT) adoption and to examine information and communication technology (ICT) adoption on SMEs performance. To achieve these objectives, both primary and secondary data were used in this study.

There were 1,417 enterprises in Nay Pyi Taw registered in the SME development department. Sample size is calculated by the Roasoft sample size calculator. It was taking into account a confidence interval of 90 %, a margin of error of 5% and response distribution of 50% in calculation and sample size is 228 owners/managers out of the population size 1,417. Simple random sampling method will be used in this study. This study collected data from 228 SME owners and managers in Nay Pyi Taw and received 159 complete responses which represent 70% of sample size.

This study applied structured questionnaires as the research instrument. The questionnaire is developed Likert-type 5 points scales. This questionnaire consists of four sections: Section A- general information, Section B- perceived benefits, perceived cost, employee ICT knowledge and skill, external pressure and government support, Section C- ICT adoption and Section D- SMEs performance (cost-effectiveness, organizational efficiency, loyalty to the organization, enhanced service quality and better relationships with customers).

General information consists of the demographic factors of respondents. Demographic factors include gender, age, education, position, category of business and types of business. The four sections have 5 questions each and enhanced service quality are measured with 6 questions.

The data collection period was one month on October 2022. The survey method is used to collect data from the targeted respondents by distributing the questionnaire both online and personal interview with structured questionnaire. As primary data, a structured questionnaire with a 5-points Likert scale was developed. Secondary data were collected from the previous research papers, textbooks, websites, and other related information resources concerned with SMEs. After a survey, data are summarized and analyzed by using SPSS (Statistical Package for Social Science) software. The descriptive method and multiple linear regression method were used for data sampling.

### **3.5 Reliability Test**

Reliability analysis was performed to test the internal consistency of the variables in the questionnaire. This method indicates reliability by examining the internal consistency of the research questionnaire which is posted on the Likert scale. The Likert scale is a scale that is commonly used for questionnaires and it is mostly used in surveys. This study also used 5 points Likert scale (1=Strongly Disagree, 2=Disagree, 3=Neither Disagree nor Agree, 4=Agree, 5=Strongly Agree). Cronbach's alpha value was calculated to test whether the answers are reliable or not.

Reliability is determined by Cronbach's alpha coefficient, which is one of the popular criteria of reliability in quantitative studies. Cronbach's alpha value should be in the range of 0.0 to 1.0, some researchers suggested that generally, Cronbach's alpha value 0.6 to 0.7 is accepted as an acceptable reliability level and 0.8 or greater is defined as a

very good level of reliability. The reliability test results in this study are shown in Table (3.5).

**Table (3.5) Reliability Analysis**

<u>Sr.No</u>	<b>Variables</b>	<b>No of Items</b>	<b>Cronbach's Alpha</b>
1	Perceived Benefits	5	0.866
2	Perceived Cost	5	0.853
3	Employee ICT knowledge and skills	5	0.854
4	External Pressure	5	0.851
5	Government Support	5	0.797
6	ICT Adoption	5	0.870
7	SMEs Performance	6	0.876

Source: Survey Data (2022)

According to the results shown in Table (3.4), all items of each variable except government support have greater than 0.8 Cronbach's alpha value and indicate a very good level of reliability and acceptable index. Government support has Cronbach's alpha value of 0.797 and represents an acceptable level of reliability test.

## CHAPTER 4

### ANALYSIS ON THE EFFECT OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ADOPTION ON SMES PERFORMANCE IN NAY PYI TAW

This chapter presents the mean value and standard deviation which are based on findings. Then, focus on analyzing the effect of information and communication technology (ICT) adoption on SMEs performance in Nay Pyi Taw. In analyzing, the descriptive and analytical methods are mainly used. A five-point Likert scale was used to determine how SMEs responded as agreed or disagree of the survey from one (strongly disagree) to five (strongly agree) to assess the influencing factors on information and communication technology (ICT) adoption from owners and managers of SMEs in Nay Pyi Taw.

#### 4.1 Analysis of Influencing Factors on ICT Adoption

In this section, the effect of influencing factors on ICT adoption is analyzed based on the conceptual framework in chapter two. Each factor was asked by using Likert Scale questions and calculating the mean values of each factor. Then the mean values were analyzed. The total score is divided by the number of respondents in order to get the mean value. The higher the mean value, the higher the respondent's agreement.

In order to conduct questionnaire analysis, five-point Likert Scale questionnaires were used to evaluate SMEs perception on variables. According to Best (1977), the mean values of five-point Likert Scale were interpreted as follows:

The score among 1.00 – 1.80 means strongly disagree.

The score among 1.81 – 2.60 means disagree.

The score among 2.61 – 3.40 means agrees to some extent.

The score among 3.41 – 4.20 means agree.

The score among 4.21 – 5.00 means strongly agree.

The SMEs perception (mean values) on each variable is shown in the following tables.

### 4.1.1 Influencing Factors

In this study, the factors influencing on information and communication technology (ICT) adoption are perceived benefits, perceived cost, ICT knowledge and skill, external pressure and government support. In order to find out the importance of these factors, structured questionnaires are used. The standard deviation, percentage and mean scores of these factors are presently based on findings.

#### (i) Perceived Benefits

The first influencing factor on information and communication technology (ICT) adoption is perceived benefits. Table (4.1) represents the mean values of perceived benefits on information and communication technology (ICT) adoption. The respondents were asked five questions concerning the perceived benefits of information and communication technology (ICT) adoption and analyzed for their mean value. These five questions were namely: using ICT would enable our organization to accomplish tasks more quickly, using ICT would motivate and enable crowdsourcing and mass customization and personalization, using ICT would improve brand and image, using ICT would enable better advertising and more marketing, using ICT system would improve communication with trading partners and within the organization as well.

