

DIGITAL INEQUALITIES AMONG MSE ENTREPRENEURS IN INDONESIA

EXPLORING DIFFERENCES IN INTERNET ACCESS
BETWEEN INTERNET-USER AND
NON INTERNET-USER
MSE ENTREPRENEURS

Lia Yuldinawati

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CHAPTER 1

INTRODUCTION

CHAPTER 1.

INTRODUCTION

1.1 Preface

In a developing country, MSEs (micro and small enterprises) are considered an important growth sector in the economy. They are currently gaining benefits from the booming and developing internet access rates among the Indonesian population. It is increasingly important for MSEs to start using the internet in business processes. Unfortunately, in Indonesia, internet adoption rates among MSEs are rather low. This issue is the general context for the current dissertation. This chapter will explore the current state of internet adoption in Indonesia, especially among MSEs.

1.2 *Micro, Small and Medium-sized Enterprises in Indonesia*

Indonesia is an archipelago nation covering an estimated 17,508 islands, of which approximately 920 are inhabited. It is ASEAN's (Association of Southeast Asian Nations) largest and most populous country. Micro, small and medium-sized enterprises (MSMEs) are the backbone of the Asian economy. They make up more than 98% of all Asian businesses and provide two out of three private-sector jobs in the region. Therefore, it is vitally important for Asia's economic success to have fully functioning support measures for MSMEs (Gunawan et al., 2017). MSMEs are the backbone of economic growth and innovation in Indonesia. They are a significant factor in Indonesia's growing economy and in alleviating poverty. The number of MSMEs in Indonesia continues to increase annually. Approximately 64 million MSMEs were operating in Indonesia in 2020, 99.9% of the total workforce in Indonesia is currently employed by micro and small enterprises, and 0.1% is employed by medium and large enterprises. The majority of businesses are micro or small enterprises with 65,465,497 business units. More details can be seen in Table 1.1.

Table 1. 1 Number of MSMEs in Indonesia by Scale

Scale	Quantity	Percentage
Micro Enterprises (MIE)	65,465,497	98.67%
Small Enterprises (SE)	798,679	1.22%
Medium Enterprises (ME)	65,465	0.10%
Large Enterprises (LE)	5,637	0.01%

Source: State Minister for Cooperatives & MSEs, 2019

MSMEs in Indonesia is part of the creative economy. The creative economy in Indonesia comprises 16 subsectors: apps and game development; architecture; interior design; visual communication design; product design; fashion; movies, animation, and video; photography; crafts; culinary; music; publishing; advertising; performing arts; fine art; and television and radio (Creative Economy Agency and the Central Statistics Agency, 2017). The three dominant subsectors are culinary (42%), fashion (18%), and handicrafts (16%). The Indonesian MSME landscape can be characterized according to Table 1.2. Most of the MSME owners are male (77%), aged between 40 and 49 (31%), have completed senior high school (37%), and are working in the food industry.

Tambunan (2009) identifies five characteristics of MSMEs in Indonesia that make them important for economic development. First, MSMEs in Indonesia are mainly owned by local people and absorb millions of employees in the country. Second, MSMEs are common in rural areas, and their business is based on agriculture; thus, they have become important for rural economic development. Third, MSMEs are labor-intensive, with a large percentage of less educated and young people employed. Fourth, MSMEs in Indonesia obtain their financial aid from personal savings. Fifth, MSEs produce simple consumer goods.

According to the Ministry of Cooperatives and Small and Medium Enterprises, an important challenge faced by Indonesian MSMEs is a deficiency in ICT access, which limits access to market information. MSMEs struggle with introducing information technology (Morgan et al., 2006; Riemenschneider et al., 2003) and with limited resources, capital, and personnel (Davis & Vladica, 2006). Indonesian MSMEs also face a shortage of

human resources in terms of the ICT skills necessary for business (Ongori & Migiro, 2010). Many Indonesian MSMEs do not have sufficient skills to use the internet as a medium for marketing their business. The use of the internet for business, especially in marketing, is something new for them (Hasbiansyah et al., 2015). They serve the domestic market and target low-income consumers.

Table 1. 2 MSMEs owner characteristics

Gender	Amount	Percentage
Male	48.656.728	77,4%
Female	14.0207.262	22,6%
Age		
<20	207.451	0,3%
20-29	6.713.874	10,7%
30-39	16.922.986	26,9%
40-49	19.443.832	30,9%
50-59	13.006.560	20,7%
>60	6.569.287	10,5%
Education		
Elementary School	3.910.140	6,2%
Junior High School	4.243.319	6,8%
Senior High School	23.379.118	37,2%
Diploma	4.551.353	7,2%
Bachelor	22.700.187	36,1%
Master	4.079.873	6,5%
Business Sector		
Fashion	11.409.814	18,2%
Food	26.207.997	41,7%
Design	11.082.921	17,6%
HandyCraft	9.869.647	15,7%
Others	4.293.611	7%

Source: Creative Economy Agency and the Central Statistics Agency (2017)

E-commerce (electronic commerce) is the buying and selling of goods and services or the transmission of funds or data over an electronic network, primarily the internet (Nimda, 2012). The Central Bureau of Statistics indicated that in the past decade, the whole Indonesian e-commerce

industry has increased to reach 17%, and out of 59.7 million MSMEs in Indonesia, 26.2 million can be categorized as e-commerce.

Table 1. 3 Key characteristics of micro, small and medium enterprises

#	Aspect	Micro Enterprises	Small Enterprises	Medium Enterprises
1	Formality	Degree of informality is high	Degree of informality is lower	All are operated formally (i.e., registered and paid taxes)
2	Organization and management	Traditional	Many are nonprimitive units with modern management systems	All have formal organizational structures with modern management systems
3	Workers used	In general, they use unpaid family members with up to 4 total workers.	In general, they use wage-paid employees with 5 to 19 total workers	All use wage-paid employees with 20 to 99 total workers.
4	Production process	Traditional/manual	Many are highly mechanized	Degree of mechanization is much higher
5	Market orientation	Most are very locally oriented; served local low-income Households	Local, national and/or export	National and/or export
6	Economic & social profile of the owner	Non/low educated and poor	Many are well educated and from nonpoor families	Most are well-educated and from medium to high-income families.
7	Technology used	In general, they use 'out of date' machines or manually and do not utilize ICT	Many use machines and utilize ICT	Degree of modern technology used is much higher and all utilize ICT.

Source: Tambunan (2017), Indonesian Banking Development Institute-LPPI (2015).

The relatively small number of MSEs that use the internet can be explained in part by a lack of the required basic skills (World Bank, 2016). Less than 1% of young people aged 19 to 24 years have attended technical,

IT, or language training (World Bank, 2016). Limitations in basic skills, computer skills, and English language skills result from a lack of training and limited opportunities for direct learning in the workplace. The World Bank reported in 2016 that entrepreneurs in Indonesia are increasingly looking for people with high levels of digital skills with basic business skills and knowledge related to business that are associated with subject areas (math, literacy, marketing). Thinking and behavioral skills are particularly important for managers and professionals, whereas basic academic skills remain at a premium for skilled production workers. Thinking skills are related to critical thinking ability and creative thinking, problem-solving, and so on, while behavioral skills are typically related to communication, organization, teamwork, and leadership skills (World Bank, 2016).

In Indonesia, the definition of MSMEs is provided in Law Number 20 of 2008 concerning micro, small- and medium-scale enterprises (Supplement to the State Gazette of the Republic of Indonesia Number 4866). The Indonesian Central Bureau of Statistics (BPS) differentiates the scale of business between MIEs, SEs, Mes, and LEs. An MIE is a business unit with up to 4 individual workers or permanent workers; an SE has between 5 and 19 workers; and an ME has from 20 to 99 people. Companies with a workforce of more than 99 people are categorized as LEs (Tambunan, 2017). The characteristics of MIE, SE and LE are provided in Table 1.3.

Table 1. 4 Distribution of MSMEs by the island in percentage.

Island	Micro Small Medium Enterprises
Java	60.7
Sumatera	18.6
Sulawesi	8.1
Kalimantan	5.1
Bali & Nusa Tenggara	5.7
Papua & Maluku	1.8
Total of Indonesia	100.0

Source: Central Bureau of Statistics- BPS (2017)

The majority of MSMEs and LEs in Indonesia are located in Java (Tambunan, 2017). With a total of 61% of all Indonesians living there, Java is

the most populated island with the highest concentration of economic activities, particularly the manufacturing industry, trade, finance, construction, agriculture, the creative industry, and tourism. Most of the existing firms in nonagricultural businesses in Indonesia are also found in Java. They are dominated by MSEs that account for 61% of all nonagricultural MSEs throughout the country. Sumatra comes second with 18.6% of all MSEs. Meanwhile, in Papua and Maluku, the least developed regions of the country, the number of nonagricultural businesses is very low, accounting for only 1.8% of all MSMEs. See Table 1.4.

1.3 Benefits of Internet Access for MSMEs

Considering the great potential of the internet to contribute to Indonesian economic revenue, businesspeople must understand the benefits of using internet technology. The use of the internet allows MSMEs to run their business without limits, saves time (Singh, 2012; Widiyanto & Prasilowati, 2015), and easily provides products and services to customers without time limits (Butler & Peppard, 1998). The use of the internet has the potential to make MSME businesses more innovative (Ekawati, 2012; Moen et al., 2008; Setyaningsih, 2015). The use of the internet has a positive effect on access to information for the business sector. The internet can reach all fields and distribute and disseminate information quickly locally and internationally. Internet use also offers market information such as market trends (Adelaar, 2000; Bayo et al., 2013; Butler & Peppard, 1998; Chairael et al., 2015; Delone & Mclean, 2004; Ekawati, 2012; Moen et al., 2008; Setyaningsih, 2015; Singh, 2012; Sijabat, 2007; Tan et al., 2010; Widiyanto & Prasilowati, 2015; Wheny Kristianto, 2013). ICT allows organizations to receive orders, payments, customer service, purchase orders, and payments to vendors in addition to seeking information (Bayo et al., 2013; Delone & Mclean, 2004; Tan et al., 2010). The use of the internet also has a positive effect on communication access for the business sector. Internet use is actively used to communicate with potential customers (Butler & Peppard, 1998; Wheny Khristianto, 2013). The internet can also be used to face a competitive environment; namely, competition with other MSMEs opens

new business opportunities in the face of global MEA market competition. (Ghobakhloo et al., 2011; Quelch & Klein, 1996). The use of the internet helps MSMEs earn higher incomes at lower costs (Adelaar, 2000; Ekawati, 2012; Lakutomo, 2014; Moen et al., 2008; Setyaningsih, 2015). The internet allows SMEs to reduce operational costs, including those of marketing, distribution, and management (Behrendorff & Goldsworthy, 1996). Using the internet for business can increase the competitiveness of MSME businesses because the internet strengthens their bargaining position (Ada et al., 2013; Hashim, 2007).

Overall, the internet has the potential to help MSMEs obtain a more competent workforce and help them fill job vacancies more quickly and efficiently while also affecting the increase in employment opportunities (Ekawati, 2012; Ghobakhloo et al., 2011; Moen et al., 2008; Setyaningsih, 2015,).

1.4 Current Levels of Internet Access in Indonesia

The number of MSE internet connections in Indonesia is very low. The Indonesian Ministry of Communication and Informatics shows that until the first semester of 2021, only 18% out of more than 12 million MSEs have used online tools (Andika et al., 2018). In a study of 292 MSEs, only 32.5% used a website such as WordPress or Google, and 67.5% were not connected at all (Rahayu, 2017). As shown in Figure 1.1, the internet usage index for businesses in Indonesia is ranked 66 out of 130 countries. Indonesia's score on the network readiness index (NRI) is still below the average score for Asia-Pacific countries. One of the reasons for this is that businesses still use the internet despite the low readiness of the Indonesian network.

Based on the Global Competitiveness Index (GCI) from Figure 1.2, the level of technology readiness in Indonesia is still relatively low. Efforts are needed to ensure that more people and companies have the means to access and use technology. Only a small proportion of MSMEs in Indonesia use the internet for business; it is primarily for personal use, although this varies by province and type of business (Tambunan & Busnetti, 2018).

Indonesia



Figure 1. 1 Network Readiness Index (NRI)

Source: The Global Information Technology Report 2021

The number of internet users in Indonesia in 2021 has reached 202.6 million users with a 73.7% penetration rate from the total of 274.9 million of Indonesia's population. Meanwhile, the population of mobile device users has grown even higher, reaching 345.3 million mobile connections with a penetration rate of 125.6%. Out of these mobile device users, 170 million are active social media users. Although the number of business users is still small, Indonesian MSMEs use general social media (Instagram and Facebook) as promotional media and messaging services such as Blackberry Messenger (BBM), Line, and WhatsApp to communicate (Nurita & Lundia, 2017). Analysis from the Asia Pacific Foundation of Canada report on the 2018 Survey of Entrepreneurs and MSMEs in Indonesia indicate that WhatsApp is only used by 30% of respondents. Only approximately 19% of respondents wanted it for marketing purposes (Kwahk & Ge, 2012). Data from World Economic Forum shows that Indonesia's global competitiveness index (GCI), as shown in Figure 1.2, is among the lowest compared to developed countries and other ASEAN countries. The GCI score includes technology adoption in which Indonesia scored 55 while the world average is 63.8.

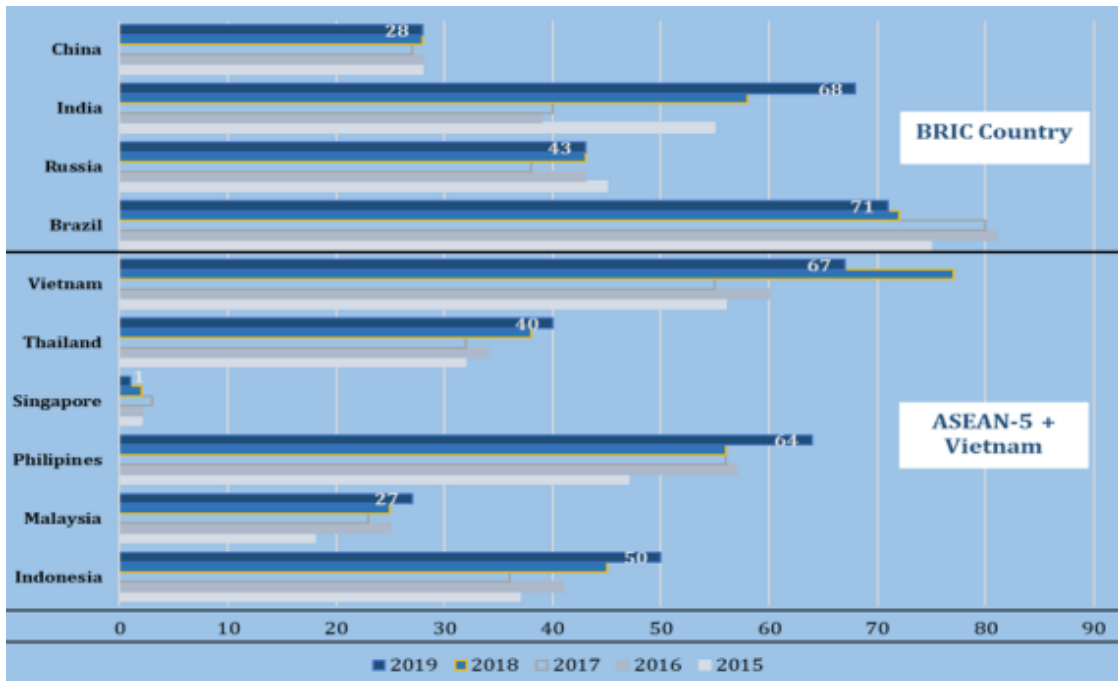


Figure 1. 2 The Evolution of Global Competitiveness Index for Indonesia, 2015-2019

Source: World Economic Forum Report 2020

Indonesia is in second place in terms of the number of internet users compared to other ASEAN countries. It can be stated that the lack of internet users for business is not due to the lack of cellphone owners but rather that internet users are still focused on individual/nonbusiness use. Therefore, it becomes important as an initial stage to grow the motivation to use cell phones for the businesses. A large number of cell phones is not an indication of the number of internet users in Indonesia but only an indication that internet users own more than one cellular phone. The first problem with internet access in Indonesia is a matter of motivation and physical or material internet access, as will be discussed below.

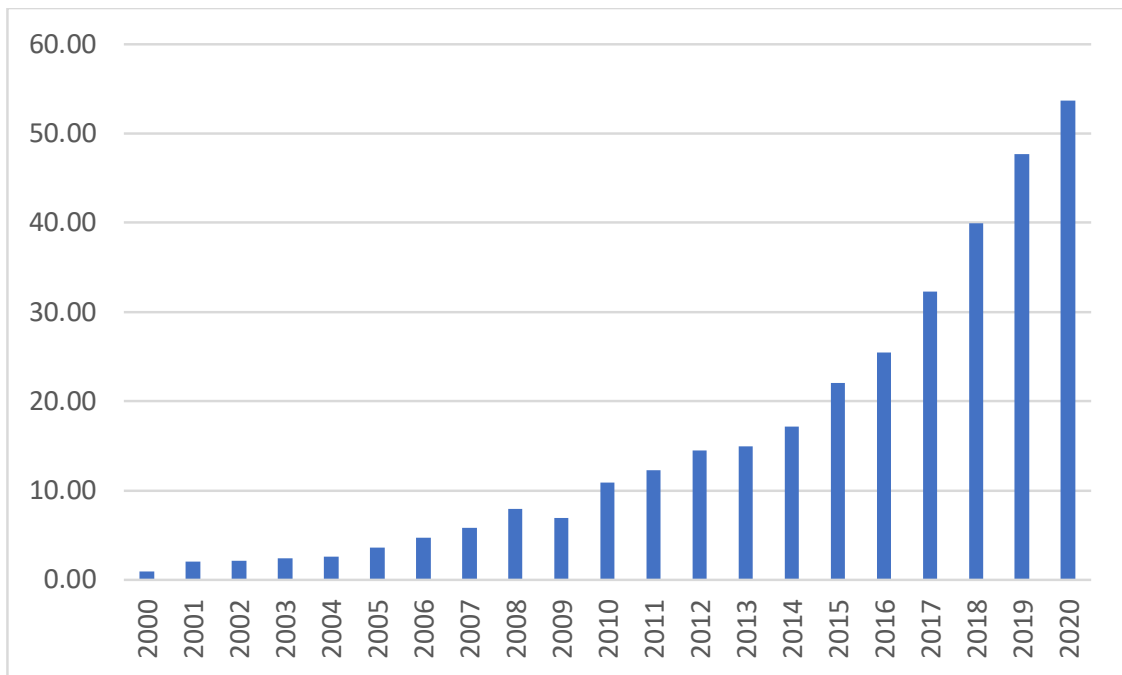


Figure 1. 3 Percentage of individuals using the Internet, 2000-2020

Source: International Telecommunication Union

Improving Internet Access

There are various ways to encourage MSME owners to use ICT, including focusing on their lack of understanding of the technology, a mindset that does not support the use of the internet in running their business, and focusing on learning how to operate the technology (Julianto, 2016). Some companies are motivated to start using the internet to take advantage of more advanced applications, such as e-commerce (Karakaya & Shea, 2008). When MSMEs are motivated to start doing online activities such as sharing business information, maintaining business relationships, and conducting business transactions, they have started to conduct e-commerce activities (Kusumaningtyas & Suwanto, 2015). According to the Central Statistics Agency from the 2016 Economic Census, over 10 years, the amount of e-commerce in Indonesia has increased by approximately 17%, which shows that there are still very few business people who use digital-based businesses.

In addition to personal factors (owner innovativeness, owner ICT experience, and owner ICT ability), factors such as perceived benefits, technology readiness, owner innovativeness, owner ICT experience, and owner ICT ability all play a significant role in the adoption of e-commerce technology by MSMEs in Indonesia (Rahayu & Day, 2015). The importance of IT skills is further substantiated by the work of Van Deursen and Van Dijk (2014) on internet skills. This study focused on individual access, skills, and use and can be employed in MSEs in relation to skills and usage factors, which are benefits, technological readiness, owner innovation, owner ICT experience, and owner ICT ability. As discussed in Section 1.2, the majority of these businesses are micro businesses with just one person, which means that the lack of internet access for MSME entrepreneurs is related to individual factors such as motivation and skills, and the utilization of digital technology is related to collective factors in MSMEs doing business as companies such as innovativeness, owner ICT experience, and ICT ability.

Digital Inequality

An important area of research that addresses internet access is digital inequality. According to Van Dijk (2020), digital inequality is the gap between people who have access to people who do not have access. With the development of this research, digital development no longer focuses on the difference between those who have access and those who do not have access but rather on those who have little or substantial motivation, physical access, skills, and opportunities to use digital media. People who are in a relative position in terms of having more or less access and supporting each other or benefiting more from opportunities than others and even taking other people's opportunities.

Digital inequality is more of a social problem than a technical problem. The digital divide is not decreasing when everybody has and uses the technology. The digital divide theory behind these statements will be explained in Chapter 2 and first introduced with a model of access in the following section.

1.5 Research Goals and Questions

This dissertation will focus on the internet access of micro and small enterprises. In the previous section, it was stated that internet connections are very important for the further development of Indonesian MSMEs, especially for MSEs, which are the majority. There are still gaps related to internet connections in Indonesia. One such gap appears in the discourse on social and information inequality.

However, it has also become clear that internet connection and use in Indonesia are lacking, including in the business sector. MSEs tend to avoid internet access and usage in their business because it is perceived as complex (Alam & Noor, 2009). Access to digital resources such as computers and the internet is a process that begins with motivation and a positive attitude regarding the use of these resources. To gain a better understanding of how access and use among MSEs in Indonesia can be improved, in this dissertation, we use Van Dijk's (2020) model of internet access portrayed in Figure 1.4. The internet access model by Van Dijk (2020) is chosen as the basis of this research because it thoroughly examines the effects between social and digital exclusion and provides a comprehensive categorization and integration of ICT in all aspects of the society.

The model in Figure 1.4 explains the digital divide as a succession of motivation, material, skills, and internet usage access. In this thesis, this model is specified to the domain of Indonesia's MSEs. The model analyzes the gap in the use of new technology by entrepreneurs based on four main aspects: motivational internet access, materials access, internet skill access, and internet usage access. Motivational internet access is the first phase in shaping the adoption and use of internet technology. A lack of motivation to use the internet for business will negatively impact entrepreneurs' material internet access, skill access, and internet usage access. Internet access for Indonesian MSEs is examined by an exploratory study using four access models through the Van Dijk model. Motivational internet access encourages MSEs to want to use the internet and gives them the ability to face all obstacles. Motivation will drive them to be able to fulfill their desires. What is meant by motivation? Entrepreneurs who are motivated to use the

internet for business will perceive a positive effect on material internet access, namely, the ownership of the tools and technology used. Material internet access involves the possession of hardware, software, and internet services, such as computers, smartphones, access networks, and other digital technologies. Part of material internet access is physical access: the mere connection to a computer and the internet. Subsequently, the use of various devices for business requires internet skills for entrepreneurs. The higher entrepreneurs' internet skills, the more frequently and actively they will use the internet for business. These phases will mark this research as well. This study will start with motivation and material internet access. The second phase will address skills, and the third phase will address the usage of the internet by Indonesian MSE entrepreneurs. The last phase that will be discussed will be the outcomes of having access, skills, and usage of digital media or not and what their benefits are for businesses, especially in Indonesia for MSEs. Given the uneven digital use by MSEs in Indonesia, this study focuses on internet access and use for business among MSEs in Indonesia. From the previous research discussed above, which explains the importance of the internet for MSEs, motivation to use the internet for business is an important factor in being able to start a business well. This is the main focus of the problems to be examined in this This dissertation makes two important contributions. The first contribution is the provision of better insight into internet use for business among MSEs in Indonesia. In the first study, we will investigate which factors are important predictors of having internet access, the availability of support, and future internet use. The second contribution is the investigation of internet nonuse among Indonesian MSEs. In the second study, we will examine which factors are important determinants for not using the internet for business purposes. Besides that, this dissertation also contributes to the theoretical scope by recommending a comprehensive digital divide measurement model that can be applied at business level. The digital divides are often studied on the personal level, this study provides framework that can be used for examining the digital divides on business level, especially in Indonesia.

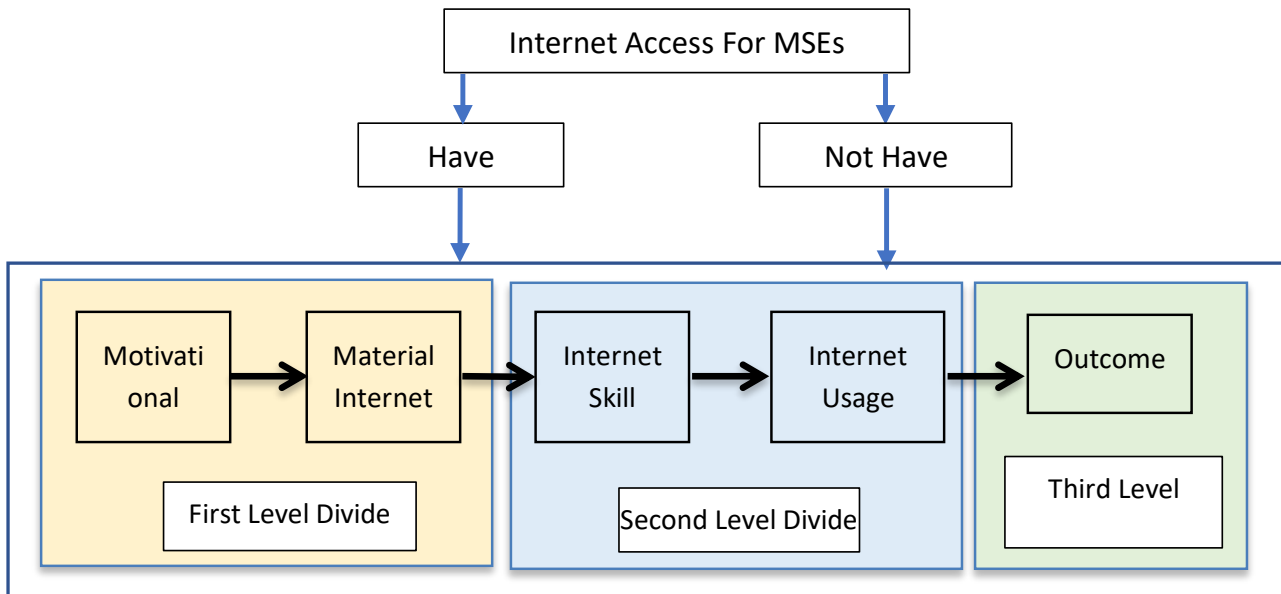


Figure 1. 4 Model of Internet Access

The scientific contribution of this dissertation is as follows:

1. To identify the state of affairs of internet access for Indonesian MSEs in Indonesia and
2. To expand the current knowledge about the consequences of internet access and non-access for MSEs in Indonesia.

The process of internet access will be highlighted in four phases: motivation, material access, skills, and usage. The empirical results of this contribution will provide benefits that can then be used in a theoretical review of both knowledge and research on the digital divide in the context of a developing country such as Indonesia.

The societal contribution of this dissertation is as follows:

1. To measure the internet access of Indonesian MSE and its impact on business outcomes.
2. To study how important sociodemographic determinants are associated with different types of internet access and
3. To develop a strategic policy on internet access for MSEs in Indonesia.

Through the findings of this study, it is expected that industry, the community, and the government of Indonesia can find a way to help create internet access improvements for Indonesian entrepreneurs.

To achieve these goals and guide the topic of internet access, several research questions are proposed. The first research question is aimed at the role of internet access in MSE businesses. To answer these questions, several studies will be carried out to determine how internet access in Indonesia impacts business today. Preliminary research aims to more clearly determine how the internet access conditions for MSEs in Indonesia reveal factors that can be observed in a main and larger study on the same topic.

- Research Question 1: What are the characteristics of Indonesian MSE internet users and non-internet users?
- Research Question 2: What is the level of motivational internet access among Indonesian MSE internet users and non-users?
- Research Question 3: What is the level of material internet access among Indonesian MSE internet users and non-users?
- Research Question 4: What is the level of internet skill access among Indonesian MSE internet users and non-users?
- Research Question 5: What is the level of internet usage access among Indonesian internet users and non-users?
- Research Question 6: What are the business outcomes for Indonesian MSE internet users and non-users?
- Research Question 7: What sociodemographic levels among Indonesian MSE internet users and non-users are associated with different types of internet access?
- Research Question 8: What are the differences in the full process of internet access between Indonesian MSE internet users and non-internet users?

1.6 Chapter Overview

In Chapter 2, a systematic literature review of the four phases of internet access is presented. This chapter explores internet access in Indonesia, especially for businesses. Before measuring internet access can be

done, it must be clear what internet access and use are for Indonesian entrepreneurs. The definition of internet access and internet use for MSEs in Indonesia will be explained in more depth. Internet access has different phases that will be described and explained. These phases are motivational internet access, physical internet access, internet skills, and internet usage.

Chapter 3. In this chapter, internet access by Indonesian MSEs is defined by exploratory studies. Preliminary research is carried out to clearly determine how the internet access conditions of these four phases for MSEs in Indonesia can be determined by determining what factors can be proposed in the next step of the research. In addition, this dissertation focuses on the true meaning of the internet for MSEs by examining its use among Indonesia MSE internet users and non-users.

Chapter 4. In this chapter, the methodology for measuring the variables that make up internet access for businesses among Indonesian MSE internet users is explained and used, including the framework of the four phases and their causes and effects that underlies research on internet access for business among MSE internet users in this thesis while simultaneously accounting for a spectrum of access types, providing new insights into sociodemographic divides.

Chapter 5. In this chapter, the methodology for measuring the variables that make up internet access for businesses among Indonesian MSE internet non-users is explained and used including the framework that underlies research on internet access for business among MSE internet non-users and simultaneously accounts for a spectrum of access types, providing new insights into sociodemographic divides.

Chapter 6. In this chapter, the key findings of the various studies will be summarized and reflected upon in the general discussion. Implications for science and society will be discussed. Additionally, recommendations for future research will be presented after the limitations of the current contribution are established. This chapter provides an explanation of each group and the consequences for the people most likely to be in both groups of internet users and non-internet users. Comparison between both groups of internet users and non-Internet users

Chapter 7. Finally, in this chapter, the key findings of the various studies will be summarized and reflected upon in the general discussion. Implications for science and society will be discussed. Subsequently, several recommendations will be proposed regarding the policy of internet access for business for both internet business users and non-internet users.

CHAPTER 2

***INTERNET ACCESS BY INDONESIAN
MSE ENTREPRENEURS***

CHAPTER 2.

INTERNET ACCESS BY INDONESIAN MSE ENTREPRENEURS

2.1 Introduction

This chapter will explain the conditions of internet access for MSE entrepreneurs in Indonesia. At the core is resources and appropriation theory (Van Dijk, 2005), which considers access to technology as a four phases process. The resources and appropriation theory by van Dijk (2005) is selected as the basis of this research because it thoroughly examines the effects between social and digital exclusion and provides a comprehensive categorization and integration of ICT in all aspects of the society. The main contribution of this chapter is an introduction to these four phases linked to MSE entrepreneurs in Indonesia. It starts with motivational internet access and continues with the material internet access of MSE entrepreneurs. The third phase concerns internet skill access, and the fourth phase is internet usage access. In this chapter, we aim to gain a deeper and broader understanding of how the internet is used by Indonesian MSEs.

2.2 Resources and Appropriation Theory

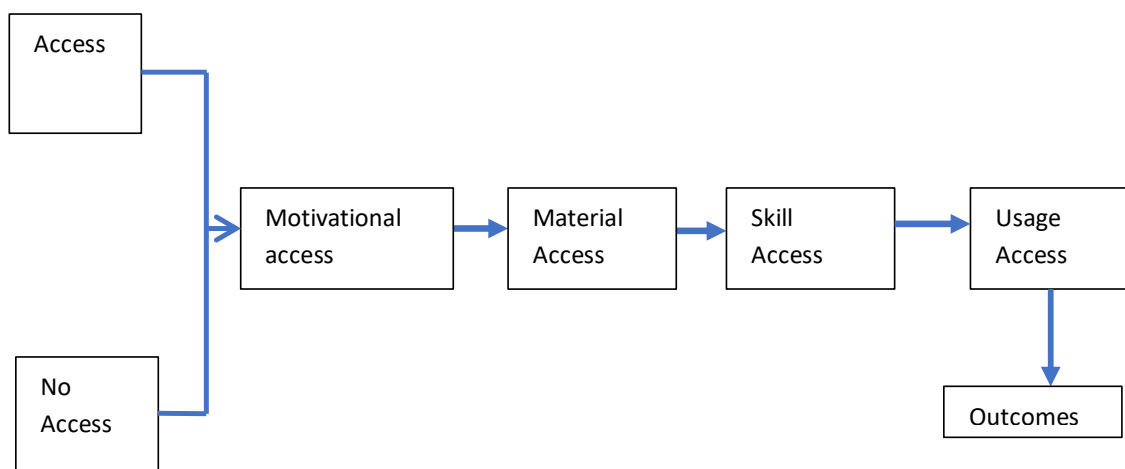


Figure 2. 1 Internet Access Process of Indonesian MSE Entrepreneurs

To gain a better understanding of internet access among Indonesian MSEs, we take a comprehensive look at the nature of internet access. A useful theory here is the resources and appropriation theory (Van Dijk, 2005), which explains the differences or inequalities in internet access. Internet access is considered a process of appropriation, following motivation, material, skills, and, in the last stage, internet usage access. Similarly, digital divide research evolves from the first-level digital divide (a focus on differences in having or not having an internet connection) to the second-level digital divide (a focus on differences in internet skills and internet frequency and type of use). All phases can be linked to Indonesian MSE entrepreneurs. Resources and appropriation theory furthermore allows us to focus on the consequences of internet access and internet outcomes in the current context for Indonesian MSEs. In digital divide research, differences in these outcomes are referred to as the third-level digital divide.

The internet promotes a democratic and diverse public space where elite voices no longer dominate so that through the internet, it will be easier to channel the aspirations of people of various demographic types. As traditional media have ignored, mediated, and stereotyped the poor and the working class (Artz, 2003; Iyengar, 1990, 1991; Kendall, 2005), it is believed that the digital commons will offer them a new voice. As a substitute for the one-to-many content distribution model of the mainstream media, some researchers (i.e., Benkler, 2006) argue that the internet is turning this model into a more democratic marketplace of ideas so that the value of justice will be more transparent on a democratic basis without the distinction of levels of society.

2.2.1 *Motivational Internet Access*

Van Dijk (2005) identifies “motivational internet access” as the first factor in shaping the adoption and use of internet technology. According to Van Dijk, without motivation, physical access, internet skill access, and use will not be actualized. This succession is motivated by access to technology as a dynamic process generated by social, mental, and technological factors (Van Dijk, 2006). The motivational internet access of MSE entrepreneurs

entails encouragement to want to use the internet and deal with potential obstacles. Both intrinsic and extrinsic motivation play a role. Intrinsic motivation is the liking and feeling of the ability to use digital media such as the internet and arises from within a person without the need for external stimulation; extrinsic motivation is the desire for better business opportunities and outcomes (Caniels et al., 2015). Extrinsic motivation also concerns factors such as the ease of using the internet and its usefulness; both can make entrepreneurs more motivated to invest time in business-related internet use (Davis, 1989; Hoppe et al., 2018; Caniels et al., 2015;). The power of a more utopian argument and the democratic potential of new media motivate people to access the internet. The research says that the political diversification of communication channels by involving technology is important because it expands the range of voices that can be heard (Jenkins, 2006). There are various obstacles faced by the Indonesian government (the State Ministry of Cooperative and Small Medium Enterprise) in motivating MSE entrepreneurs to utilize ICT.

Reasons for a lack of motivation to start using the internet for business purposes are as follows:

1. MSE entrepreneurs have a marginal understanding of internet technology (Julianto, 2018).
2. MSE entrepreneurs are not aware of the possibilities of internet business (Julianto, 2018; Saleh et al., 2016).
3. MSE entrepreneurs do not have a connection to the internet (Saleh et al., 2016; Asia Pacific Foundation of Canada, 2019).
4. MSE entrepreneurs believe that the internet is expensive (Saleh et al., 2016).
5. MSE entrepreneurs lack knowledge of how to operate the internet (Julianto, 2018; Saleh et al., 2016)
6. MSE entrepreneurs need to be convinced beforehand of the benefits of using technology (Demirci, 2008).
7. MSE entrepreneurs believe that their business does not need it (Lubis & Junaidi, 2016).

According to a report issued by the Indonesian Ministry of Industry, MSEs and businesses located in rather isolated/rural areas were still unfamiliar with the potential the internet has, for example, for marketing purposes. A high level of discomfort and insecurity can cause anxiety overusing technology. Some of the factors that motivate MSEs to use the internet are personal categories affecting internet access, including age, gender, ethnicity, intelligence/literacy, personality, health/disability, and positional categories affecting internet access, including labor, education, household, social network, and nation/region. The resources affecting internet access are temporal, material, mental, social, and cultural (Van Dijk, 2005).

Internet use motivation indicates that teenagers and young adults are identical and connected to the internet all the time. People from this generation are always connected online, such as at school, on campus, in the library, in a study park, at home, or when traveling. These young people are dynamic and are always on the move or mobile. They live between the virtual world and reality, which establishes a strong motivation in two areas of life. Motivation concerns the cognitive dimensions in the learning process or knowledge sharing, which includes the absorption and retention of the declarative and procedural aspects of science (Hidayat & Saleh, 2016).

2.2.2 *Material Internet Access*

Material internet access involves physical access to an internet connection and ownership of internet hardware, software, and services. Differences in material internet access are increasingly visible in the quality of devices used to access the internet, including desktops, laptops, tablets, game consoles, and smartphones (Van Deursen & Van Dijk, 2019). Mobile devices provide access with greater convenience and more possibilities for continuous usage compared with home access, especially for those mobile devices with the better access speed, faster processors, and high-resolution screens. Fixed connections can also have benefits that mobile broadband lacks, as they are more robust, faster, and more reliable than mobile broadband. Desktops and laptops with fixed connections also have other

benefits, such as more memory, storage capacity, speed, more control over the internet, and more content availability (Van Deursen & Van Dijk, 2014). This material asset also leads to more production and influences one's likelihood of producing online content, but only among people who have internet access at home. Modem speed adds more context to the quality of a home connection. Having high-speed internet access, rather than a slow dial-up modem, which would make posting photos, for example, very slow and difficult, facilitates production. Adding this broadband factor does not substantially reduce the effect of any other explanatory variables.