**Table (4.1) Perceived Benefits**

<b>Sr. No</b>	<b>Perceived Benefits</b>	<b>Mean</b>	<b>Standard Deviation</b>
1	Accomplishing tasks more quickly.	4.25	.675
2	Crowdsourcing and mass customization and personalization.	4.04	.645
3	Improving brand and image.	4.07	.628
4	Better advertising and more marketing.	4.23	.626
5	Improving communication with trading partners and within the organization.	4.05	.664
	<b>Overall Mean</b>	<b>4.13</b>	

Source: Survey Data (2022)

According to Table (4.1), the overall mean value (4.13) reveals that SMEs in Nay Pyi Taw have a positive attitude toward the perceived benefits factor of ICT Adoption. The respondents agreed on all statements of the perceived benefits factor with mean values of more than three.

The higher mean values are (4.25) and (4.23) which means that the majority of respondents believe that ICT help them to get information and report from anywhere and can send the responses also from anywhere and accomplish tasks more quickly. Therefore, it provides a better opportunity to overcome the place and time barriers of the operations and business. Moreover, they can do better advertising and more marketing online ever than before. Brand and image can also improve by using information technology. The third higher mean value is (4.03) and it can be concluded that the SMEs believed that they enable crowdsourcing- ideas for their product design and comment of customers online and can customize and personalize for each customer. They also agree that communication with trading partners – suppliers, shareholders and customers and within the organization also can be improved. Communication through ICT reduces time and it produces evidence of communication. And then, the communication cost can be reduced at any place and any time and doesn't matter with it.

## **(ii) Perceived Cost**

The second influencing factor on information and communication technology (ICT) adoption is perceived cost. The respondents were asked five questions concerning perceived cost of information and communication technology (ICT) adoption. Five questions were structured to measure. The mean result of perceived cost on information and communication technology (ICT) adoption is shown in Table (4.2).

**Table (4.2) Perceived Cost**

<b>Sr. No</b>	<b>Perceived Cost</b>	<b>Mean</b>	<b>Standard Deviation</b>
1	Adoption ICT cost is high.	3.42	.931
2	Internet access cost is expensive.	3.28	.937
3	The maintenance and support fees are high.	3.50	.833
4	Additional cost and time to train employees.	3.88	.732
5	Incurring for updating and upgrading the ICT software.	3.81	.762
	<b>Overall Mean</b>	<b>3.58</b>	

Source: Survey Data (2022)

According to Table (4.2), The overall mean value (3.58) reveals that SMEs in Nay Pyi Taw have a positive attitude toward perceived cost factor of ICT Adoption. The respondents agree on all statements of the perceived cost factor with mean values of more than three. The higher mean values are (3.88) and (3.81) which show that the majority of respondents believe that ICT adoption requires an additional cost and time to train the employee and additional cost will be incurred for updating and upgrading the ICT software. SMEs lack of finance and skills are the main constraints to adopting ICT. Some small firms cannot afford to buy a computer or make efficient use of ICT. Adopting ICT, they have a burden on financial and human resources.

The lowest mean value is (3.28) and it can be concluded that the SMEs do not believe internet access cost is expensive. Because the benefits they got for using ICT are more than the cost they incur. Internet cost is affordable for them by instilling a Wi-fi network which is charged monthly at a low cost.

### **(iii) ICT Knowledge and Skill**

The third influencing factor on information and communication technology (ICT) adoption is employee ICT knowledge and skill. Table (4.3) represents the mean values of employees ICT knowledge and skill on information and communication technology (ICT) adoption. The respondents were asked five questions and then analyzed for their mean value.

**Table (4.3) ICT Knowledge and Skill**

Sr. No	ICT Knowledge and Skill	Mean	Standard Deviation
1	Easily adopt new ICT systems deployed.	3.39	.796
2	Basic computer training has been done.	3.57	.783
3	Employees are technology savvy.	3.10	.808
4	Willing to bring innovative ideas.	3.67	.651
5	Eager to learn more about ICT applications.	3.60	.721
	<b>Overall Mean</b>	<b>3.47</b>	

Source: Survey Data (2022)

According to Table (4.3), The overall mean value (3.47) reveals that SMEs in Nay Pyi Taw has a positive attitude toward employee knowledge and skill factor towards ICT adoption. The respondents agree on all statements of the employee knowledge and skill factor with mean values of more than three.

The higher mean values are (3.67) and (3.60) which show that the majority of SMEs owners and managers believe that their employees are willing to bring innovative ideas through the use of ICT and eager to learn more about ICT applications. The lowest mean value is (3.1) which concluded that all employees in their organization are not technology savvy. Some lack ICT knowledge and skill and some are not familiar with it.

**(vi) External Pressure**

The fourth influencing factor on information and communication technology (ICT) adoption is external pressure. Table (4.4) represents the mean values of external pressure influencing information and communication technology (ICT) adoption. SMEs were asked five questions and analyzed for their mean value.