Regarding the level of physical internet access, as of 2020, internet users in Indonesia had reached 196 million people or approximately 72% of the total population.

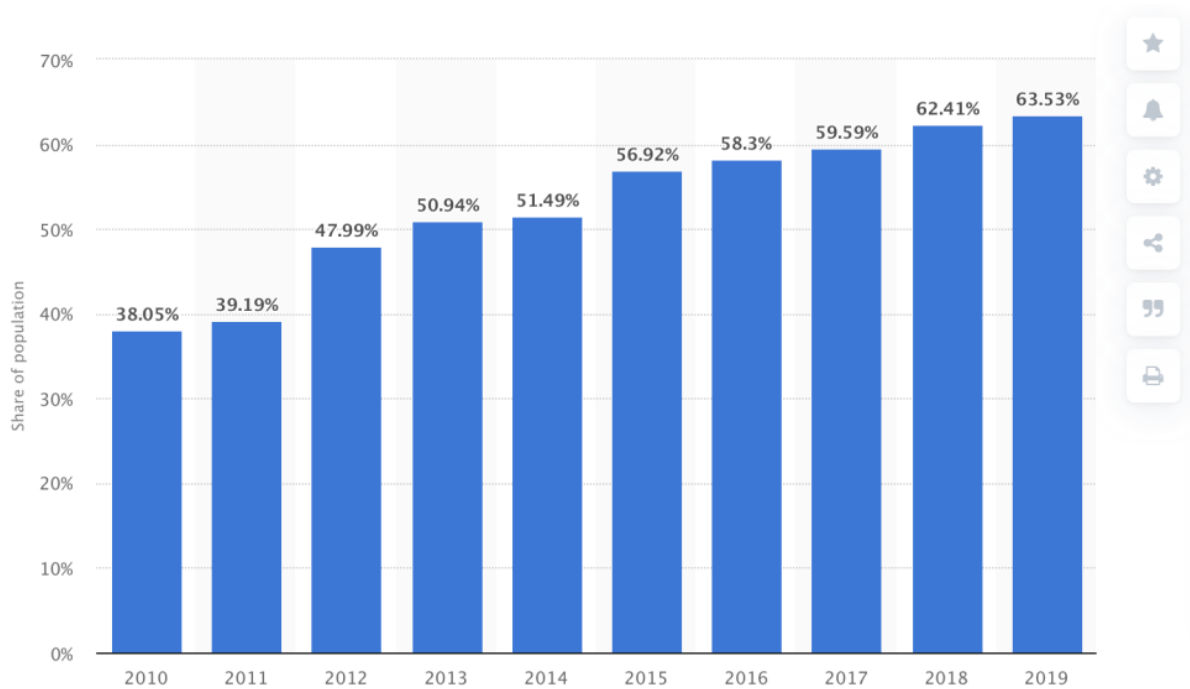


Figure 2. 2 Share of the population owning a mobile phone in Indonesia

Source: Statista, 2021

In 2019, approximately 63.5% of the Indonesian population owned and used a mobile phone. The largest share was found in Jakarta, where over 78% of the population had one. However, in contrast, only approximately 38.5% of

the population in Papua owned a mobile phone. It is also confirmed by statistical data from ITU Global ICT Development in Figure 2.2 that globally, mobile cellular access will continue to provide the rapid growth of smartphone mobility because mobile networks are cheaper than fixed connections and because users can connect anywhere as long as they have the required devices. With mobile broadband, MSE entrepreneurs can promote their business using digital advertising, reach more audiences, and gain many other benefits mentioned in the previous chapter.

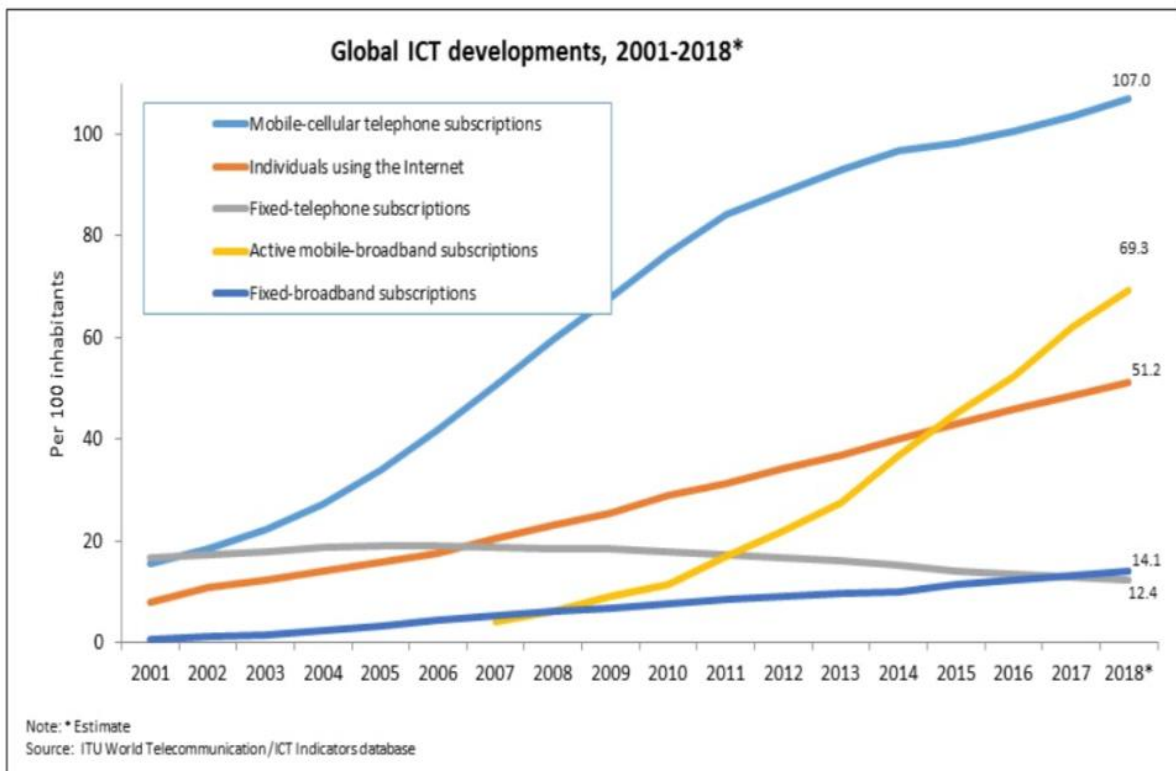


Figure 2. 3 Global ICT (connections) Development 2001-2018

Source: ITU

Although individual mobile broadband usage is high, usage of MSE business mobile broadband is still low, as previously stated, and this study will try to solve this problem. This lack can be seen through the Ministry of Communication & Informatics, which indicates that there are 59 million MSEs in Indonesia but only 7.7% had online sales using e-commerce

platforms in 2019 and only 20% prioritized the adoption of ICT, while 15% prioritized better management tools.

2.2.3 Internet Skill Access

Table 2. 1 Media-related and Content-Related Digital Skills

Media Related	<i>Operational skills:</i> Successfully operating digital media ('button knowledge').
	<i>Formal skills:</i> mastering formal structures, file and menu structures, web-browsing and navigating
Content Related	<i>Information skills:</i> valid search, selection and evaluation of digital media content.
	<i>Communication skills:</i> being effective in the exchange of meaning via effective profiles, posts, blogs, Tweets, personal websites and software.
	<i>Content-creation skills:</i> being able to contribute acceptable software, websites, blogs, Tweets, postings, profiles, etc.
	<i>Strategic skills:</i> being able to use digital media as a means for a particular personal or professional goal.

Source: Van Deursen & Van Dijk (2014)

After having the motivation and material access, MSE entrepreneurs need the skills to use the internet for their business. Van Deursen & Van Dijk (2014) have developed a general framework of medium- and content-related digital skills. These skills are operational skills, which include actions to operate a digital medium ('button knowledge'); formal skills, which include handling the formal structures of the internet (browsing and navigating); information skills, which include searching, selecting, and evaluating information; communication skills, which include encoding and decoding messages; contact management; creating online identities; drawing attention; giving opinions; content-creation skills, which include making contributions to the internet with a particular plan or design; and strategic

skills, which include using the digital medium as a means to achieve particular professional and personal goals. See Table 2.2.

The framework of internet skills in Table 2.2 goes beyond the technical use of the internet by considering the basic skills needed to use the internet and the skills required to comprehend and use online content (Van Deursen et al., 2014). This skill framework can also be applied to MSE entrepreneurs who need skills to find relevant and reliable information and communicate with stakeholders such as customers or suppliers through online systems.

Operational skills become basic skills for MSE entrepreneurs when running their internet-based businesses. According to Thong in Chong & Janita (2013), the ability of MSEs to adopt new technology is still slow because they are not accustomed to ICT. Internet technology is widely used for operational and formal skills such as browsing, e-mailing, and using a website (Triandini et al., 2013). MSEs' ability to search for information is becoming essential to running their business.

Some previous studies have mentioned the importance of obtaining information when running businesses. According to Dasanayaka et al. (2011) and Trianni and Cagno (Trianni & Cagno, 2012), the availability of internet information is needed by MSEs to expand their businesses. The need for information about market opportunities and technological changes is viewed as another obstacle to innovation (Kamalian et al., 2011). Information about a company's external environment, such as market opportunities, technological changes, and government policies, helps the company become more competitive (Guijarro et al., 2009). Therefore, information on internet skills is needed by MSE entrepreneurs.

MSEs that use e-commerce offer an e-commerce service and deploy product marketing, communication, information, transactions, long-distance control and decision-making, and applications and other services (Triandini et al., 2013). Communication skills involve the ability to contact people online, exchange information, or give opinions. The utilization of information technology by MSEs can also be used to design products and make content. Content creation skills are needed to be able to create designs and content

that are effective and interesting, such as product design, website design, and many other designs that are based on skills and creativity. Meanwhile, to be able to market products and to make decisions, MSEs must have strategic skills to achieve goals. MSEs need skills such as planning and executing the concept, distributing, and setting prices of ideas, goods, and services (El-Gohary, 2012).

Warschauer's (2004) concept of literacy is the basis for selling online production. He compared receptive online skills to reading and productive online skills to selling. Few studies, however, attempt to explain variations in productive activities. Jenkins (2006) coined the term "participatory culture" to describe the new cultural landscape, which is inspiring more youth to create online content (Lenhart and Madden, 2005). Scholars have also theorized how "prosumption" in the internet age (i.e., Jurgenson & Ritzer, 2010) not only combines production and consumption but also describes the interdependent relationships between the two. However, few studies have addressed the multivariate statistical relationship between the classroom and online content production among American adults, particularly for general public consumption, not just for one's social network. Internet research, particularly the analysis of digital inequality, has focused on consumption, more recently on participation and consumption, but not strictly on production.

The first microeconomic barrier shown is the current lack of awareness and skills in small and medium-sized enterprises. This lack is mainly because the low utilization of ICT is not caused by expensive equipment or software but is caused by two other factors. First, SMEs do not have the necessary knowledge to choose the right technology, which is changing rapidly. Therefore, they often use the services of external advisors. Second, the number of applications that suit the needs of small and medium sized enterprises is insufficient. In most cases, SMEs do not have employees with adequate ICT knowledge. Therefore, there is an even greater need for owner-managers to invest in training each employee to help them acquire the basic skills that can facilitate the easier implementation of e-Business solutions suitable for each individual company. It was found that the smaller

the company is, the greater the benefits (in terms of financial indicators) that will be obtained from implementing information and communication technology into its business (Arendt, 2007)

In addition to the skills in Table 2.2, internet marketing skills are part of content-related skills, namely, strategic skills. Internet marketing skills help obtain new customers, provide services to customers, and maintain customer relationships (Mokhtar, 2015). The marketing function cannot be separated from the business itself because it is closely related to strategies that can attract customers so that there is an increase in sales, which has an impact on achieving the main goals of the business. Internet marketing is related to the use of the internet for business purposes, such as search engine marketing, interactive advertising, e-mail marketing, partnership building agreements with other websites, customer service, and customer relationship maintenance via the internet (Mokhtar, 2015). Internet marketing will open the doors for many business opportunities, such as expanding markets, building brands, developing products, and serving customers better (Behrendorff & Goldsworthy, 2009). In the end, as conveyed by Setiowati et al. (2015), entrepreneurs will adopt ICT only if they feel that ICT is easy to learn, easy to understand, and easy to use for their employees, customers, and business partners. MSMEs are currently required to be independent and active in finding various sources for MSME job descriptions and in increasing their knowledge. To make it easier for MSMEs to access the internet, supporting facilities are needed, namely, those that provide Wifi service and other places, so that they can easily connect to the internet either through cellphones or laptops (Mellina, 2019)

2.2.4 Internet Usage Access

MSE entrepreneurs use the internet:

1. As a tool for exchanging information,
2. As a tool for business strategy, including marketing and sales
3. As a tool for customer service, and
4. As a tool for MSE communication and cooperation between employees, consumers, sales staff, and other business partners.

According to a survey conducted by PT MARS Indonesia in 2011 (Setiowati et al., 2015) among 1718 MSEs in eight major cities in Indonesia, namely, Jabodetabek (Jakarta, Bogor Depok, Tangerang, and Bekasi), Bandung, Semarang, Yogyakarta, Solo, Surabaya, Medan, and Makasar, 67% of MSEs use email for their business activities, and 33% of them do not use email at all. Regarding the use of websites, 70% of MSEs have them, and only 29.5% do not. Moreover, most of the payments for transactions and e-commerce sales do not have a fully integrated transaction mechanism since most of the payments are through bank transfer/ATM (54.5%) and the cash on the delivery mechanism (47.3%). Only 8.9% of transactions use credit card payments.

Internet usage can increase the efficiency and operations of MSEs. The development of information technology greatly reduces the cost of gathering and disseminating information. As a result, the fee structure changes companies and individual industries. All of this can transform traditional business beyond recognition. The internet creates faster interactions between all agents and faster interactions at lower costs than traditional channels. The internet can also reduce the length of the product supply chain, making business faster and cheaper for customers and small businesses (Barhatov et al., 2018).

MSEs that run internet-based businesses can be divided into 3 groups:

1. Basic use of online business: using social media, e-mail.
2. Medium-level online internet business usage: directly involved in social networks, a combination of integrated networking sites with social media, live chat with customers on networking sites.
3. Advanced online internet business usage: advanced connectivity, integrated networks, e-commerce business capabilities.

There are also MSEs that use the internet for personal information, social communication, and entertainment through their social activities (Saputri & Kurniasih, 2020). This type of use is confirmed by Van Deursen and

Van Dijk (2014) and Hargittai and Hinnant (2008), who found that some nonbusiness internet users are more often involved in social interactions and games than education, information-seeking, or work or what is called “capital raising activities” (Hargittai & Hinnant, 2008). The use of the internet for MSEs is related to the frequency and duration of internet use or the types of activities carried out online.

Others have expanded and further defined what internet “use” means in relation to social position. For example, internet use among high-status individuals is more likely to have informational purposes (Notten et al., 2009; Peter & Valkenburg, 2006) or to focus on “capital-raising activities through activities such as investments” (Hargittai & Hinnant, 2008; Hargittai & Zillien 2009), even when accounting for technological access and skills. However, some researchers have found that while high-status people have higher adoption rates than their low-status counterparts, they tend to stay online for a shorter period of time (Goldfarb & Prince, 2008). In other words, what people do once they are online or “internet-in-practice” describes the function of the internet itself (Zillien & Hargittai, 2009).

The digital trend has now become a trend in targeting current and potential customers. Most people now have daily access to the internet via a computer, laptop, or smartphone. Social media is one of the best online marketing channels, and Instagram is one of the fastest-growing platforms available today. An increasing number of businesses are looking to build a strong presence on these networks and drive engagement for their prospects. To survive in this new business environment, all companies, including MSEs, are encouraged to adopt this technology. Sooner or later, MSEs that do not adopt these new technologies and business practices will be displaced by their competitors and abandoned by their customers (Tambunan, 2020).

2.2.5 Potential Outcomes of Internet access for Indonesian MSEs

The benefits of using the internet for business are faster communication with customers, satisfying customers, building brands, providing ways to change products, and facilitating access to global markets

(Rahmidani, 2015). Being able to take part in e-commerce provides benefits for companies in increasing sales turnover, increasing customers, expanding business reach, promoting tools, new business opportunities, business relationships, and customer satisfaction. Achieving these outcomes also supports the Indonesian government's vision of the digital economy. Improved internet access and outcomes support an increase in income, generate increasingly better jobs, and result in a higher national GDP.

The utilization of information technology in running a business, often known as e-commerce for small companies, can provide flexibility in production. This flexibility enables the faster delivery of software products to customers, the sending and receiving of offers quickly and cost-effectively, and the supports fast, paperless transactions (Hidayat & Saleh, 2016). The utilization of the internet allows MSMEs to do marketing that targets global markets so that the opportunity to penetrate exports is wide open. In addition, transaction costs can also be reduced. Thus, it can be said that the use of ICT for MSMEs is important to increase competitiveness in the global market. Therefore, one of the focal points in empowering MSMEs based on ICT is increasing competitiveness. In today's competitive era, the role of ICT is decisive in empowering MSMEs. It is conceivable that if a business is not supported by the current use of information and communication technology, then it is certain that MSMEs will be difficult to develop (Melina, 2019).

2.3 Literature Review

Numerous research has been carried out in the area of the digital divide. Arendt (2008) studied ICT usage among European MSEs and showed that the source of the digital divide at the business level was the lack of skills and knowledge about the internet, not the lack of access. Mutula (2008) examined the correlation between the digital divide and the state of economic development in sub-Saharan Africa. They revealed that a country's economic development status is connected to its status of the digital divide and the cause of the digital divide in sub-Saharan Africa is the lack of digital literacy, infrastructures, and affordable access. Bach, Zoroja and Vukšić

(2013) summarized determinant factors of the digital divide from previous research such as location, company size, business complexity, demographic characteristics, etc. Furthermore, Van Deursen and Helsper (2015) empirically evaluated sociodemographic and socioeconomic factors to measure the digital divide and internet usage outcome in society. The study revealed that the higher a person's social status is, the more benefit they acquire from the internet.

A study specifically focused on internet usage in Indonesian MSEs has been carried out by Rahayu and Day (2015) aiming to determine factors influencing internet adoption among Indonesian MSMEs. The result implied that perceived benefits, technological readiness, and owners' innovativeness along with their internet ability and experience influence MSMEs' decision to adopt the internet. Even though the study was carried out in Indonesian MSMEs, it only covered their readiness in adopting the internet. A study related to the digital divide in Indonesia was presented by Rahman (2015) who examined the digital divide and its impact on Indonesian citizens to accept e-government. The result showed that variables of the digital divide such as access, demographic characteristics, residential location, and education level affect the citizen's acceptance of e-government. Although it included a comprehensive overview of the digital divide, the study only focused on non-business usage of the internet. The summary of related literature for this research is shown in Table 2.2.