<b>Sr. No</b>	<b>External Factors</b>	<b>Mean</b>	<b>Standard Deviation</b>
1	Competitors have already adopted ICT.	4.01	.589
2	Accessing the opportunities arising from globalization.	4.12	.571
3	Demanding online information for products /services.	4.01	.670
4	Demanding ICT opportunities to be offered to them.	3.86	.651
5	Increasing competitive advantage.	4.08	.573
	<b>Overall Mean</b>	<b>4.02</b>	

Source: Survey Data (2022)

According to Table (4.4), The overall mean value (4.02) reveals that SMEs in Nay Pyi Taw have a positive attitude toward the external pressure factor towards ICT Adoption. The SMEs owners and managers agree on all statements of the external pressure factor with mean values of more than three.

The higher mean values are (4.12), (4.08) and (4.01) which show that the majority of SMEs believe that they are encouraged to adopt ICT for holding the opportunities arising from Globalization. SMEs know well that if they do not use ICT, they can not do anything. They would lag behind and simply be collapsed. Finally, they have to go out of the market. They can increase their competitive advantage by using ICT and its applications. They also agree that pressures from competitors also influence the adoption of ICT. If competitors, trading partners, or a whole industry are adopting ICT, SMEs in Nay Pyi Taw has to adopt ICT. Their competitors have already adopted ICT and have their own servers and own homepage with automated customers and suppliers. Thus, their customers can know well about their business and products at any time online and get bigger advantages. Therefore, SMEs have been strongly forced to use ICT and have the intention to use ICT.

The respondents agree that their customers demand online information about their products and services. Customers and suppliers place orders and do their payments online. They have to comply with their customers and suppliers and they also need everything ordered and payment online. Most customers are also communicating with

them through phones, emails and online communication. The customers also encourage SMEs to use ICT.

**(v) Government Support**

The fifth influencing factor on information and communication technology (ICT) adoption is government support. Table (4.5) represents the mean values of government support on information and communication technology (ICT) adoption. The SMEs were asked five questions and analyzed for their mean value.

**Table (4.5) Government Support**

<b>Sr. No</b>	<b>Government Support</b>	<b>Mean</b>	<b>Standard Deviation</b>
1	Regulations are important for ICT systems.	3.93	.695
2	Educational programs lead to greater ICT usage.	3.77	.737
3	Government provides supports for using ICT.	3.69	.840
4	Facilitating conditions encourage firms to use ICT.	3.85	.638
5	Allocate a budget for ICT Development.	3.44	.784
	<b>Overall Mean</b>	<b>3.74</b>	

Source: Survey Data (2022)

According to Table (4.5), the overall mean value (3.74) reveals that SMEs in Nay Pyi Taw have a positive attitude toward the government support factor of ICT adoption. SMEs agree on all statements of the government support factor with mean values of more than three.

The higher mean values are (3.93), (3.85) and (3.77) which show that the majority of SMEs believe that government regulations are important for ICT systems. If the government laid down effective laws, practices, rules and regulations that can solve any disputes arising from online transactions and communication, the firms will use ICT more than before. And if the government creates the facilitating conditions that encouraged firms to use ICT such as financial infrastructure, policy and support, the adoption of ICT will be higher. If the government reduces the tax and customs duties on ICT use and ICT-related products, SMEs in Nay Pyi Taw will adopt ICT more. Other supports such as grants and subsidies also encourage ICT usage by SMEs. Government educational

programs lead to greater ICT usage. Therefore, the government is conducting ICT or technology sharing programs for SMEs and also moderates panel discussions for ICT knowledge.

#### 4.1.2 Analysis of Information and Communication Technology (ICT) Adoption

The five questions used to ask the respondents focused to measure ICT adoption which is measured by the uses of ICT applications for displaying company information and products/ services offered, the uses of ICT applications to communicate with the suppliers and employees, the uses of ICT applications to communicate with the customers, the uses of ICT applications to sell the products online, the uses ICT applications to make payment with the trading partners. The mean result of ICT adoption is shown in Table (4.6).

**Table (4.6) Information and Communication Technology (ICT) Adoption**

<b>Sr. No</b>	<b>ICT Adoption</b>	<b>Mean</b>	<b>Standard Deviation</b>
1	Displaying company information and products/ services offered.	4.04	.572
2	Communicating with suppliers and employees.	3.89	.702
3	Communicate with customers.	3.94	.677
4	Selling products online.	3.91	.688
5	Make payment with trading partners.	3.78	.816
	<b>Overall Mean</b>	<b>3.91</b>	

Source: Survey Data (2022)

According to the mean values of the statements, the respondents showed that they agreed with the statements. The respondents have a positive attitude toward ICT adoption through influencing factors with an overall mean value of (3.91). Moreover, they were satisfied that they did the right thing by using ICT. Thus, they would use ICT more in the future. The highest mean values are (4.04) (3.94) and (3.91) which show that owners and managers of SMEs use ICT applications for displaying company information and

products/ services offered, to communicate with the customers and they also use ICT applications to sell the product online.

Results show that there is a weakness in using ICT applications to make payments with trading partners because of technical problems, the cost of fraud, concerns for security, and limitations on amount and time. It is also an important matter to improve ICT adoption effectively. Therefore, this effect has the lowest mean value (3.78) less than others.

#### 4.1.3 Analysis on Influencing Factors on ICT Adoption

This section expresses the analysis on influencing factors on ICT adoption. Influencing factors analyzed in this study consist of perceived benefits, perceived cost, ICT knowledge and skill, external pressure and government support. Table (4.7) mentions analysis on those factors on ICT Adoption.