The more recent study by Reddick et al. (2020) suggested that The digital divide not only occurs in rural/urban areas but also in an intra-city context, especially in low-income areas. They also determined that geographical disparities, profit-based discrimination, technology deployment cost, and socioeconomic factors affect broadband adoption. Mubarak et al. (2020) confirmed that income and education level are positively related to ICT diffusion and poverty is the main problem causing the digital divide worldwide. In Indonesia, Andika et al. (2020) summarized twenty-three factors affecting ICT adoption among companies that originated from the company's internal and external environment.

Even though much research have focused on the digital divide area, research regarding the digital divide at business level especially in developing countries is still scarce. As its state of the art, this study aims to obtain a thorough view of the factors causing the digital divide among Indonesian MSEs as one of the developing countries by using the digital divide model by Van Dijk (2005).

Table 2. 2 Literature Study Summary

Title	Authors	Year	Method	Variables	Results
Digital Divide and Economic Development: Case Study of Sub-Saharan Africa	Stephen M. Mutula	2007	Analytical and Comparative Approach	Digital Opportunity Index Information Society Index	There is a correlation between the digital divide and economic development, but it is unclear whether the digital divide is narrowing or widening in developing countries
Barriers to ICT Adoption in SMEs: How to Bridge the Digital Divide	Lukasz Arendt	2008	Face-to-face interview	Macroeconomic barriers Microeconomic barriers	Lack of knowledge, education and skilled human resources within the companies are the main barriers to the digital divide
Review of Corporate Digital Divide Research: A Decadal Analysis (2003-2012)	Mirjana Pejic Bach Zovana Zoroja	2013	Literature Review	Demographic factors	Numerous proven determinant factors of the digital divide: location, company size, the complexity and importance of ICT for businesses, demographic

characteristics, and the dependence of business processes on ICT.

<p>Toward a Multifaceted Model of Internet Access for Understanding Digital Divides: An Empirical Investigation</p>	<p>Alexander J.A.M. van Deursen Jan A.G.M. van Dijk</p>	<p>2015</p>	<p>Empirical study</p>	<p>Internet attitude directly affects material access, the development of content-related Internet skills, and usage diversity. all four types of access to digital technology apply to Internet access and appear to be associated in the sequence. overall younger people with higher educational levels and higher income and in some areas males have better Internet access</p>
<p>Toward Comprehensive Conceptualization of Digital Divide and Its Impact on e-</p>	<p>Arief Rahman</p>	<p>2015</p>	<p>Empirical Study</p>	<p>Variables of the digital divide affecting the success of the e-government system were access, demographic</p>

Government System Success	Access Divide Economic Divide Demographic Divide E-Government Use E-Government Benefits User Satisfaction	characteristics, location, and education level.	residential education level.
Determinant Factors of E-Commerce Adoption by SME in Developing Country: Evidence From Indonesia	Rita Rahayu John Day	2015	Empirical study
	Perceived Benefits Perceived Compatibility Cost Technology Readiness Firm Size Customers/Supplier Pressures External Support Owner innovativeness Owners IT abilities Owners IT experience	perceived technology owners' innovativeness, owners' IT ability and owners' IT experience are the determinant factors that influence Indonesian SMEs in their adopting of ecommerce.	benefits, readiness, innovativeness, ability and experience are the determinant factors that influence Indonesian SMEs in their adopting of ecommerce.

Use of Information Technology among Performers	Micro	2016	Baso Saleh	Qualitative and Quantitative Approach	Demographic factors of entrepreneurs	Internet use is popular among MSE entrepreneurs in Belu however its usage to support MSE management is relatively low.
Small Enterprises in the Border Area (Study in Belu, East Nusa Tenggara)	Medium		Yayat D. Hadiyat		IT Use	
The First-level Digital Divide Shifts from Inequalities in Physical Access to Inequalities in Material Access	Digital	2018	Alexander JAM van Deursen Jan AGM van Dijk	Online survey	Income Support and quality Socio-demography characteristics Household composition Internet Attitude Material Internet Access	The first-level digital divide remains a problem even in the most technologically advanced country and it affects the existing inequalities related to internet skills, uses and outcomes.
Determinants of Broadband Access and Affordability: Analysis of	Access	2020	Christoper G. Reddick Roger Enriquez	Empirical study		Geographical disparities, profit-based discrimination, technology deployment

Community Survey on the Digital Divide	Richard J. Harris	2020	Empirical study	GDP per Capita Education Income ICT diffusion	Income and education level are positively related to ICT diffusion and poverty is the main problem causing the digital divide worldwide.	cost, and socioeconomic factors affect broadband adoption. The digital divide not only occurs in rural/urban areas but also in an intra-city context, especially in low-income areas.
Confirming the Links between Socio-economic Variables and Digitalization Worldwide: The Unsettled Debate on Digital Divide	Bonita Sharma Farooq Mubarak Reima Suomi Satu-Paivi Kantola	2021	Literature study	23 of internal and external variables	Various variables originating from the company's internal and external environments influence its digital adoption.	
Analysis of Digital Marketing Adoption in Indonesian MSEs	Aditya Andika Jennifer Jesslyn C. Huang Jeannette C. Sebastian	2021	Empirical study	ICT access Population space	ICT positively affects urbanization and directly	
Information and Communication	Di Wang Tao Zhou	2021	Empirical study			

CHAPTER 3

PILOT STUDY

CHAPTER 3.

PILOT STUDY

3.1 Introduction

The previous chapter discussed the levels of the digital divide: the first level concerning material access, the second level concerning digital skills and usage, and the third level concerning the outcomes of using digital media. All divides have impact on social inequality (Van Dijk, 2020). The digital divide is likely to form a new pattern of social exclusion while enhancing the existing exclusion patterns in society (Arendt, 2007). At the business level, the digital divide could cause companies to be unable to compete, which would result in their exclusion from the market and the loss of their market shares.

The rapid growth of internet technology pressures all socioeconomic elements to adopt this technology, including business and industrial areas. Companies have been starting to use the internet in almost all their business processes, from production to after-sales services. Businesses that do not adopt this technology will be left behind by adopters (Rahayu & Day, 2015). Unfortunately, previous research has revealed that small and medium sized enterprises are still far behind large companies in terms of internet adoption, which makes them more vulnerable to market changes (Rahayu & Day, 2015; Arendt, 2007). This condition would enhance the digital divide at the business level and threaten the continuation of MSEs (Arendt, 2007).

MSEs play a vital role in a country's economic growth, primarily in developing countries such as Indonesia. In 2014, 99% of business units in Indonesia were dominated by MSEs with 59.3 million business units (Bappenas, 2016). MSEs contributed 56.7% to the National Gross Domestic Product and employed 96.7% of human laborers in Indonesia (Bappenas, 2016). In other words, MSEs are the backbone of Indonesia's economic structure, so it is critical to ensure their survival and competitive advantage in the new era of the internet. However, empirical evidence on internet access and abilities among Indonesian MSEs is still scarce.

Although much research has been done on the topic of internet adoption, most of the research was conducted in developed countries, and only a few studies were carried out in developing countries, especially in Indonesia. The results of a study carried out in developed countries cannot be directly implemented in developing countries due to the differences between developed and developing countries, whether in economic, cultural, social, or environmental factors (Rahayu & Day, 2015). This study aims to explore the internet access and capabilities of Indonesian MSE entrepreneurs through a focus group discussion, which will provide a better view of internet adoption among MSEs in Indonesia.

The focus group discussion provided a thorough understanding of internet motivation, physical access, internet skills, and internet usage among Indonesian MSE entrepreneurs. The results revealed that there are still many entrepreneurs who have not used the internet and have not yet understood the benefits of the internet for their business performance. In other words, Indonesian MSE entrepreneurs lack motivation, information, communication, and skills in using the internet in their businesses.

3.2 Theoretical Background

Several theoretical models have been developed to describe and measure digital disparities. Economic and technical models tend to focus on the first-level divide of physical access, while social models focus on the second-level divide. Arendt (2007) explored the use of information and communication technology (ICT) by MSEs and the cause of the digital divide at the business level in Europe. The study concluded that the main reason for the digital divide at the business level in Europe is not the lack of access to the technology itself but the lack of skills and knowledge about ICT among MSE entrepreneurs and workers. The study was carried out in Spain, Portugal, and Poland, which are considered developed countries with sufficient ICT infrastructures throughout the country; more than 90% of MSEs in those countries have been connected to the internet. This condition might be different in developing countries such as Indonesia. Bach et al. (2013) extracted determinant factors of the digital divide, such as location,

company size, the complexity and importance of ICT for businesses, demographic characteristics, and the dependence of business processes on ICT. However, the study summarized the determinant factors of the digital divide based on a literature review without further empirical study. Both the studies from Arendt (2007) and Bach, Zoroja and Vukšić (2013) focused on the first and second levels of the digital divide.

Mutula (2007) analyzed the link between the digital divide and economic development in sub-Saharan Africa and stated that economic development is becoming more attached to the breadth and depth of the digital divide within and between nations. The lower the digital divide in a country, the more developed it becomes. The study revealed that the current status of the digital divide in sub-Saharan Africa is caused by the lack of digital literacy, availability of infrastructure and content, and affordable access. Mutula (2007) also suggested various initiatives to overcome the digital divide and highlighted the importance of impact assessment to measure the achievement of desired outcomes. Although it was only a theoretical study, Mutula (2007) took into account the third level of the digital divide by suggesting the impact assessment and viewed the digital divide on a national level. Van Deursen and Helsper (2015) presented an empirical study about the relationship between offline resources and the third level of the digital divide. Their study concluded that people with higher social status benefit the most from the internet because of their internet usage achievement. The study used sociodemographic and socioeconomic factors to measure the digital divide and the outcome of internet usage in society. Both research from Mutula (2007) and Van Deursen and Helsper (2015) considered the third level of the digital divide, and neither specifically pointed to its effects on the business level.

Rahayu and Day (2015) studied the determinant factors of e-commerce adoption among Indonesian MSEs. Their study showed that perceived benefits, technological readiness, and owner innovativeness, ability, and experience influenced an MSE's decision to adopt e-commerce. While conducted in Indonesia, the study used predetermined factors and focused on factors influencing MSEs' decision to adopt e-commerce. Rahman

(2015) also examined the digital divide and its impact on Indonesian citizens' acceptance of e-government. The results showed that the variables of the digital divide affecting the success of the e-government system were access, demographic characteristics, residential location, and education level. The study from Rahman (2015) provided a more comprehensive view of the three-level digital divide, but it only concentrated on the implementation of e-government.

This study aims to explore the real conditions and problems faced by Indonesian MSEs, as the economic backbone of developing countries, related to internet usage in their business by conducting focus group discussions to obtain a thorough understanding of the factors causing the digital divide in Indonesia.

3.3 Research Design

This sub-section explains the design of this research. As shown in Figure 3.1, the research began with the paradigm worldview. Research paradigm discusses the epistemology of the research, thus a paradigm reflects research questions, design and data collection in a research. This research examines the behavior of MSE entrepreneurs as an individual toward internet adoption. Each individual has their own experience and perception toward the internet, therefore it comes under a subjective issue. Considering the digital divide is a relatively new issue, this research also tries to generalize the findings.

The theoretical overview includes review of theories and previous research regarding the digital divide in order to gain a better understanding and find the gap in the research area. This study uses the resources and appropriation theory by Van Dijk (2005) as its core which is modified according to the nature and condition of Indonesian MSEs. The methodological approach refers to a way to conduct the research. This research is determined as an exploratory research based on its objectives, therefore the research methodology proceeds accordingly including the research objects, sampling method and size, etc.

The pilot study is carried out to obtain the actual condition regarding the digital divide and internet adoption among Indonesian MSEs. It serves as part of the theoretical basis to establish the issue for the next measurement processes. This research uses a focus group discussion of MSE entrepreneurs from various business areas and locations throughout Indonesia. The next step is to use the results from the literature study and focus group discussion as the basis to develop questionnaires that will be used as data collection instruments. The data are collected from two different group, internet-user MSE entrepreneurs and non-internet-user MSE entrepreneurs. Each data group is processed and analyzed by using the Partial Least Square (PLS) method as the alternative method in Structural Equation Model (SEM).

The general conclusion is drawn based on the analysis results from both internet-user MSE entrepreneurs and non-internet user MSE entrepreneurs. Then, the implication of this research on both theoretical and managerial aspects are developed including its correlation with Indonesian Government programs and policies for MSE digitalization.

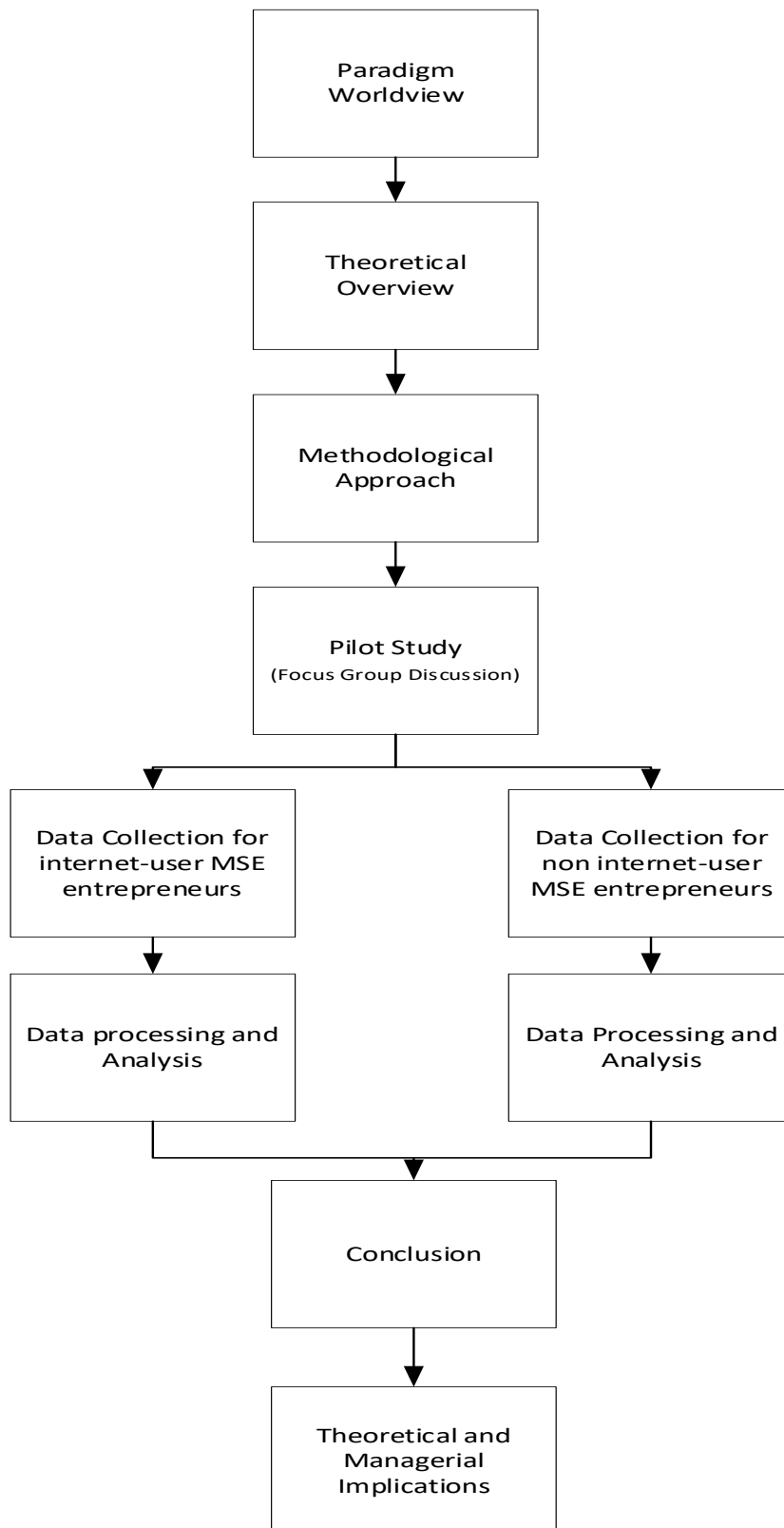


Figure 3. 1 Research Design

3.4 Pilot Study Methodology

This chapter focuses to explain the methodology used in the pilot study. Focus group discussions (FGDs) were conducted as the pilot study to generate a theoretical basis to determine the issues and questions for a larger survey study of internet access among MSEs in Indonesia. The goal was to find common problems related to internet access. The FGDs were the first step in exploring the internet access problems among Indonesian MSEs and obtaining field information as the preliminary data for the next study.

Six focus group discussions with thirty-two MSE entrepreneurs were conducted to identify and explore the different phases of internet access among Indonesian MSEs. The idea was to gain actual information related to the problems and conditions of the use of the internet for businesses in Indonesia. Focus group discussions are a useful method to explore a certain topic as well as obtain information as the basis for the next stage of research and for developing questionnaires (Kelboro & Stellmacher, 2015; Zander et al., 2013). This method was chosen because it provides the benefits of having the opportunity to build openness and trust and a better understanding of the informant's perceptions, attitudes, and experiences. The focus groups allowed the researchers and informants to conduct intensive discussions to obtain more information and more deeply explore the problems related to internet access at the business level. Through focus groups, information can be gathered quickly and constructively from the participants with various backgrounds. The main purpose was to unravel the perceptions, opinions, attitudes, motivations, knowledge, problems, and expectations of changes from the participants related to internet access for their businesses. FGDs are also effective for generating ideas, more in-depth research, and cross-checking other data sources.

3.4.1 Sample

Focus groups with entrepreneurs as the participants were conducted to explore and uncover factors affecting opinion, behavior, and motivation (Krueger & Casey, 2009). By using this method, ideas were expected to emerge from the groups. The participants of the focus groups were selected

with the help of the Telkom Community Development Center (CDC). Telkom is the only state-owned company engaging in the provision of telecommunication and network services in Indonesia. Telkom has two primary responsibilities: the first is to increase profitability to improve state welfare, and the second is to maintain social and environmental responsibility. Telkom's social responsibility is implemented through community and ecological empowerment programs in the Telkom CDC unit. One of the Telkom CDC programs is a national program aiming to accelerate poverty alleviation through the development of community self-reliance. Each year, the Telkom CDC provides financial support for MSE entrepreneurs to develop their businesses. Each of the MSE entrepreneurs was invited to one of the focus group sessions.

Forty-five MSE entrepreneurs who joined the Telkom CDC's program during the period of January-March 2014 were invited to participate in the focus groups. Forty-five invitation letters were sent two weeks before the planned focus group discussions. Confirmations were made by phone, and the participants could choose the date and time of their participation. Thirty-two out of forty-five participants joined the focus groups, while the other thirteen canceled their involvement for several reasons, such as sudden personal matters, illnesses, or business obligations. Among those thirty-two entrepreneurs, ten were engaged in fashion businesses, ten ran culinary businesses, seven were involved in household appliance businesses, and five were in the field of services. The list of the participants is detailed in Table 3.1.