**Table (4.7) Influencing Factors on ICT Adoption**

Independent variables	Unstandardized Coefficients		Standardized Coefficients	t value	Sig.	VIF
	B	Std. Error	Beta			
(Constant)	0.953	0.404		2.361	0.020	
Perceived Benefits	0.035	0.081	0.032	0.426	0.671	1.337
Perceived Cost	-0.023	0.058	-0.028	-0.403	0.687	1.114
ICT Knowledge and Skill	0.104	0.080	0.111	1.301	0.195	1.712
External Pressure	0.485***	0.095	0.416	5.110	0.000	1.570
Government Support	0.157*	0.086	0.153	1.832	0.069	1.660
R Square	0.353					
Adjusted R Square	0.332					
F Value	16.692 ***					
Durbin - Watson	1.944					

Source: Survey Data (2022)

Notes: \*\*\* Significant at 1% level, \*\* Significant at 5% level, \* Significant at 10% level

The analysis of influencing factors on ICT adoption is shown in Table (4.7). The multiple linear regression model was applied to influencing factors on ICT adoption of SMEs in Nay Pyi Taw. The influencing factors include perceived benefits, perceived cost, ICT knowledge and skill, external pressure and government support. According to Table, the R square is 0.353 and the adjusted R square is 0.332. This model can explain 33% of the variation in ICT adoption which is explained by the measure of influencing factors namely perceived benefits, perceived cost, ICT knowledge and skill, external pressure and government support. F value (the overall significance of the model) is highly significant at the 1% level. Durbin-Watson value (1.944) is near 2, indicating that there is no autocorrelation in the sample. Variance Inflation Factor (VIF) was used to provide information relating to the potential problem of multicollinearity in the model. All the VIF values shown in Table are lower than 5, meaning that the independent variables are not correlated with each other. Thus, no multicollinearity problem is encountered in the model.

The correlation coefficient (R) which measures the relationship between dependent variables (ICT adoption) and independent variables (perceived benefits, perceived cost, ICT knowledge and skill, external pressure and government support) is 0.594. It indicates that the influencing factors of ICT adoption reported by SMEs and the level of ICT adoption are correlated. According to the result of regression analysis shown in Table, R square value is 0.353. Thus, this linear regression model in this case explains 35% of the relationship between independent variables (perceived benefits, perceived cost, ICT knowledge and skill, external pressure and government support) and the dependent variable (ICT adoption). The adjusted R square is 0.332 which means that the model is a 33% fit with the study.

The unstandardized coefficient value of external factors is (0.485) and government support is (0.157). Those are positive relationships with ICT adoption. Hence, organizations with a higher level of external pressure and government support tend to have higher ICT adoption cause of positive relationships. The coefficient of external pressure and government support can predict that if external factors and government support increase respectively, ICT adoption also increase. The respondents with a higher level of these two variables tend to have a higher level of ICT adoption.

The analysis shows the result that the perceived benefits are not significant, Perceived cost and ICT knowledge and skill are also not significant. External pressure is

significant at a 1% level. Government support is also significant at the 10% level. SMEs in Nay Pyi Taw agree that external pressure is an important factor for the adoption of ICT in the firms. If suppliers, customers and competitors adopt ICT, SMEs owner has to adopt it. Most SMEs perceive that external factors such as customers, competitors, suppliers, labour, legal, rules, regulations, the supply of technological and other types of knowledge will affect the ICT adoption of the business and these factors create challenges and opportunities for managers to consider when making a decision for ICT adoption. Thus, external pressure is one of the influencing factors that positively affect ICT adoption.

Government policy and supports play a significant role in the implementation, promoting and supporting of networking and ICT adoption of small and medium businesses, in particular, for achieving improved organizational performance, productivity and efficiency in the business sector. Online communication and transactions require significant and effective laws and regulations to solve disputes arising online. If the government has adequate rules and regulations, banking and online transactions are also smooth and satisfactory. For this reason, Government support positively influenced on ICT adoption. As mentioned above points, these two influencing factors (external pressure and government support) significantly influence on ICT adoption.

The standardized coefficient (Beta) of external pressure has the largest value among the explanatory variables indicating that external pressure has the greatest contribution to the effect on ICT adoption, government support factor has the second contribution to the effect on ICT adoption and employee ICT knowledge and skill factor is the third contribution to the effect on ICT adoption.

Although SMEs know the benefits of using ICT well, most small enterprises use ICT less because of financial difficulty, lack of ICT skills and knowledge, nature of the business or lack of infrastructure for using ICT. Therefore, perceived benefit is not having a significant effect on ICT adoption.

Most SMEs in Nay Pyi Taw are small enterprises and only used simple ICT like Viber, Facebook and Facebook messenger for selling their products and services online and some application for making payments. Therefore, they do not depend on employee ICT knowledge and skill for ICT adoption and employee ICT skills and knowledge factor also do not significant effect on ICT adoption.

## 4.2 Analysis of the Effect of Information and Communication Technology (ICT) Adoption on SMEs Performance in Nay Pyi Taw

In this study, structured questionnaires are used to find out SMEs performance in Nay Pyi Taw. The linear regression model is used to analyze the effect of ICT adoption on SMEs performance in Nay Pyi Taw.

### 4.2.1 SMEs Performance in Nay Pyi Taw

This study, focused on gathering the data collected SMEs performance in terms of cost effective, organizational efficiency, loyalty to organization, enhanced service quality and better relationship with customers. The overall mean result of SMEs performance is shown in Table (4.8).

**Table (4.8) SMEs Performance**

<b>Sr. No</b>	<b>SMEs Performance.</b>	<b>Overall Mean</b>
1	Cost Effectiveness	3.70
2	Organizational Efficiency	3.91
3	Loyalty to Organization	3.81
4	Enhanced Service Quality	3.95
5	Better Relationship with Customers	3.97
	<b>Overall Mean</b>	<b>3.87</b>

Source: Survey Data (2022)

Table (4.8) shows the overall mean value of SMEs performance is 3.87 which means that SMEs believe that using ICT can reduce paperwork in the office and the incidence of wrong entries due to multiple entries of the same information manually. Managing data by using ICT solutions becomes easier compared to previous paper-based processes. And they also believed that ICT reduce the manpower needed to perform the same task.

The overall mean value of cost effectiveness is (3.70) and which means that SMEs believe using ICT can reduce cost of operation in an organization and provide cost efficient to their organizations. The respondents also agree that ICT help their organizations to get a competitive advantage as cost leadership. SMEs believe that ICT also reduces unit costs by reducing overall cost.

The overall mean value of organizational efficiency is (3.91) and which means SMEs agree that ICT adoption can enhance organizational efficiency in operation. The respondent has a positive attitude toward organizational efficiency. SMEs believe that ICT increase efficiency in collecting information and ICT usage enables efficient communications with suppliers and customers.

The overall mean value of loyalty to organization is 3.81 which means that SME owners and managers clearly understand the benefits which can get from ICT adoption. SMEs also believe that ICT makes customers trust and become loyal to the organization due to transparency and updated information. ICT improves customer satisfaction in the organization. Then, SMEs also agree that ICT adoption helps customers to give positive comments and tell others to buy the firm's product. But SMEs do not think that ICT makes customers want to purchase more and very frequently and customers to be happy and positive worth-of-mouth about the organizations.

The overall mean value of enhanced service quality is 3.95 and it was found that SMEs believe the usage of ICT enhances service quality. The respondent has a positive attitude toward enhancing service quality for SMEs performance. SME owners and managers also believe that ICT help employees to get the order quickly and accurately, to do the work with less effort and provides employees with quick service.

The overall mean value of better relationships with customers is 3.97 and it was found that the respondent has a positive attitude toward better relationships with customers. SME owners and managers also believe that ICT help organization with real-time information and prompt feedback to customers, to have close contact with customers and to have good communication with customers.

#### 4.2.2 Analysis of the Effect of ICT Adoption on SMEs Performance

In order to find out the effect of ICT adoption on SMEs performance in Nay Pyi Taw, the linear regression model is used to analyze the findings survey. Table (4.14) shows the relationship between ICT adoption and SMEs performance.

**Table (4.9) The Effect of ICT Adoption on SMEs Performance**

Independent variables	Unstandardized Coefficients		Standardized Coefficients	t value	Sig.	VIF
	B	Std. Error	Beta			
(Constant)	2.147	0.197		10.920	.000	
ICT Adoption	0.451***	0.050	0.586	9.069	.000	1.000
R Square	0.344					
Adjusted R Square	0.340					
F Value	82.243 ***					
Durbin - Watson	1.475					

Source: Survey Data (2022)

Notes: \*\*\* Significant at 1% level, \*\* Significant at 5% level, \* Significant at 10% level

ICT adoption and SMEs performance are analyzed by using the linear regression method. The output from generating a linear regression model is shown in Table (4.14). The dependent variable is SMEs performance and the independent variable is ICT adoption.

From the result, the significant value of ICT adoption is less than 0.01. Therefore, ICT adoption has a positive relationship with SMEs performance at 99 % significant level. ICT adoption has a greater influence on SMEs performance. The correlation coefficient (R) which measures the relationship between dependent variables (ICT adoption) and independent variables (SMEs Performance) is 0.586.

It indicates that the ICT adoption reported by respondents and the level of SMEs performance are correlated. According to the result of regression analysis shown in Table, R square value is 0.344. Thus, this linear regression model in this case explains 34 % of

the relationship between independent variables (ICT adoption) and dependent variable (SMEs performance). The adjusted R square is 0.340 which means that the model is 34% fit with the study.

F value (the overall significance of the model) is highly significant at 1% level. Durbin-Watson value is (1.475) between 1.5 and 2.5 and close to 2, meaning that there is no auto correlation in the sample. The effect of ICT adoption is statistically significant at 1 % level as its significant value is 0.000. Moreover, it is stated that the effects of these two variables are strongly correlated.

The unstandardized coefficient value of ICT adoption is (0.451) and has a positive relationship with ICT adoption. Hence, organizations with higher levels of ICT adoption have higher SMEs performance cause of positive relationships. The coefficient of ICT adoption can predict that SMEs performance will increase if ICT adoption is increased. SMEs with a higher level of ICT adoption have a higher level of performance.

SMEs in Nay Pyi Taw enable benefits of enhancing operational performance in terms of cost effectiveness, organizational efficiency, loyalty to an organization, enhanced service quality and better customer relationships by using ICT such as mobile phones, telephones, basic computers, laptops, software, hardware, the Internet, broadband, social media and so on. Moreover, ICT adoption can improve the profitability of the firms, save the operation cost, help to expand the market locally or globally and better communication, networking, and collaboration with trading partners on a scale wider than before. Therefore, ICT adoption is a significant effect on improving SMEs performance.

## **CHAPTER 5**

### **CONCLUSION**

Based on data analysis from chapter three and chapter four, this chapter comprises three main sections. They are findings and discussions, suggestions and recommendations and limitations and needs for further study. In the first section, the findings of descriptive and regression analysis are discussed. Relating second section, suggestions, and recommendations that the government and management authorities should focus on to encourage and support ICT adoption of SMEs. The last section presents what further study should focus on.