Table 3. 1 List of the Participants

#	Age	Industry	#	Age	Industry
<i>Session 1</i>			<i>Session 4</i>		
1	48	electrical equipment	17	38	culinary
2	52	fashion	18	48	fashion
3	55	fashion	19	54	fashion
4	44	fashion	20	43	culinary
<i>Session 2</i>			<i>Session 5</i>		
5	49	culinary	21	43	fashion
6	38	party supplier	22	45	household appliances

7	45	fashion	23	37	car rental
8	42	household appliances	24	44	culinary
9	49	household appliances	25	43	courses
10	50	fashion	26	45	culinary
11	42	culinary	27	50	electrical equipment
12	36	culinary	28	40	culinary
<i>Session 3</i>			<i>Session 6</i>		
13	45	fashion	29	43	fashion
14	51	culinary	30	45	household appliances
15	45	household appliances	31	46	culinary
16	43	household appliances	32	43	household appliances

Six sessions with a duration of approximately two hours each were scheduled in August 2014. Each session was attended by a minimum of two participants and a maximum of eight participants plus three assistants as a moderator, an observer, and one other person responsible for documentation.

3.3.2 Procedure

Each focus group was guided by one researcher. The number of participants was limited to allow each individual to have the opportunity to express their opinions and to make it possible to obtain enough views from various group members. Limited participants in each group could create a relatively more adequate condition for discussing and exploring the problems.

On the days of the focus group discussions, participants were gathered in a room located at Telkom University equipped with a table and eight chairs. Nametags, papers, and pens were prepared for each participant. At the beginning of each session, the participants were required to fill in the attendance list and to take predetermined seats. The focus group discussions were recorded by video according to the participants' permission. Before the actual focus group discussions were started, as a starting point, the researcher asked some questions of every participant. A list of items was

prepared as a guideline. Once the focus groups began, the researcher used an opening question and continued with standard procedures. The questions covered all four phases of access: motivational internet access, material internet access, skill access, and internet usage access.

The researcher tried to obtain maximum interaction among the participants by asking open questions about their ICT skills and internet usage. The participants could freely answer the questions based on their perspectives as entrepreneurs. One assistant researcher observed the discussions and noted the answers from the participants, while another assistant ensured proper documentation by video recording each discussion session. All focus group sessions were fully transcribed for analysis purposes.

3.3.3 Data Analysis

To maintain consistency of the coding process and ensure the reliability (stability, reproducibility, and accuracy) of the content analysis, both the researcher and one assistant coded the first focus group transcript. They discussed disagreements and repeated the coding process for the remaining focus group transcripts. From the first group of participants, the similarity obtained was 71%. The second group with eight FGD participants reached 83% similarity. The third group of six participants had 73% similarity, while the fourth group, also with six participants, had 75% similarity. The fifth group, consisting of four participants, attained 70% similarity. Finally, the sixth group, with four participants, obtained 73% similarity. The average total agreement was 74%. The measurement value of the agreement results shows that the research data consistency is acceptable as the first exploratory study with quantitative data.

This study uses Cohen's kappa to measure the agreement between two raters who classify N items into C mutually exclusive categories. Put simply, Cohen's kappa is a quantitative measurement of reliability for two raters who are rating the same thing, predicting how often both raters may agree by chance. The details of the reliability scores are shown in Table 3.2.

Based on Table 3.2, it can be concluded that 74% of the average total agreement in this study means that the research data consistency data are very good for the first exploratory study with quantitative data.

Table 3. 2 Cohen’s Kappa Coefficient

Value of K	Strength of Agreement
<0,20	Poor
0,21-0,40	Fair
0,41-0,60	Moderate
0,61-0,80	Good
>0,81	Very Good

3.5 Results

There are four key themes structuring the focus group discussions: motivation, material, skills, and access usage. The results of the discussions related to each key theme are discussed below.

Motivational Internet Access

Four out of thirty-two participants were unmotivated to use internet access for different reasons. Participant 1 emphasized that he did not yet dare to use it because he did not know how to use the internet. Another two participants were disinterested because they did not know how to use the internet:

Participant 26: *“I do not use the internet because I lack technical knowledge.”* Participant 3 argued that face-to-face contact with clients is the better way to do business. Participant 13 was not motivated to use the internet because he did not feel the need to use it in his business.

Participant 13: *“So far, I do not use the internet because my market share is only in the neighborhood, and it is a lot cheaper to do in-person contact with the customers than use the internet.”* Participant 24: *“I have not used the internet because the customers always come in person and my market share is still limited.”* Their market is limited to the area around their business location, so there is no need for physical access. This statement is also

emphasized by this quote from Participant 18: *“Until now, my customers only come to my store. My market is limited and only covers the Soreang area.”*

In general, twenty-eight of the participants were motivated to use the internet for business purposes. Their main motivations were to communicate with clients, send and receive orders through email and messaging applications, and search for information related to their businesses. Participant 17: *“I use the internet to communicate with my business partners and to find information about competitors.”* Participant 9: *“I use the internet because some of my clients live in other cities, so I need the internet to send documents through email.”*

Material Internet Access

Table 3. 3 Device ownership

Participant	Material access		
	Smartphone	Laptop	Desktop
1	V	-	-
2	V	-	-
3	V	-	-
4	V	V	-
5	V	V	-
6	V	-	-
7	V	V	-
8	V	V	-
9	V	V	-
10	V	-	-
11	V	-	-
12	V	V	-
13	V	-	-
14	V	V	-
15	V	-	-
16	V	V	-
17	V	V	V
18	V	V	-
19	V	V	V
20	V	V	-

21	V	V	-
22	V	V	-
23	V	-	-
24	V	-	-
25	V	-	-
26	V	-	-
27	V	-	-
28	V	-	-
29	V	V	-
30	V	V	-
31	V	V	-
32	V	V	-

Material internet access in this study includes having an internet connection, hardware, and software. Twenty-eight out of thirty-two participants already had an internet connection. Fourteen participants only used smartphones as the hardware for their internet connection, while sixteen participants used smartphones and laptops. The other two participants used smartphones, laptops, and desktops. Table 3.2 summarizes the description of the participants regarding material internet access.

Eight participants explained their obstacles in using the internet, such as bad internet connections, especially in the rural area of Bandung, which is one of the barriers that would be faced by MSE entrepreneurs while attempting to use the internet. Participant 1: *“I do not use the internet because the connection is not supported by an adequate network.”* Participant 10: *“I have been using a smartphone, but I have never used the internet for my business.”* Participant 24: *“I have not used the internet. I have only ever used my son’s laptop to set up an email account. But after that, I never used it again because I am not technology savvy.”*

Four participants did not realize that they had used the internet when using BBM for communicating with other people. Participant 28: *“So far, I have not started using the internet for my business yet, but I have been using BBM and WhatsApp.”*

Internet Skill Access

Internet skill access includes operational skills (technical skills to master digital media), information skills (the ability to search, select, and evaluate information in digital media), communication skills (the ability to communicate in digital media), and content creation skills (the ability to produce content). Internet skill access applies to general internet users and goes beyond the technicalities of internet usage by taking into account the basic skills required to use the internet and the skills necessary to understand and use online content.

Operational Skills Access

Two participants said that they lacked internet skills because they barely used the internet, while six participants claimed to be struggling with basic operational skills. Participant 1: *“Frankly, I still have no idea how to use the internet. I have never tried to use Google.”* Participant 11: *“I do not have enough internet capabilities, and I rarely use email because my child handles the account.”*

Twelve participants possessed sufficient levels of operational skills. They were capable of using the internet via smartphones, laptops, desktops, or tablets.

Information Skills Access

One participant mentioned that he uses the internet to open documents and search for information. Six participants said they use the internet for receiving emails. Four participants used the internet to open documents, search for information, and receive and send emails. One participant stated that they did all those activities via the internet, including ordering products online. Participant 32: *“For the internet, I often use it to search for information about menus and download and save it for my business purposes.”* Participant 18: *“I often browse the internet to search for information on fashion style and references for product innovation.”*

Regarding information skills, most participants claimed they were capable of obtaining information via the internet. Eight out of thirty-two

participants clearly stated that they lacked the individual skills for finding information online. They said they do not have sufficient internet information skills and cannot use the internet to find online information. Participant 23: *“The internet is very important to find information about new designs for my products, and this information has its own influences on the customers. But I need proficient ability to use the internet.”* Participant 22: *“I use the internet to find references for my business. But I need the ability to know which information is right and which is wrong.”*

Communication Skills Access

Six out of thirty-two participants seemed to have sufficient levels of internet communication skills. Internet communication skills are the reason participants use the internet for their business. Participant 29: *“I use the internet, so I think communicating with the customers become easier.”* Participant 5: *“I use the internet for two-way communication because communication is needed to answer consumers or suppliers, have discussions with partners and competitors, and make offers in business.”*

Content Creation Skills

Of thirty-two participants, only four claimed that they needed the skills to create internet content. Eighteen out of thirty-two participants did not specify the need to create internet content. Participant 22: *“I use the internet not only to browse but also to update my internet content. I have utilized ICTs such as websites, Facebook, Twitter, fan pages, etc. I plan to have a master program and e-commerce platforms for my family business in the future. That is my current plan.”* Participant 19: *“I open the web for all business purposes, such as product sales, spreading information about my products, and advertising. I have also been doing two-way communication via my own website.”* Participant 30: *“I use the internet for product promotion, but my abilities are limited. So, I need more practice and training to do internet marketing.”*

Internet Usage Access

Eighteen participants described their personal and business activities when using the internet, nine out of thirty-two participants had not yet used the internet, and five participants claimed to have used the internet. Participant 5: *“So far, I always use the internet for social media because social media is a tool to promote my products.”*

Among the twenty-eight participants who used the internet, there was a small group of six participants who scarcely used it or only tried it once. The hardware they use were desktops, laptops, and smartphones. These six participants did not use social media and only barely used Blackberry messenger (BBM). Participant 25: *“I have not used the internet yet; I only tried using BBM once to contact my friends.”*

Personal Purposes

Of thirty-two participants, four participants claimed to use the internet to communicate and search for information. For them, the internet's primary function was for social activities, such as emailing, updating, uploading personal files for friends and relatives, obtaining social and global information, transferring money, and checking balances in their bank accounts. Eighteen out of thirty-two participants did not specify the use of the internet for personal purposes. Participant 22: *“I use the internet for instant communication with my friends.”* Participant 25: *“I use the internet to find information for my daily needs.”*

Business Purposes

Fourteen out of thirty-two participants said they use the internet for business purposes, such as emails for ordering goods and sending files or social media to send notifications to partners and consumers. All participants had Facebook, Twitter, and/or Instagram. They also used internet banking for monetary transactions and BBM for instant messaging. Participant 17: *“I use social media because currently, it is my main weapon for marketing my products.”*

The frequency of using the internet for business and social purposes is related to how many hours participants spend using the internet per day. Internet usage for business purposes is classified into four categories: business communication, business information, business sales, and business marketing.

Only three out of thirty-two participants used the internet to expand their business networks, such as finding buyers and customers. They have also used the internet to build business partnerships through online markets, such as Tokopedia and Bukalapak, which are two of the largest e-commerce platforms in Indonesia. Their main obstacle seemed to be the lack of knowledge about additional potential benefits the internet may offer.

3.6 Conclusions

This preliminary study aims to explore internet access usage among Indonesian MSEs through focus group discussions with thirty-two MSE entrepreneurs as participants. Internet access is considered a sequential process that includes internet motivation, access to materials and skills, and determining the purpose of internet usage. The participants of this focus group are generally categorized into two groups: users and non-users. Users are participants who have used the internet for business purposes, while non-users are those who have not yet used the internet for business purposes. Each group will receive different surveys because this preliminary study reveals the substantial differences in internet access stages between the two groups.

Regarding motivational access, 12.5% of the participants were unmotivated to use the internet for their business because they did not understand the additional support the internet could offer for their business performance or because they did not have sufficient knowledge and skills to use the internet. A total of 87.5% of the participants used the internet for their businesses and claimed that they have the knowledge and skills for using the internet and use it because they realize the additional advantages of the internet for their businesses.

Twenty-five% of participants revealed that they encountered problems in material access, such as limited network coverage, expensive connection fees, limited capital for internet technology investment, and limited physical access.

Some of the participants also claimed that they lacked the skills needed to use the internet. Although most of the participants were motivated to use the internet in their businesses, they did not possess adequate skills or had employees with internet skills, even at the basic internet operational level. This lack of skills makes it difficult for them to find information, create internet content or market their products via the internet.

Less than 50% of the participants had used the internet for business purposes. They used the internet to expand their businesses, such as finding new customers or building partnerships. Mainly, they use Blackberry Messengers for communicating with other parties, receiving and sending emails, and managing business transactions.

The preliminary study revealed substantial unused potential and much room for improvement among Indonesian MSEs. The internet can support MSE growth, so policies should enhance the benefits of the internet for MSEs. MSE entrepreneurs also need to improve their skills and abilities in internet technology. Internet communication skills, content creation skills, and internet marketing skills can help MSE entrepreneurs make innovations in their businesses and influence customer decisions.

3.7 *Limitations and Future Research*

The qualitative approach of this study is limited by focus group samples, whether in numbers or various backgrounds of the participants. This study is only intended to list the most evident and spontaneous reactions from MSE entrepreneurs by using open questions to maximize discussions and engagement among participants.

To get more accurate results and effective solutions, it is necessary for future research to conduct a larger quantitative study with a substantial number of entrepreneurs from different areas of MSEs. Future research can

quantitatively explore determinants factors influencing internet access or measure the internet skills among Indonesian MSEs.

CHAPTER 4

*INTERNET ACCESS AMONG
THE MSE INTERNET USER POPULATION*

CHAPTER 4.

INTERNET ACCESS AMONG THE MSE INTERNET USER POPULATION

4.1 Introduction

As mentioned in Chapter 3, internet access is considered a sequential process that includes motivation, access to materials, skills, and the purposes of internet usage. Based on the pilot study discussed in the prior chapter, the focus group participants can be divided into two categories: MSE entrepreneurs who have been using the internet for their businesses and non-users who have not yet used the internet for their businesses. In this explanatory follow-up study, each category is treated in a separate (survey) study as the pilot revealed substantial differences in the factors and internet access stages of each group. This chapter will further study the internet access stages among the user group, and the non-user group will be discussed in the next chapter. Again, we use Van Dijk's (2005) resources and appropriation theory to analyze the internet access stages among Indonesian MSE entrepreneurs. Motivation, material, skills, and internet usage will be utilized and adapted to survey internet access among Indonesian MSE entrepreneurs. This chapter aims to explore the correlation between the stages of internet access and to determine how much each stage influences the use of the internet.

4.2 Theory and Proposed Model

4.2.1 Motivational Internet Access

The rapid growth of the internet, both in technology and the number of users, boosts its role in many aspects, including in the business world. One of the popular uses of the internet in business areas is for online selling and buying. The internet offers advantages that cannot be obtained from conventional business transactions, such as wider market reach, easier and more convenient transactions, and so on. The massive use of the internet for

business has resulted in some changes in the market and business environment. Companies, including MSEs, need to adopt this technology to keep pace with the ever-changing market. Unfortunately, based on the results of a previous preliminary study, MSEs in Indonesia lack the motivation to use the internet because they have not realized its benefits for their businesses. MSE entrepreneurs need to be motivated to use the internet so that they can improve their businesses.

As described by Caniels et al. (2015), the motivation that arises from within a person (intrinsic motivation) is positively and significantly related to perceived benefits (extrinsic motivation). In the case of internet usage in businesses, intrinsic motivation can be the perceived comfort of using the internet while extrinsic motivation is the need to reach the market and interact with business partners. Another extrinsic motivation for using the internet for business purposes is the benefits and ease offered by the internet (Davis, 1989; Davis & Warshaw, 1989). MSE entrepreneurs who start using the internet in their businesses can better develop their businesses (Soegoto & Akbar, 2018).

The pilot study discussed in Chapter 3 suggests that MSE entrepreneurs need to increase their awareness about the importance and benefits of using the internet for their businesses. They also need to improve their internet skills in using the internet from various devices. Internet access will enhance their business in the form of increasing profitability, productivity, and sales.

4.2.2 Material Internet Access

Material internet access in this study is developed based on Van Dijk's research (2005). Van Dijk (2005) stated that material internet access not only involves physical access to devices and connections but also involves the connection quality and number of devices. Devices can be used for both business and personal/social purposes, and the difference is in the time spent on business and personal communications (Melchioly & Sæbø, 2010). Basic physical access among the internet user population is already assumed. The importance of material internet access is also supported by previous

studies from Heeks (2010) and Kotelnokov (2007) for the Asia Pacific region; Botelho and Alves (2007) for Latin America; Nielinger (2003) for India, Mozambique, and Tanzania; Molony (2005) for Tanzania; Ismail et al., (2011) for South Africa; and Lal (2007) for India. Most of them have found that relatively inexpensive mobile usage is popular among MSE companies and has positive impacts on their businesses (Mbuyisa & Leonard, 2016). For Indonesia, according to APJII (2017), mobile phones dominate internet use and are followed by users who access the internet via smartphones and laptops (APJII, 2017). Mobile phones are used because they ease the process of keeping in contact with new customers, suppliers, or clients. Mobile phone usage in business is effective, especially for business owners with limited economic resources, because it can cover a wider network area, reduce costs, and save time. However, the cost of making calls remains a problem that prevents MSEs, especially MSEs with less financial capital from using mobile phones for their businesses (Melchioly & Sæbø, 2010).

4.2.3 Internet Skill Access

The concept of internet skill access in this study is built upon the framework from Van Dijk and Van Deursen (2005), as described in Chapter 2. Previous research has shown that MSE entrepreneurs still lack digital capabilities and management skills (Jafarnejad et al., 2013). This study does not use the entire framework of six skills from Van Dijk and Van Deursen (2005) but only uses the specific skills factors relevant to the focus of this study, namely, operational skills (digital) and business skills (management). Operational skills can be defined as basic computer and internet skills such as operations; processing; modification; access; and computer software, hardware, and internet devices use (Hashim, 2007). Operational skills are also related to the technical skills for directing digital media and formal skills including browsing and navigation. Business skills are associated with other content-related digital skills that are parts of Van Dijk and Van Deursen's framework, namely, information skills (including the ability to search, select, and evaluate information in digital media), communication skills (related to the ability to communicate over the internet), and content creation skills (the

ability to produce internet content). Business skills are a specific strategic skill and the last content-related skill in Van Dijk and Van Deursen's framework. Business skills are the ability to use the internet as a means for finding a better position in the market, providing better services, and gaining new customers.

The necessary business skills for MSE entrepreneurs are planning and executing conceptions; distribution; and setting prices for ideas, goods, and services (El-Gohary, 2012). In addition, internet marketing, as a part of business skills, can help MSEs gain new customers, provide services to customers, and maintain customer relationships (Mokhtar, 2015). The activities implementing internet marketing include search engine marketing, interactive advertising, e-mail marketing, cooperative agreements with other websites, customer service, and customer relationship maintenance. Therefore, strategic skills, which this study states as business skills, are critical in internet usage.

4.2.4 Internet Usage Access

Internet usage access in this study was also based on the research from Van Dijk (2005), specifying it according to business levels. Past research has suggested that MSEs use the internet to improve their competitiveness (Hashim, 2007). By using the internet, MSEs will have higher competitive advantages to overcome market barriers and build a global business (Quelch and Klein, 1996). Martinez and Mora-Rivera (2019) concluded that the general characteristics of internet users are people of productive age with steady economic status and familiarity with digital technologies. Internet usage patterns (searching for information, communication, entertainment, social networks, e-commerce, and e-government) differ significantly based on the user's demographic characteristics such as their gender, age, educational level, occupation, and geographic location. This condition causes a digital divide between those who know how to use and take advantage of the internet and those who do not.