#### **5.1 Findings and Discussions**

This study found that influencing factors such as external pressure and government support have significantly influence on ICT adoption. These factors are very important to adopt ICT for SMEs in Nay Pyi Taw. It can be said that the government and SMEs development department need to more emphasis on ICT adoption of SMEs to improve firms' performance.

In external pressure factor, SMEs realized that their competitors have already adopted ICT and they are forced to use and have to use ICT. For accessing the opportunities arising from Globalization, SMEs can not deny using ICT and that becomes a compulsory thing. Their customers and suppliers also demand online information about their products and services and request ICT opportunities to be offered to them. They also believe that by using ICT such as social media, email, Viber and Facebook messenger and the Internet, they can increase their competitive advantage over their competitors who do not use ICT.

SMEs were highly influenced by various stakeholders such as competitors, dominant suppliers, customers and regulatory authorities. SMEs used ICT to comply with their suppliers and customers requirements. Most SMEs have implemented ICT-based operations as suppliers and customers allow only online communications, order placing and payments online. Thus, SMEs have used computers, ICT applications and the Internet in the firms to fit with trading partners requirements in order to maintain better business relationships.

This study also found that government support factor also significantly influences on ICT adoption of SMEs in Nay Pyi Taw. SMEs believe that government regulations are important for ICT adoption and government educational programs are useful and lead to greater ICT usage. Facilitating conditions such as technological resources, human resources or systems compatible with computerized operations which facilitated the use of ICT in an organization encourages firms to use ICT. SMEs also agree that government provides support for using ICT and allocates a budget for ICT Development.

But the influencing factors such as perceived benefits, perceived cost and ICT knowledge and skill factors do not significantly influence ICT adoption. Although most SMEs know about the benefits of using ICT and possess ICT knowledge and skillful manpower, that factor is not enough to use ICT because of poor Internet speed, poor connectivity, lack of electricity, legal and financial environment and the government supports, etc. where they are located. Therefore, although the use of ICT depends on the choice made by the SME owner or manager, in reality, ICT adoption is mainly affected by external pressure and government support.

For perceived cost factor, it was found that the cost of using ICT does not affect on ICT adoption. The cost of ICT such as the Internet, computers and ICT applications are expensive or not, SMEs use ICT for improving performance. Therefore, that factor does not affect and has no significance on ICT adoption. Although the costs of computerization for operational, maintenance and installation costs and the Internet cost are high, very high performance can be created by ICT adoption of SMEs. ICT can reduce productivity loss and the effort of manpower. Moreover, ICT also saves time through these costs.

For the first objective of analyzing the factors influencing ICT adoption by SMEs in Nay Pyi Taw, the study found that influencing factors - external pressure and government support- have a positively significant effect on ICT adoption of SMEs in Nay Pyi Taw. Therefore, SMEs have become more and more interested in using ICT in the firms for performance.

For the second objective of examining the effect of ICT adoption on SMEs performance in Nay Pyi Taw, the study found that ICT adoption has a positively significant effect on SMEs performance in Nay Pyi Taw. SMEs also agree that ICT reduce paperwork and errors due to manual in the office. When collecting, processing and

managing the data with ICT solution, it becomes much easier and quicker than manual. ICT can reduce time and effort in performing tasks and producing outputs. Then, ICT increase services and product quality and reduce the number of staff and workers needed to perform the tasks. SMEs can do service recovery immediately for any customer dissatisfaction online.

Therefore, it can be concluded that influencing factors- external pressure and government support factors- have positive relationships with ICT adoption and ICT adoption has a positive influence on SMEs performance in Nay Pyi Taw. This research points out that SMEs in Nay Pyi Taw adopt ICT for improving organizational performance.

## **5.2 Suggestions and Recommendations**

According to the findings mentioned above, external pressure is the most significant influencing factor affecting ICT adoption of SMEs in Nay Pyi Taw. ICT adoption is a positive significant relationship with SMEs performance. Hence the government should emphasize increasing the level of ICT adoption of SMEs in Nay Pyi Taw and how to adopt ICT more successfully. The other factor having a statistically significant effect on ICT adoption of SMEs in Nay Pyi Taw is government support. The government or management should emphasize what kind of support to be provided and how to support SMEs in improving ICT adoption.

ICT adoption for firm performance through the influencing factors has become challenging for the government and management. By understanding the influencing and significant factors, the government may utilize this information to develop policies or strategies for the growth of ICT adoption by SMEs. Providing useful information about the usefulness of ICT, technological know-how and technological facilities will potentially attract SMEs to adopt ICT for competitive advantages.

For external pressure factor, this study describes an important aspect of external pressure and shows that the government and SMEs to look at the external- environment and cultural- factors with the view to achieving ICT adoption success which may foster organizational performance and the country's economic development. The competitors are already used technology and buyers know real-time information about their product and services, their orders and the situation and the stage that it has reached, etc. at

anytime and anywhere, therefore, the competitors are getting bigger advantages and achieving better performance than SMEs which do not use technology. Therefore, the government should conduct awareness programs for SMEs regarding external pressure as an important thing to monitor. SMEs also need the intention to focus on external pressure as an important one for ICT adoption.

For government support factor, the government and SMEs development department need to more emphasis on giving support in terms of strong and effective policies, rules and regulations, financial assistants, technical assistants and holding trade fairs in order to participate in foreign technological firms for sharing IT knowledge. The government should conduct seminars and workshops for ICT knowledge sharing and education programs ever than before. Moreover, specialized training programs for SMEs capacity building should be conducted to motivate SMEs for using ICT.

The government should revise the ICT policy and make provisions for budgets and necessary support to promote ICT use in all sectors and industries of the country. For example, the government should waive the taxes from ICT adoption and provides interest-free loans for SMEs which use ICT and plan pro-ICT policies, grants, subsidies and motivational programs. The government should also create facilitating infrastructures such as technology infrastructure, human infrastructure, legal infrastructure, government policy and support and financial infrastructure competitiveness that make easy and convenient and good support for ICT adoption of SMEs in order to improve operational productivity and financial performance.

For grasping the benefits of globalization, the government needs to contribute to the success of ICT development of SMEs. Government has to provide support to SMEs for financial assistance- SME loans etc., technical assistance- seminars and workshops for IT knowledge sharing programs and the government should support tax incentives. This tax incentive program support start-up SMEs and ICT companies to attract foreign investors to form a company that is oriented internationally.

The government should emphasize and enhance internet connectivity and internet speed-related infrastructure that were essential for developing ICT adoption or society or the country's economic development. If the technology variable is ease or convenience, SMEs were more likely to use ICT. Thus, full power supply, high Internet speed, good

connectivity, availability of experts and resources, sound legal and financial conditions, government supports, etc. need to improve for encouraging ICT adoption of SMEs.

Therefore, the government should build capable technology, legal and financial infrastructure and formulate policies and supports to motivate SME owners and managers to ensure ICT adoption. The government should step to remove the hurdles of ICT adoption, such as, limited accessibility to the Internet, poor teledensity, poor electricity network, inefficient traditional systems of banking operation, poor financial support and traditional payment mechanisms, lack of human resources, and high Internet cost as well as security concerns.

In conclusion, in this study, it was found that the government can give the right support to SMEs to gain a competitive advantage by understanding influencing factors and the attitude toward ICT adoption. The government can make improvements on these influencing and significant factors that influence SMEs to adopt ICT in the firms to increase ICT adoption to get SMEs performance. As the above suggestions, the government should focus on and enhance these factors to increase.

### **5.3 Limitations and Needs for Further Study**

This study considered only SMEs in Nay Pyi Taw. SMEs in the whole country across states and regions should be studied in further study. And then further study will be considered the comparison between the industries. Moreover, the study only analyses on perceived benefits, perceived cost, ICT knowledge and skill, external pressure and government support as influencing factors on ICT adoption. The study should extend to the other influencing factors such as perceived ease of use, country readiness, culture, owner/CEO innovativeness, facilitating condition and managerial characteristics for further research rather than this study. During the pandemic situation, it was very difficult to collect data therefore, further study should be extended to get more data sources widely in the future.

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**APPENDIX I**  
**QUESTIONNAIRES SURVEY**

Research study on the effect of Information and Communication Technology (ICT) Adoption on SMEs Performance in Nay Pyi Taw.

Dear Sir/Madam,

The purpose of this questionnaire is to collect user views on factors influencing ICT adoption and its effect on SMEs performance as part of my academic research study for the award of EMBA at Yangon University of Economics (YUE). I appreciate your valuable time in responding to the questions and assure you for confidentiality and privacy.

**Section A: General Information**

*Instructions:* Please put a tick  in the box next to the answer of your choice.

**1. Gender**

- (a) Male  (b) Female

**2. Age**

- (a) Under 25 years  (b) 26- 30 years   
(c) 31- 45 years  (d) 46- 50 years   
(e) 51 years and above

**3. Educational Qualifications**

- (a) High School  (b) Under graduate   
(c) Bachelor's Degree  (c) Post graduate

**4. Please indicate your role in the organization**

- (a) Owner  (b) Owner-Manager   
(c) Manager

**5. Please specify the categories of your business**

- (a) Small Business  (b) Medium Business

**6. Please state types of your firm**

- (a) Production  (b) Services

## Section B:

Circle the Most suitable number to your opinion from the following scale.

**1= Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 =Strongly Agree**

### Perceived Benefits

No	Items	Scale				
		1	2	3	4	5
1	Using ICT would enable our organization to accomplish tasks more quickly.	1	2	3	4	5
2	Using ICT would motivate and enable crowdsourcing and mass customization and personalization	1	2	3	4	5
3	Using ICT would improve brand and image	1	2	3	4	5
4	Using ICT would enable better advertising and more marketing.	1	2	3	4	5
5	Using ICT system would improve communication with trading partners and within the organization as well.	1	2	3	4	5

### Perceived Cost

No	Items	Scale				
		1	2	3	4	5
1	The cost required to adopt ICT is high.	1	2	3	4	5
2	Internet access cost is expensive.	1	2	3	4	5
3	The maintenance and support fees for ICT applications are high for our organization.	1	2	3	4	5
4	Using ICT require an additional cost and time to train employee for ICT knowledge and skills.	1	2	3	4	5
5	Additional cost will be incurred for updating and upgrading the ICT software	1	2	3	4	5

### ICT Knowledge and skill

No	Items	Scale				
1	Employees in the organization easily adopt new ICT systems deployed.	1	2	3	4	5
2	Most of employees have done basic computer training.	1	2	3	4	5
3	Employees in your organization are technology savvy.	1	2	3	4	5
4	Our employees are willing to bring innovative ideas through the use of ICT	1	2	3	4	5
5	Our employees are eager to learn more on ICT applications	1	2	3	4	5