According to other research, internet usage contributes to an entrepreneur's ability to quickly obtain information related to the market so

they can take advantage and save time (Sijabat, 2007; Singh, 2012). Internet usage is also cost-effective as it reduces operational costs, especially marketing, distribution, and management costs (Behrendorff & Goldsworthy, 2009; Singh, 2012).

The Indonesian Ministry of Creative Economy's data about internet usage for business purposes in Indonesia in 2017 reveal that the most common uses of the internet for businesses is for sending e-mails (82.0%), searching for business information (76.3%) and serving customers (64.6%). This study seeks to find the relation between different types of internet access in business. Motivational internet access, as the first level of the divide, is expected to facilitate the acquisition of material internet access and the diverse use of the internet. Material internet access, which is the number of devices used by MSE entrepreneurs to access the internet, influences not only the second-level divide (internet skill access and usage skills) but also directly influences the third-level divide (business outcomes). Based upon prior research and reasoning, this study proposed an internet access model, as shown in Figure 4.1. The hypothesis derived for this study are described as follows:

H1: Motivational internet access influences material internet access

H2: Material internet access influences internet skill access

H3: Internet skill access influences internet usage access

H4: Internet usage access influences business outcomes

4.2.5 Determinants of Internet Access

Sociodemographic factors will be part of this research. Gender is suspected to play an important role for MSE entrepreneurs while running their businesses. Some studies have found that men tend to have a more positive attitude toward technology and can be more stereotypical about people's ability to use them (Van Deursen & Van Dijk, 2015). Van Deursen and Van Dijk (2015) explained that gender inequality has lessened in many developed countries, but men still spend more time on the internet than women as a result of technology exposure and job-related requirements (Cooper 2006; Cotten & Jelenewicz 2006; Katz & Rice 2002; Meraz 2008;

Wasserman & Richmond- Abbott 2005; Zillien & Hargittai 2009). Research has proven that there are significant differences in online activities between men and women (Meraz 2008; Van Deursen & Van Dijk 2014; Van Deursen, Van Dijk, & Klooster, 2015; Zillien & Hargittai 2009). Other studies related to MSEs show that gender has a significant effect on MSEs' earned income, and MSEs with a strong male influence earn more than those with a dominant female influence (Nainggolan, 2016).

Gender differences in socioeconomic networks affect business outcomes. Women are likely to have weak networks and resources. Women are also given less financing, which hinders them moving into microbusinesses. Gender stereotypes are still widely accepted by communities, and they affect women's results and efforts in businesses (Kim & Sherraden, 2014). The number of male entrepreneurs is higher than that of women. In the United States, 14% of business owners are male, while only 8% are women. In Europe, 19% of entrepreneurs are men, while 10% are women (Bengtsson et al., 2012). Women's participation in business establishments is also lower than that of men. Men own approximately 75% of businesses while the other 25% of businesses are owned by women (Indiworo, 2016).

H5: Gender influences motivational internet access (H5a), material internet access (H5b), internet skill access (H5c), internet usage access (H5d), and business outcomes (H5e).

Age is another important predictor of internet use. Elders are more likely to experience the lowest levels of internet behavior (Marquie, Jourdan-Boddarert & Huet, 2002) and the least likely to use digital devices (Zickhur & Madden, 2012). Age has a negative impact on internet skills related to media and content due to its conditional nature (Van Deursen, Van Dijk & Peters, 2011). Due to their exposure and training, peer use, and greater convenience with new technologies, younger people show the highest frequency and diversity of internet use (Chen & Wellman, 2004; Eynon, 2009; Katz & Rice, 2002; Van Deursen & Van Dijk, 2012; Zillien & Hargittai, 2009).

H6: Age influences motivational internet access (H6a), material internet access (H6b), internet skill access (H6c); internet usage access (H6d), and business outcomes (H6e).

Kumalasari and Haryono (2019) stated that education level is one of the elements affecting a successful business because education is the process of developing managerial capacities such as confidence, psychology, knowledge and skills. In accordance with Kumalasari and Haryono (2019), Takahashi (2009) also showed that one of the success factors in small businesses is the owner's education level because the education level can help business owners manage and survive complex environments and maintain profitability. According to Monitor (2010), education increases an individual's confidence to start a business and enhances the business's probability of surviving beyond the startup phase. Musdhalifah and Mintarsih (2020) also suggested that business scale, business age, and education have significant effects on the use of information in MMSEs. Education is also the most consistent determinant in diverse digital research (DiMaggio et al., 2004; Katz & Rice 2002; Robinson, Dimaggio, & Hargittai 2003; Van Dijk 2005). As stated by Van Deursen & Van Dijk (2015), a positive relationship between educational attainment and internet use is the result of greater awareness, better training, and a higher ability to evaluate content (Rice, MacCreadie & Chang 2001). People with lower education levels have less access to materials and internet skills (Hargittai, 2002; Van Dijk, 2005; Van Deursen & Van Dijk, 2011). They also gain fewer advantages from internet usage (Hargittai & Hinnant 2008; Livingstone & Helsper 2007; Van Deursen & Van Dijk 2014; Van Deursen, Van Dijk, & Ten Klooster, 2015).

H7: Education level influences motivational internet access (H7a), material internet access (H7b), internet skill access (H7c), internet usage access (H7d), and business outcomes (H7e).

Another important factor for an MMSE is the business sector in which it operates. A report from the Indonesian Ministry of Creative Economy and

the Central Statistics Agency in 2017 revealed that most MMSE owners are male (77%), aged between 40 and 49 (31%), have completed senior high school (37%) and are working in the food industry. In addition to demographic factors, geographic area also influences MSE entrepreneurs in running their businesses. The National Economic Census in 2017 showed that 60.7% of MMSEs and LEs in Indonesia are located in Java, which is the most populated island and the center of economic activities, particularly the manufacturing industry, trade, finance, construction, agriculture, and services. Based on those previous studies, this research predicts sociodemographic factors as determinants of the four access types. The conceptual model in Figure 4.1 shows the hypothesized relationships between access types and the explanatory variables.

H8: The business sector influences motivational internet access (H8a), material internet access (H8b), internet skill access (H8c), internet usage access (H8d), and business outcomes (H8e).

H9: Business geographic location influences motivational internet access (H9a), material internet access (H9b), internet skill access (H9c), internet usage access (H9d), and business outcomes (H9e).

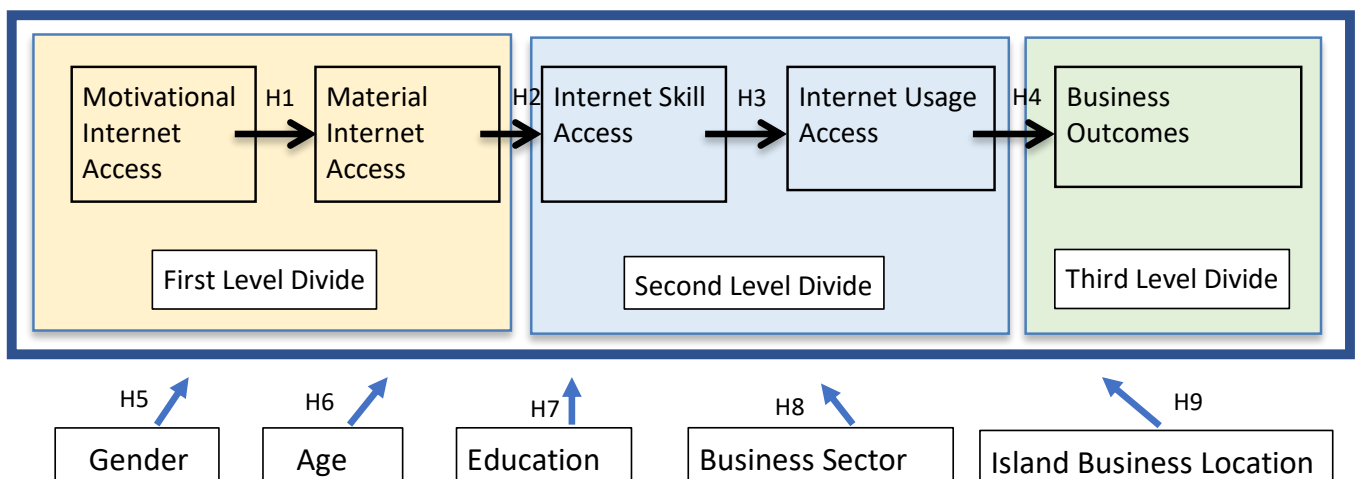


Figure 4. 1 The Relationship Between Access Types and Determinant Variables

4.3 Method

Explorative research is the approach suitable for this study because the topic is new and challenging to determine the direction in which the research would lead. Van Dijk and Van Deursen tested the existing model with respondents in the Netherlands. The model and background theory were also tested in several national surveys in the Netherlands and UK between 2010 and 2015. The data were fit using causal path analysis and processed using the statistical sequential equation modeling method (Van Deursen et al. 2017; Van Deursen and Van Dijk 2015; Van Deursen and Van Dijk 2018).

Explorative research aims to describe a situation and provide a preview of the problems experienced by researchers. This study is conducted with the purpose of providing an overview of internet access among Indonesian MSEs from two perspectives, namely, users and non-users. Users are Indonesian MSEs that have been employing internet technology in their businesses, and non-users are Indonesian MSEs that have not yet used the internet for their businesses. This information will help researchers establish problems and formulate hypotheses. It will also help the government and other decision-makers construct relevant policies.

The proposed model in this study is a modification of Van Dijk's (2005) model. The model has been specified according to the Indonesian MSE business context due to differences in the country's socioeconomic conditions and research target level (organizational level). The model by Van Dijk and Van Deursen is not used as a testing source but as research guideline because the specifications need to be explored first regardless of whether the results are valid for this domain.

The first stage in this study is explorative research conducted by performing a literature study and analyzing secondary data from various sources. The results were used as input for the focus groups and questionnaire preparations. The literature study consisted of scientific journals obtained from the internet, magazine articles, and related websites. This study used a quantitative method, a research approach based on predetermined samples, for the focus group discussion. The data were

collected by using research instruments and analyzed by using statistical methods. The analysis was conducted to determine factors considered the influencing variables in all phases of internet access among Indonesian MSEs. These variables construct the framework for exploratory research on internet access. The variables gathered are material internet access, internet skill access, and internet usage access. Furthermore, exploratory research also searches for other factors that affect the internet accessibility among Indonesian MSE entrepreneurs. Some of the additional factors are intrinsic and extrinsic motivations, the types of material internet access, the types of internet skill access including online business skills, and the types of internet business usage.

4.3.1 Sample

The business sector in Indonesia is dominated by micro, small, and medium enterprises (MSEs). As stated in Chapter 1 and the National Socioeconomic Census in 2018, the data gathered from the Economic Survey (Susenas) and Village Potential Data Collection (Podes) and the secondary data from the Ministry of Communication and Information Technology (Kemenkominfo) and telecommunications providers show that 69.4% of business in Indonesia has been using the internet, but only 6% of MMSEs have used the internet. Table 4.1 shows the population and proportion of internet users and non-users among Indonesian MMSEs based on the economic census data in 2018. Indonesia’s economic census defined the internet using MSEs as MSEs that use the internet for marketing purposes or non-marketing purposes related to their businesses such as communication with business partners or looking for information.

Table 4. 1 Indonesian MSEs Population

	%	Total Population
Indonesian MSEs	100	64.133.354
Internet User	6	3.848.002
Non-Internet User	94	60.285.352

Source: Economic Census (2018)

The sample for this study was gathered through several activities participated in by MMSEs from several regions in Indonesia. The sample size in this study refers to Slovin's formula (Sevilla, 2007) with a 95% confidence level or 5% margin of error. According to the economic census in 2018, 6% of MMSEs have used the internet, which means that the total population of internet users among MMSEs is 3.848.002 units. The following is the calculation of Slovin's formula to determine the minimum sample needed for this study.

$$n = N / (1 + (N \times e^2))$$

where

n = sample size

N = total population

E = margin of error

Therefore,

$$n = 3.848.002 / (1 + (3.848.002 \times 0,05^2))$$

$$n = 3.848.002 / (1 + (3.848.002 \times 0,0025))$$

$$n = 3.848.002 / (1 + 9620,005)$$

$$n = 3.848.002 / 9621,005$$

$$n = 399,96$$

Hence, the minimum sample for this study is 400 responding MSEs who have been using the internet for their businesses.

The type of purpose sampling used in this study was a convenience sample (nonrandom). At the beginning, questionnaires were created using Google Forms and distributed through WhatsApp, but the responses were insufficient. The next attempt sought to obtain respondents by visiting special events, communities, and training or seminars for MSE entrepreneurs. There were two types of questionnaires provided: one questionnaire for MSEs that have been using the internet and the other questionnaire for MSEs that have not yet used the internet in their businesses. The researchers collaborated with the event committees and used attendance lists to ensure that the participants completed and returned

the questionnaires. Distributing the questionnaires through workshops and seminars was easier than addressing them via post or telephone. There was also a larger probability of contacting internet user MSEs, which was only 6% of the population.

The demographic characteristics of the respondents included gender, age, and education level. The business-related part included the last job before starting a business, business sector, net value, and annual sales. All the characteristics were expected to provide a relatively clear picture of the MSE respondents and their relation to the problems and objectives of the study. Table 4.2 presents the statistics on the total questionnaires distributed and returned.

Table 4. 2 Results of Collecting and Returning the Questionnaire

Number of questionnaires distributed	650
Number of questionnaires that were not returned	85
Number of questionnaires returned	565
Number pf questionnaires that were aborted	2
Questionnaire used	563

From 565 returned questionnaires, two were omitted due to incomplete data. Therefore, the total number of questionnaires used for this study was 563. Based on Slovin’s formula, the minimum number of respondents for this study was 400, meaning that the number of usable questionnaires obtained was sufficient. Table 4.3 summarizes the characteristics of the 563 respondents for this study.

There were more male respondents than female respondents (69.4%). This result is aligned with the data from the Ministry of Creative Economy in 2017 stating that the majority of MSE entrepreneurs in Indonesia are male. The average age of the respondents was below 29 years old. Furthermore, the data from the Ministry of Creative Economy state that the largest age category of MSE entrepreneurs is 30-39 years, meaning that most internet user MSEs come from the younger generation under 29 years old. The average respondents hold bachelor’s degrees while the MSE population

is dominated by high school graduates. Moreover, MSE entrepreneurs with higher education levels are most likely to adopt the internet in their businesses. Most of the respondents come from culinary business, which is also in accordance with the data from the Ministry of Creative Economy. Approximately 6% of internet user MSEs are dominated by the young age group with a relatively higher education level.

Table 4. 3 Characteristics of the Sample and Population

Variable	Internet User Sample	%	Population %
Gender			
Male	391	69.4	77.4
Female	172	30.6	22.6
Age			
≤29 years old	319	56.6	11
30 – 39 years old	149	26.2	26.9
>40 years old	32	17.2	62.1
Education Level			
Elementary School	0	0	6.2
Junior School	40	7.0	6.8
Senior High School/ Vocational High School	14	2.4	37.2
Diploma Program	507	89.8	7.2
Bachelor	2	0.8	36.1
Master			6.5
Business Sector			
Fashion	158	28.0	18.2
Culinary	150	26.6	41.7
Service	127	22.6	17.6
Design/craft	47	8.4	15.7
Others	81	14.0	7
Business Experience			
1-2 Years	286	50.8	-
3-5 Years	229	40.6	-
6-9 years	45	8.0	-
Table 4.3 continued			
>10 Years	3	0.6	-
Number of employees			

MIE	537	95.4	-
SE	26	4.6	-
ME	0	0.0	-
Number of Employes (In Last Two Years)			
Decreased	8	1.4	-
Stagnant	500	88.8	-
Increased	55	9.8	-
Annual Sales			
≤Rp 300M	553	98.2	-
>Rp 300M - Rp 2.500M	5	0.8	-
>Rp 2.500M - Rp 50.000M	5	1.0	-
>Rp50.000M			
Island			
Bali	41	7.2	5.7
Jawa	387	68.8	60.7
Kalimantan	12	2.2	5.1
Sumatera	121	21.8	18.6

From the data of the Ministry of Creative Economy in 2017, most of the MSE population is from the 40-49-year-old group, has a bachelor's degree, come from food and fashion industries and have 1-4 employees. Most of the respondents in this study have the same demographic characteristics as the MSE population. The difference lies in the age group. The majority of internet user MSEs come from the age group under 29 years old. Unfortunately, not all regions or islands of Indonesia were part of the sample. These results imply that young and highly educated male entrepreneurs in urban regions have more awareness about the benefits of the internet for their businesses and are more interested in attending seminars and training to improve their abilities. Thus, this convenience sample is not representative of the population of Indonesian MSEs but is still acceptable for exploratory research, which might suggest that internet access is even less popular among MSEs in rural areas in Indonesia.