### External Pressure

No	Items	Scale				
1	Our competitors have already adopted ICT.	1	2	3	4	5
2	We are encouraged to adopt ICT in accessing the opportunities arising from Globalization.	1	2	3	4	5
3	Our customers demand online information of our products and services.	1	2	3	4	5
4	Our customers and suppliers demand ICT opportunities to be offered to them.	1	2	3	4	5
5	Through the applications of ICT (email and web-based) we can increase our competitive advantage.	1	2	3	4	5

### Government Support

No	Items	Scale				
1	Government regulations are important for smart systems	1	2	3	4	5
2	Government educational programs lead to greater ICT usage.	1	2	3	4	5
3	Government provides supports for using ICT.	1	2	3	4	5
4	Facilitating conditions encourage firms to use ICT.	1	2	3	4	5
5	Government allocates a budget for ICT Development.	1	2	3	4	5

### Section C: ICT Adoption

No	Items	Scale				
		1	2	3	4	5
1	Our site uses ICT (email and web-based, social media) applications for displaying company information and products/ services offered	1	2	3	4	5
2	Our site uses ICT (email and web-based, social media) applications to communicate with our suppliers and employees.	1	2	3	4	5
3	Our site uses ICT (email and web-based) applications to communicate with our customers (where customers can submit various enquiries).	1	2	3	4	5
4	Our site uses ICT (email and web-based) applications to sell our products online.	1	2	3	4	5
5	Our site uses ICT (email and web-based) applications to make payment with our trading partners.	1	2	3	4	5

### Section D: SMEs performance

#### Cost Effectiveness

No	Items	Scale				
		1	2	3	4	5
1	ICT reduce cost of operations in our organization.	1	2	3	4	5
2	ICT provide cost efficient to our organization.	1	2	3	4	5
3	ICT help our organization to get competitive advantage as cost leadership.	1	2	3	4	5
4	Using ICT is beneficial to reducing overall cost.	1	2	3	4	5
5	ICT reduce unit cost of products.	1	2	3	4	5

### Organizational Efficiency

No	Items	Scale				
1	ICT improves the efficiency in operation of the organization.	1	2	3	4	5
2	ICT usage enables employees to work more efficiently.	1	2	3	4	5
3	ICT increases efficiency in collecting information.	1	2	3	4	5
4	ICT encourages employee problem solving with greater efficiency.	1	2	3	4	5
5	ICT usage enables efficient in communications with suppliers and customers.	1	2	3	4	5

### Loyalty to Organization

No	Items	Scale				
1	ICT adoption improves customers satisfaction with the organization.	1	2	3	4	5
2	Adoption of ICT enables customers to be happy and positive worth-of-mouth about the organization.	1	2	3	4	5
3	ICT adoption helps customers to give positive comments and tell others to buy the firm's product.	1	2	3	4	5
4	ICT make customer want to purchase more and very frequently.	1	2	3	4	5
5	ICT make customers to trust and to become loyalty due to transference and updated information.	1	2	3	4	5

### Enhanced Service Quality

No	Items	Scale				
		1	2	3	4	5
1	ICT provide convenience in completing tasks	1	2	3	4	5
2	ICT make to improve service or product quality.	1	2	3	4	5
3	ICT provide employees with quick service.	1	2	3	4	5
4	ICT help employees to do the work with less effort.	1	2	3	4	5
5	ICT help employees to get the order quickly and accurately.	1	2	3	4	5
6	ICT help employees to make for service recovery immediately by getting customers comments and complaints.	1	2	3	4	5

### Better Relationship with Customers

No	Items	Scale				
		1	2	3	4	5
1	ICT help organization to have close contact with customers.	1	2	3	4	5
2	ICT help organization to have good communication with customers.	1	2	3	4	5
3	ICT help organization to develop good understanding with customers.	1	2	3	4	5
4	ICT help organization to develop strong relationships with customers.	1	2	3	4	5
5	ICT help organization for real-time information and prompt feedback to customers.	1	2	3	4	5

## APPENDICES-II

### Influencing Factors and ICT Adoption

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.594 <sup>a</sup>	.353	.332	.46153	1.944

a. Predictors: (Constant), GSMEAN, PCMEAN, PBMEAN, EPMEAN, ICTMEAN

b. Dependent Variable: ADOPTMEAN

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.777	5	3.555	16.692	.000 <sup>b</sup>
	Residual	32.590	153	.213		
	Total	50.367	158			

a. Dependent Variable: ADOPTMEAN

b. Predictors: (Constant), GSMEAN, PCMEAN, PBMEAN, EPMEAN, ICTMEAN

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.953	.404		2.361	.020		
	PBMEAN	.035	.081	.032	.426	.671	.748	1.337
	PCMEAN	-.023	.058	-.028	-.403	.687	.898	1.114
	ICTMEAN	.104	.080	.111	1.301	.195	.584	1.712
	EPMEAN	.485	.095	.416	5.110	.000	.637	1.570
	GSMEAN	.157	.086	.153	1.832	.069	.602	1.660

a. Dependent Variable: ADOPTMEAN

## ICT Adoption and SMEs Performance

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.586 <sup>a</sup>	.344	.340	.35303	1.475

a. Predictors: (Constant), ADOPTMEAN

b. Dependent Variable: PERFORMANCE

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.250	1	10.250	82.243	.000 <sup>b</sup>
	Residual	19.567	157	.125		
	Total	29.816	158			

a. Dependent Variable: PERFORMANCE

b. Predictors: (Constant), ADOPTMEAN

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.147	.197		10.920	.000		
	ADOPTMEAN	.451	.050	.586	9.069	.000	1.000	1.000

a. Dependent Variable: PERFORMANCE