Table 4. 4 Operational and Descriptive Statistics

VARIABLE	DIMENSION	INDEX	INDICATORS	Frequency				M
				1	2	3	4	
Motivational Internet Access	Motivation	Mot1	What is your opinion about Internet	11	21	514	17	2.95
	Intrinsic (MotIn)	Mot2	How important is it to use the Internet personally	7	23	513	20	2.97
		Mot3	how much you need to use the Internet	12	98	420	33	2.84
	Motivation	Mot4	I use the Internet because it can reach all areas easily	11	22	513	17	2.95
	Extrinsic (MotEx)	Mot5	I use the Internet because with the Internet my business can reduce cost effectively	6	23	512	22	2.98
		Mot6	I use the Internet because it increases productivity	12	99	419	33	2.84
		Mot7	I use the Internet because with the Internet my business can get more networking opportunities	11	22	513	17	2.95
		Mot8	I use the Internet because the Internet help to increase the performance of my company	7	24	512	20	2.97
		Mot9	I use the Internet for my business to stay in touch with customers & business partners	12	98	419	34	2.84
		Mot10	I use the Internet because the Internet security system is safe	11	97	421	34	2.85
Material Internet Access	Number of Devices (NoD)	NoD1	I usually use more than one smartphone in my daily activities	0	18	521	24	3.01
	Connection Quality (CQ)	CQ1	I can access the Internet easily to support my work	11	20	515	17	2.96
		CQ2	In my opinion Internet connection cost is not expensive	6	23	514	20	2.97
Internet Skill Access		CQ3	In my opinion Internet access is easy to find	12	97	421	33	2.84
	Operational skills (OP)	OP1	I know how to connect to a WIFI network	4	25	513	21	2.98
		OP2	I know how to open a new tab in my browser	9	13	521	20	2.98
		OP3	I know how to open a Web address directly without using a search engine like Google	10	25	509	19	2.95
		OP4	I know how to turn on/turn off my computer or my mobile phone	8	9	529	17	2.99
		OP5	I know how to upload files	12	14	520	17	2.96
		OP6	I know how to adjust privacy settings	15	11	517	20	2.96
		OP7	I know how to download a file	8	13	523	19	2.98
		OP8	I know how to save a file	4	18	521	20	2.99
		OP9	I know how to complete online forms	14	10	522	17	2.96
		OP10	I know how to avoid computer & mobile phones viruses	7	14	522	20	2.99
	OP11	I know how to choose safe apps/software	8	14	521	20	2.98	

OP12	I know how to use shortcut keys (e.g., CTRL-C for copy, CTRL-S for save)	11	11	519	22	2.98
Online business skills (OB)						
OBS1	I know how to choose a delivery product system online	5	13	523	22	3.00
OBS2	I know how to provide a payment system online	11	10	517	25	2.99
OBS3	I know how to provide after-sales services online	9	15	519	20	2.98
OBS4	I know how to make an offer on a product online	11	14	515	23	2.98
OBS5	I know how to do online communication with the customer	11	11	522	19	2.98
OBS6	I know how to make product pricing through online information	9	14	520	20	2.98
OBS7	I know how to do online chatting with a customer	8	16	521	18	2.98
OBS8	I know different types of licenses applied to online content	13	14	516	20	2.96
OBS9	I know how to create publicity for my product online	12	14	520	17	2.96
OBS10	I know how to use the Internet to increase profit	12	17	516	18	2.96
OBS11	I know how to use SEO (Search Engine Optimization) to get more online visitor	14	10	521	18	2.96
OBS12	I know how to put a product up for online sale	5	14	524	20	2.99
OBS13	I know how to use the Internet to increase customer loyalty	13	15	515	20	2.96
Internet Usage Access						
Frequency (FR)	Time of internet per day for business	9	18	520	16	2.96
Communication Usage (CU)						
FR2	I use the Internet for chatting with business partners	14	18	506	25	2.96
FR3	I use the Internet to discuss business with partners	7	23	513	20	2.97
FR4	I use the Internet to respond to customer requests	14	15	517	17	2.95
Information Usage (IU)						
IU1	I use the Internet to look for the latest business information	14	14	516	19	2.96
IU2	I use the Internet to share information that I created for my business	12	13	521	17	2.96
Sales Usage (SU)						
SU1	I use the Internet to make an offer on a product (e.g., on Lazada, Tokopedia)	7	22	516	18	2.97
SU2	I use the Internet for product pricing	13	13	519	18	2.96
SU3	I use the Internet for comparing product pricing	9	26	507	21	2.96
Marketing Usage (MU)						
MU4	I use the Internet for business advertising	7	23	515	18	2.97
MU5	I use the Internet for product promotion	7	23	516	17	2.96
Relationship Outcomes (RO)						
RO1	I have more customers and business partners since I use the Internet	14	16	419	114	3.12
RO2	I have a more extensive network of customers and business partners since I use Internet	14	15	421	113	3.12

BU3	I have a better relationship with my customers and business partners since I use Internet	16	14	420	113	3.12
BU4	I use the Internet because customer and stakeholder satisfaction can be achieved better through the use of the Internet	14	17	419	113	3.12
BU5	I use the Internet because business opportunities can be achieved more.	7	25	418	113	3.13
BU6	I use the Internet because, in terms of attracting customers, it can be described as our business effectively.	7	23	442	91	3.10
BU7	I use the Internet because Online purchasing reduces company spending	9	26	415	113	3.12
BU8	I use the Internet because Online selling is more profitable for the company	8	25	438	92	3.09
BU9	I use the Internet because the information and services I found online improved the business financial situation	8	29	414	112	3.12
BU10	I use the Internet because competitor information can be collected and analyzed easier	7	23	443	90	3.09
BU11	I use the Internet because Information I found online give me more confidence in doing business	7	28	438	90	3.09

4.3.2 Measures

The questionnaires used in this study were developed based on the previously defined variables of internet access, namely, motivation internet access, material internet access, internet skill access, internet usage access, and business outcomes. Each variable was broken down into several dimensions, and each dimension was also broken down into indicators (index), as shown in Table 4.4. Each indicator represented a question in the questionnaires. The questionnaires used four-point Likert scales to measure respondents' agreement with the statements: one represented the lowest agreement, and four represented the strongest agreement.

Of the five variables used in this study, four act as independent variables, namely, motivational internet access, material internet access, internet skill access, and internet usage access. Another variable, outcomes, acts as the dependent variable. Motivational internet access consists of two dimensions, namely, intrinsic motivation and extrinsic motivation. Material internet access also includes two dimensions: number of devices and connection quality. Internet skill access uses two dimensions, namely, operational skills and online business skills. Internet usage access involves five indices: frequency of internet use for business, communication usage, information usage, sales usage, and marketing usage. The outcomes variable consists of three indices namely relationship outcomes, financial outcomes, and information outcomes. Table 4.4 also summarizes the responses gathered for each questionnaire item.

4.4 Descriptive Analysis

Descriptive analysis was used to show and summarize the questionnaire data to make it easier to understand and see the patterns. Descriptive analysis usually uses the average of each indicator. This study used four-point Likert scales, which means that the interval for the continuum line is 0.75. The categories for each agreement level in this study are depicted in Figure 4.2 below.

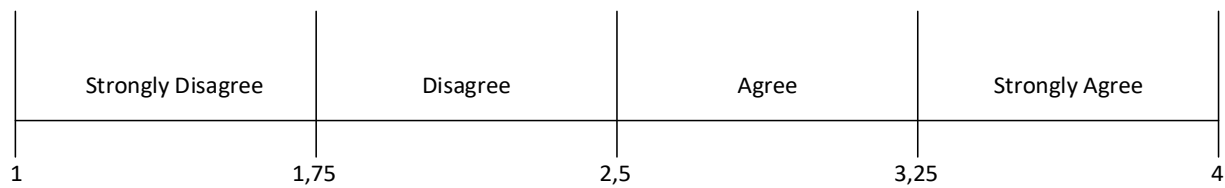


Figure 4. 2 The Continuum Line

Based on Table 4.4, the motivational internet access variable includes ten statements regarding the motivation to use the internet. The statement with the highest average value is Mot5, “I use the internet because with the internet my business can reduce costs effectively”, with an average score of 2.98. This implies that most internet users among Indonesian MSEs are driven by the cost reduction advantage offered by internet usage. Other statements with high values are Mot2, “It is personally important to use the internet”, and Mot8, “I use the internet because the internet helps to increase the performance of my company”, both with 2.97 average scores. This result shows that entrepreneurs agree that the internet is important for them, both in their personal lives and businesses. The internet can make their personal lives easier, as stated by previous studies; and the internet can also improve their businesses by increasing their business performance.

Material internet access was broken down into four questionnaire items. The item with the highest score is NoD1, “I usually use more than one smartphone in my daily activity”, with an average score of 3.01, meaning that MSE entrepreneurs are aware of the importance of the internet and willing to invest in more devices to access the internet. The next statement with a high value is CQ2, “In my opinion, internet connection is not expensive”, with 2.97 of the average score. This implies that MSE entrepreneurs view the benefits of internet connection as greater than the costs.

Internet skill access is divided into two indices: operational skills and online business skills. Operational skills have twelve indicators that represent the abilities of entrepreneurs to command the internet. Most of the average scores in operational skills are similar, and all fall under the “agree” category on the continuum line. Hence, it can be concluded that internet user MSE

entrepreneurs possess the basic ability needed to operate their devices and the internet.

Furthermore, online business skills consist of thirteen indicators representing an entrepreneur's ability to run an online business. The three indicators with the highest value are OBS1, 'I know how to choose a delivery product online'; OBS2, "I know how to provide a payment system online"; and OBS12, "I know how to put a product up for online sale". These results show that internet user MSEs in Indonesia are familiar with online selling and purchasing systems.

Regarding the internet usage variable, all indicators also have similar average scores. This means that most of the respondents agree that the internet is useful for communication, information sharing, selling, and marketing their products. Statements with the highest value are internet usage for discussions with business partners, offering products, and business advertising. These results also imply that internet usage among Indonesian MSEs is not limited to only product selling and purchasing but also covers business management.

Business outcomes are the benefits and advantages earned by entrepreneurs from utilizing the internet to support their business. The business outcomes variable consists of 11 statements, and most of the statements have similar average scores. The statement with the highest average score is item BU5: "I use the internet because more business opportunities can be achieved". This finding agrees with previous studies emphasizing the benefits of the internet to support company growth. The results show that MSE entrepreneurs who use the internet agree that the internet provides better outcomes and benefits for their businesses.

4.5 Results

The relationship between variables was analyzed by using the partial least squares (PLS) method as one of the alternative methods in structural equation modeling (SEM). The PLS measurement model is divided into two models, namely, the outer model and the inner model.

4.5.1 Outer model testing

Outer model testing, which measures the validity and reliability of each indicator used in a study, is the initial stage of data analysis in PLS (Indrawati, 2017). Outer model testing consists of several measurement indicators, including convergent validity, discriminant validity, and reliability (Henseler, et al., 2009; Ringle, et al., 2012; Urbach & Ahlemann, 2010). Figure 4.3 depicts the outer model of this study.

Convergent Validity

According to Santosa (2018), convergent validity indicates the degree of correlation between indicators on the same construct. The convergent validity is measured by using the outer loading value (Santosa, 2018). The minimum value of the outer loading of an indicator required for the indicator to be valid is 0.7 (Barclay et al., 1995). The results of convergent validity testing for each indicator are shown in Table 4.5.

Based on the data shown in Table 4.5, all indicators in this study are valid because all outer loading values are greater than 0.7. The outer loading values for each latent variable are discussed in detail in the following subsections.

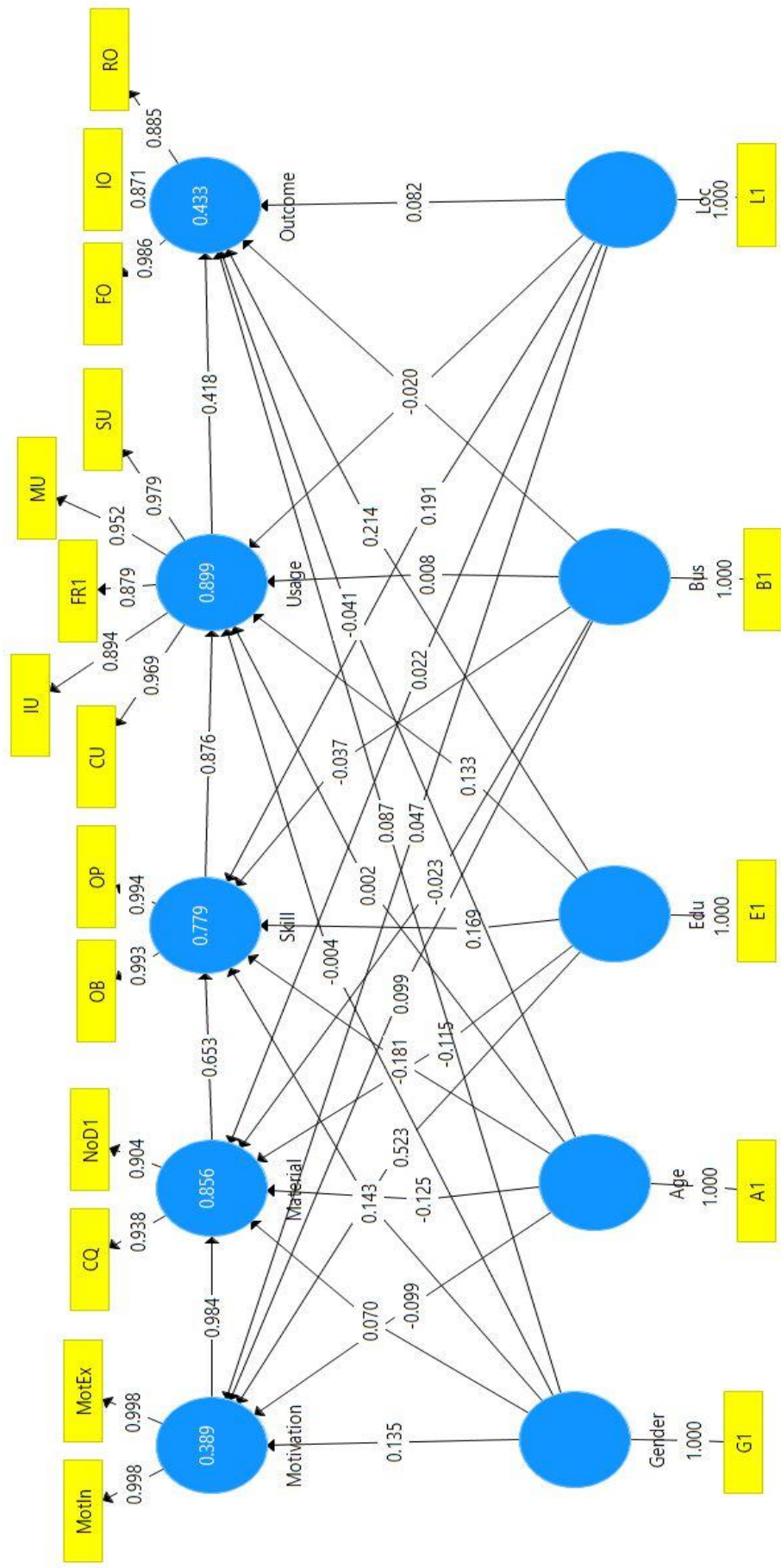


Figure 4. 3 Outer Model Loadings

Table 4. 5 Convergent Validity

Latent Variable	Indicator	Outer Loading	Description
Motivational Internet Access	Motivation Intrinsic (MotIn)	.998	Valid
	Motivation Extrinsic (MotEx)	.998	Valid
Material Internet Access	Number of Devices (NoD)	.904	Valid
	Connection Quality (CQ)	.938	Valid
Internet Skill Access	Operational Skills (OP)	.994	Valid
	Online Business Skills (OB)	.993	Valid
Internet Usage Access	Frequency (FR)	.879	Valid
	Communication Usage (CU)	.969	Valid
	Information Usage (IU)	.894	Valid
	Sales Usage (SU)	.979	Valid
	Marketing Usage (MU)	.952	Valid
Business Outcomes	Relationship Outcomes (RO)	.885	Valid
	Financial Outcomes (FO)	.986	Valid
	Information Outcomes (IO)	.871	Valid

Convergent Validity of Motivational Internet Access

Table 4. 6 The Outer Loading value of Motivational Internet Access

Latent Variable	Indicator	Outer Loading	Description
Motivational Internet Access	Motivation Intrinsic (MotIn)	.998	Valid
	Motivation Extrinsic (MotEx)	.998	Valid

Table 4.6 shows the outer loading for the motivational internet access variable. Both indicators in motivational internet access have outer loadings greater than 0.7, which means that all the indicators in motivational internet access are valid.

Convergent Validity for Material Internet Access

Material internet access is divided into two dimensions as the model's indicators, namely, number of devices and connection quality. Table

4.7 shows the outer loading values for the indicators in Material Internet Access. The outer loading values are also greater than 0.7; hence, all indicators are valid.

Table 4. 7 The Outer Loading value of Connection Quality

Latent Variable	Indicator	Outer Loading	Description
Material Internet Access	Number of Devices (NoD)	.904	Valid
	Connection Quality (CQ)	.938	Valid

Convergent Validity for Internet Skill Access

Internet skills access consists of operating skills and online business skills. Both has outer loading values greater than 0.7, as shown in Table 4.8. This means that all indicators in internet skills access are valid.

Table 4. 8 The Outer Loading value of Internet Access Skills

Latent Variable	Indicator	Outer Loading	Description
Internet Skill Access	Operational Skills (OP)	.994	Valid
	Online Business Skills (OB)	.993	Valid

Convergent Validity of Internet Usage Access

Internet usage access uses five indicators, namely, frequency of internet use, communication usage, information usage, sales usage, and marketing usage. Table 4.9 represents the outer loading values for internet usage access and shows that all indicators are valid.

Table 4. 9 The Outer Loading value of Internet Usage Access

Latent Variable	Indicator	Outer Loading	Description
Internet Usage Access	Frequency (FR)	.879	Valid
	Communication Usage (CU)	.969	Valid
	Information Usage (IU)	.894	Valid
	Sales Usage (SU)	.979	Valid
	Marketing Usage (MU)	.952	Valid

Convergent Validity of Business Outcome

Business outcomes has three indicators: relationship outcomes, financial outcomes, and information outcomes. The outer loading values for each indicator are greater than 0.7, as shown in Table 4.10. Therefore, it is concluded that all indicators in business outcomes are valid.

Table 4. 10 The Outer Loading Value of Business Outcome

Latent Variable	Indicator	Outer Loading	Description
Business Outcomes	Relationship Outcomes (RO)	.885	Valid
	Financial Outcomes (FO)	.986	Valid
	Information Outcomes (IO)	.871	Valid

Average Variance Extracted (AVE)

In addition to the outer loading value, the average variance extracted (AVE) can be used in convergent validity (Santosa, 2018). The minimum value of the average variance extracted (AVE) required for convergent validity is 0.5 (Hair et al., 2017), and each variable needs to have an AVE greater than 0.5 to be considered to have adequate convergent validity. Table 4.11 summarizes the AVE for each latent variable in this study. All AVE values are greater than 0.5. Thus, it can be concluded that this study has met the sufficient convergent validity criteria.

Table 4. 11 AVE Score

Latent Variable	AVE Score
Motivation Internet Access	.996
Material Internet Access	.849
Internet Skill Access	.987
Internet Usage Access	.875
Business Outcome	.838

Discriminant Validity

According to Santosa (2018), discriminant validity is used to show that a construct is different from another. Discriminant validity indicates that a construct is unique and captures a phenomenon not captured by other constructs (Santosa, 2018). The discriminant validity is measured by using the cross-loading value (Santosa, 2018). The cross-loading value of an indicator for a construct must be greater than the cross-loading value of that indicator to another construct (Barclay et al., 1995). Table 4.12 shows the cross-loading measurements on the indicator level. The results show that two of the indicators exhibit cross-loadings with other constructs, e.g., CQ and IU. However, the differences between the cross-loadings and the preferred constructs were less than 0.2. According to Gaskin (2012), a difference less than 0.2 indicates no significant cross-loading. This means that, at the indicator level, the model can still be stated to have sufficient discriminant validity.

In addition, the discriminant validity is also measured by using the root value of the AVE (Santosa, 2018). The rule of thumb of the root value of the AVE is to compare the root of the AVE of a particular construct with the correlation of this construct with other constructs (Fornell & Larcker, 1981). The root value of the AVE of each construct must be higher than its correlation with other constructs. Table 4.13 summarizes the root values of the AVEs for all constructs used in this study. The root value of the AVE for each construct is greater than its correlation with other constructs, so it can be concluded that the model has adequate discriminant validity at the variable level.

Table 4. 12 Cross Loading Score

	Motivation	Material	Skill	Usage	Outcome
MotEx	.998	.908	.730	.803	.518
MotIn	.998	.923	.770	.840	.544
CQ	.995	.938	.772	.843	.542
NoD1	.664	.904	.748	.812	.392
OB	.721	.781	.993	.916	.598
OP	.772	.856	.994	.959	.616
FR1	.713	.875	.825	.879	.443
CU	.821	.844	.912	.969	.639
IU	.706	.756	.897	.894	.617
SU	.800	.882	.902	.979	.619
MU	.805	.854	.875	.952	.570
IO	.484	.469	.537	.561	.871
RO	.446	.427	.563	.540	.885
FO	.530	.515	.579	.604	.986

Table 4. 13 AVE Root Value

	Material	Motivation	Outcome	Skill	Usage
Material	.921				
Motivation	.918	.998			
Outcome	.515	.533	.916		
Skill	.824	.752	.611	.993	
Usage	.898	.823	.622	.944	.976

Reliability Test

According to Abdillah (2018), reliability measures the consistency and stability of a variable's instrument. The reliability in PLS is measured using Cronbach's alpha (CA) and the composite reliability (CR). The CA and CR need to be greater than 0.7 (Hair et al., 2008). Table 4.14 shows the reliability measurements for the variables used in this study.

Table 4. 14 Reliability Test

	Cronbach's Alpha (CA)	Composite Reliability (CR)
Material	.824	.918
Motivation	.996	.998
Outcome	.902	.939
Skill	.987	.993
Usage	.964	.972

Based on the Cronbach's alpha (CA) and composite reliability (CR) values, which are greater than 0.7, it can be concluded that this study has met the criteria of sufficient reliability.

4.5.2 Structural Model (Inner Model) Measurement

According to Abdillah (2018), a structural model in PLS is evaluated by using the dependent construct R², the path coefficient value or the T-value of each path to test the significance between the constructs in the structural model. The path coefficient value shows the level of significance in hypothesis testing and is indicated by the T-value, which must be above 1.96 for two-tailed hypothesis testing with a significance level of 5% (Hair et al., 2008).

The structural model or inner model measures the influence of one latent variable on other latent variables (Indrawati, 2017). It will also show the results of hypothesis testing with the T-value and the origin sample (beta standardized) value as the analyzed parameters (Abdillah, 2008). The path coefficient or T-value is obtained through the bootstrapping process (Indrawati, 2017). Figure 4.4 shows the inner model for this study, and Tables 4.15 and 4.16 summarize the inner model measurement results.

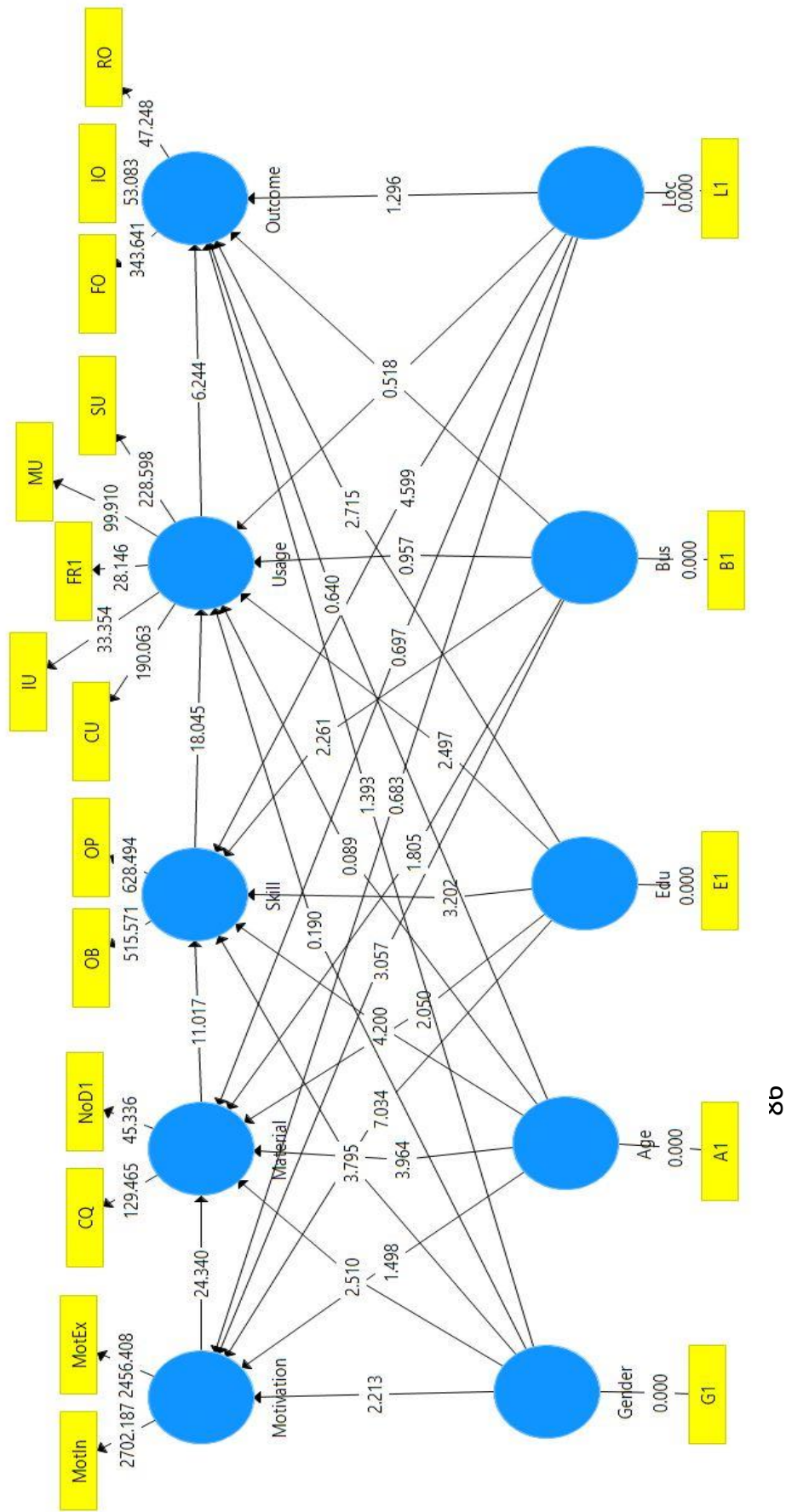


Figure 4. 4 Structural Model

4.5.3 Hypotheses test

Table 4. 15 The Internet access sequence

	Paths	Beta Coefficients	T Values	P Values	Description
H1	Motivation -> Material	.984	26.383	<.001	Accepted
H2	Material -> Skill	.653	11.308	<.001	Accepted
H3	Skill -> Usage	.876	17.802	<.001	Accepted
H4	Usage -> Outcome	.418	6.383	<.001	Accepted

Tables 4.15 show the results of the hypothesis testing related to internet access sequence. Hypothesis 1 states that Motivational Internet Access influences Material Internet Access. The P-value for this hypothesis is less than 0,05 and the T-value is less than 1.96, which means hypothesis 1 is accepted. Hence, Motivational Internet Access affects Material Internet Access. MSE entrepreneurs who have the motivation to use the internet for their business activities will not hesitate to invest in internet material, for examples smartphones, computers, laptops, internet connection, etc.

Hypothesis 2 – Material Internet Access influences Internet Skill Access – is also accepted. It implies that MSE entrepreneurs who are motivated to use the internet and possess adequate material will also improve their internet skills.

Hypothesis 3 – Internet Skill Access influences Internet Usage Access - is accepted, which proves the internet skills possessed by MSE entrepreneurs affect the diversity of their internet usage. The more proficient their internet skills are, their internet usage will also be more extended.

Hypotheses 4 – Internet Usage Access influences Business Outcomes – is accepted. It indicates that Internet Usage Access has a positive impact on Business Outcomes. MSE entrepreneurs who use the internet for their businesses will be more likely to achieve better business outcomes.

The contributions of each indicator to their intended variables for formative measurement model are represented by its outer weight (Garson, 2016) as summarized in Table 4.16.

Table 4. 16 The outer weight of indicators

Variable	Indicator	Outer Weight
Internet Motivation Access	MotIn	.508
	MotEx	.494
Internet Material Access	NoD1	.484
	CQ	.599
Internet Skill Access	OP	.515
	OB	.491
Internet Usage Access	FR1	.187
	CU	.226
	IU	.220
	SU	.222
	MU	.213
Business Outcomes	RO	.352
	FO	.385
	IO	.354

Internet motivation access consists of two indicators, motivational intrinsic (MotIn) and motivational extrinsic (MotEx). Both indicators give an almost equal contribution to MSE entrepreneurs' motivation in using the internet for their businesses.

Connection quality (CQ) has a greater contribution to material internet access than the number of devices (NoD1). It means that, regarding internet material, connection quality is more important for MSE entrepreneurs.

Internet operation (OP) and online business (OB) skills also have an almost proportionate contribution to internet skill access. It suggests that MSE entrepreneurs consider operational skills and online business skills are equally important.

In Internet usage access, communication usage (CU) gives the most input compared to its other indicators. MSE entrepreneurs mostly use their internet to communicate with their customers and business partners.

Financial outcome (FO) has the greatest contribution to business outcomes, hence MSE entrepreneurs consider the internet helps them to increase their revenues and reduce their costs.

Table 4.16 shows the hypothesis testing related to internet access determinants namely Gender, Age, Education level, Business sector, and Location.

Table 4. 17 Internet Access Determinants

	Paths	Beta Coefficients	T Values	P Values	Description
H5a	Gender -> Motivation	.135	2.106	.036	Accepted
H5b	Gender -> Material	.070	2.540	.011	Accepted
H5c	Gender -> Skill	.143	3.687	.000	Accepted
H5d	Gender -> Usage	-.004	0.172	.863	Rejected
H5e	Gender -> Outcome	.087	1.274	.203	Rejected
H6a	Age -> Motivation	-.099	1.407	.160	Rejected
H6b	Age -> Material	-.125	3.989	.000	Accepted
H6c	Age -> Skill	-.181	4.078	.000	Accepted
H6d	Age -> Usage	.002	0.081	.936	Rejected
H6e	Age -> Outcome	-.041	0.599	.550	Rejected
H7a	Edu -> Motivation	.523	6.622	.000	Accepted
H7b	Edu -> Material	-.115	2.074	.039	Accepted
H7c	Edu -> Skill	.169	3.185	.002	Accepted
H7d	Edu -> Usage	.133	2.546	.011	Accepted
H7e	Edu -> Outcome	.214	2.754	.006	Accepted
H8a	Bus -> Motivation	.099	2.808	.005	Accepted
H8b	Bus -> Material	-.023	1.712	.087	Rejected
H8c	Bus -> Skill	-.037	2.074	.039	Accepted
H8d	Bus -> Usage	.008	0.894	.372	Rejected
H8e	Bus -> Outcome	-.020	0.525	.600	Rejected
H9a	Loc -> Motivation	.047	0.637	.524	Rejected
H9b	Loc -> Material	.022	0.665	.506	Rejected
H9c	Loc -> Skill	.191	4.650	.000	Accepted

H9d	Loc -> Usage	-.031	0.748	.455	Rejected
H9e	Loc -> Outcome	.082	1.376	.169	Rejected

Hypothesis 5a - Gender Influences Motivational Internet Access- is accepted, meaning that male entrepreneurs, who comprise the majority of MSE entrepreneurs in Indonesia, are more motivated to use the internet in their businesses.

Hypothesis 5b - Gender Influences Material Internet Access - is accepted. It means that male entrepreneurs usually possess more than one internet device and have a better internet connection.

Hypothesis 5c - Gender Influences Internet Skill Access- is accepted and indicates that male entrepreneurs usually have better internet operational skills and online business skills than women entrepreneurs.

Hypothesis 5d - Gender Influences Internet Usage Access - is rejected; thus, both male and female MSE entrepreneurs have an equally positive attitude toward internet usage for businesses.

Hypothesis 5e - Gender Influences Business Outcomes - is rejected. The gender of MSE entrepreneurs does not affect their business achievements, male and female entrepreneurs have the same opportunity to achieve better business outcomes.

Hypothesis 6a - Age Influences Motivational Internet Access - is rejected, suggesting that age has no significant effect on the motivational internet access variable.

Hypothesis 6b - Age Influences Material Internet Access - is accepted. This acceptance implies that the ages of MSE entrepreneurs affect their perception and willingness to invest in internet devices and connections.

Hypothesis 6c - Age Influences Internet Skill Access - is accepted. This result suggests that younger MSE entrepreneurs usually have better internet operational and online business skills than the older MSE entrepreneurs.

Hypothesis 6d - Age Influences Internet Usage Access - is rejected. It implies that the age of the entrepreneurs does not affect their frequency of using the internet, nor does it affect the diversity of their internet usage.

Hypothesis 6e - Age Influences Business Outcomes - is rejected. Age does not affect the achievement of the entrepreneur's business target.

Hypothesis 7a - Education Level Influences Motivational Internet Access - is accepted and proves that MSE entrepreneurs with higher education backgrounds are more motivated to use the internet for their businesses.

Hypothesis 7b - Education Level Influences Material Internet Access - is accepted, which means that more educated MSE entrepreneurs usually have a better understanding of internet material and put more effort into having sufficient internet devices and connections.

Hypothesis 7c1 - Education Level Influences Internet Skill Access - is accepted. Better educated MSE entrepreneurs are more likely to have better internet operational and online business skills.

Hypothesis 7d - Education Level Influences Internet Usage Access - is accepted, which indicates that better educated MSE entrepreneurs who have more knowledge and understanding about the internet will more actively use the internet for their businesses.

Hypothesis 7e - Education Level Influences Business Outcomes - is accepted. Better educated MSE entrepreneurs are more likely to achieve better outcomes for their businesses.

Hypothesis 8a - Business Sector Influences Motivational Internet Access - is accepted, implying that MSEs on the internet-based business sector are more motivated to utilize the internet in their businesses.

Hypothesis 8b - Business Sector Influences Material Internet Access - is rejected. The number of devices and the internet quality owned by MSEs are not related to their business sectors.

Hypothesis 8c - Business Sector Influences the Internet Skill Access - is accepted, which means that the business sector has a significant effect on MSE entrepreneurs' operational and online business skills. MSEs on internet-based businesses are usually more competent in their internet skills.

Hypothesis 8d - Business Sector Influences Internet Usage Access - is rejected, which means that the business sector of MSEs has no significant effect on the internet use in their businesses.

Hypothesis 8e - Business Sector Influences Business Outcomes - is rejected, which shows that the business sector has no significant effect on business outcomes.

Hypothesis 9a – Location of Business Influences Motivational Internet Access - is rejected. This rejection implies that the locations of MSEs have no significant effects on the motivation of MSEs to use the internet in their businesses.

Hypothesis 9b – Location of Business Influences Material Internet Access - is rejected. The location of the MSEs has no significant effect on the internet material owned by MSEs.

Hypothesis 9c - Island for Business Influences Internet Skill Access- is accepted. Indonesian MSE entrepreneurs who have better internet access will also have better internet operational and online business skills.

Hypothesis 9d - Island for Business Influences Internet Usage Access - is rejected, so it can be concluded that the location of MSEs does not affect their internet use frequency and diversity.

Hypothesis 9e - Island for Business Influences Business Outcomes - is rejected. The Indonesian archipelago does not influence business outcomes because each island has different potentials and different sources of income and is not necessarily internet based.

4.6 General Conclusions

This research was conducted to explore the influences of internet access phases on the usage of the internet among Indonesian MSEs. The first access phase is motivational internet access, consists of intrinsic and extrinsic motivation. The second phase is material internet access and is divided into the connection quality and number of device factors. The third phase focuses on internet skill access, including internet operational skills and online business skills. The fourth phase is internet usage, which consists of the type of internet usage and the frequency of internet usage.

Twelve out of twenty-nine hypotheses are rejected, and seventeen hypotheses are accepted. This study demonstrates that internet access sequence exists in the usage of the internet among Indonesian MSE

entrepreneurs. Motivational internet access directly affects material internet access, internet material access affects internet skills access, internet skills access influences internet usage access and internet usage access influences business outcomes.

MSE entrepreneurs who are more motivated to use the internet for their businesses tend to be willing to invest in better material internet access, such as connection quality and the number of devices used. MSE entrepreneurs with better internet connections and have sufficient internet devices are more likely to continue to improve their internet operational skills and online business skills. The more proficient the MSE entrepreneurs with their internet skills, the more frequently they will use the internet for their businesses and be more diversified in their usage. This willingness to invest and learn the internet will increase their business outcomes and make it easier to achieve their business goals. The use of the internet in MSE businesses has a positive impact on their business outcomes. The internet offers advantages, such as cost and time efficiency, wider market reach, business flexibility, and so on. These advantages can boost business outcomes, including maximizing revenues and achieving business goals.

Moreover, this study reveals that demographic and geographic factors also affect the internet access phases among Indonesian MSEs. Gender is proven to influence motivational internet access, material internet access and internet skills access but does not affect internet usage access and business outcomes. Male entrepreneurs, as the majority of Indonesian MSE entrepreneurs, are usually more motivated to use the internet in their businesses. They tend to own more than one internet device and have better internet connection quality. They also possess better internet operational and online business skills than female entrepreneurs. This condition drives them to achieve better business outcomes. But both male and female entrepreneurs have the same possibilities of using diversified internet usage and achieving better business outcomes after they have used the internet for their businesses.

Age, as another demographic factor, influences material internet access and internet skills access. MSE entrepreneurs in younger groups are

inclined to seek better internet access such as better connection quality and need more than one device. They are also more eager to enhance their internet skills. However, age does not affect MSE entrepreneurs' motivation to use the internet, and there is no difference in motivation between the younger and older groups of MSE entrepreneurs. Age also does not influence internet usage access and business outcomes. This implies that there are no differences in the frequency and diversity of internet usage between younger entrepreneurs and older entrepreneurs, both have equal possibilities of maximizing their internet usage and achieving better business goals.

Education level influences entrepreneurs' internet motivation, internet material, internet skills, internet usage and business outcomes. It suggests that education level holds important role in the use of internet for business purposes among Indonesian MSE entrepreneurs. MSE entrepreneurs with higher educational background are usually more motivated in using the internet and more likely to pursue better internet connection and devices because they have better knowledge and understanding about the internet and its advantages for their businesses. They are also more eager to improve their internet skills and use the internet more often for various purposes. This condition makes them capable of obtaining better business outcomes.

The business sector of MSEs affects entrepreneurs' motivation and internet skills but does not influence their internet material, internet usage, and business outcomes. MSEs that are internet-based businesses are more motivated to use the internet and usually have better internet skills to conduct their businesses. However, their needs of internet material, internet usage access, and achieving better business goals are not different from MSEs from other business sectors.

The location of the MSEs, as the last determinant factor in this study, is proven to affect their internet skills. This means that MSE entrepreneurs located in areas with better internet access tend to have better internet skills than those located in areas that lack internet access. However, the location of MSEs does not influence their motivation to use the internet, their need for material access or their internet usage purposes. Location also has no

influence on business outcomes, which means that each location has different potential and sources of income and is not necessarily internet based.

CHAPTER 5

***NON-INTERNET USER AMONG
THE MSE POPULATION***

CHAPTER 5.

NON-INTERNET USERS AMONG THE MSE POPULATION

5.1 Introduction

The Organization of Economic Co-operation and Development (OECD) (2017) has noted that digitalization offers new opportunities for MSEs to participate in the global economy, but MSEs in developing countries are lagging in the digital transition. The disruptive effects of this situation need to be considered and addressed. A major factor that hinders the adoption of ICT and causes disruptive effects on MSEs' growth and development is literacy in the use of ICT. The business strategy of MSEs can be affected by ICT adoption and could also have an impact on their performance (Sandada et al., 2014).

Digital inequality studies that consider user types point out an increase in internet non-users, as shown by several studies (Helsper, 2011; Reisdorf, 2011; Reisdorf et al., 2012). Reisdorf (2012) compared non-users and ex-users in England and Sweden. Her results showed that middle-aged British non-users share two specific socioeconomic characteristics, e.g., low income and unemployment. Moreover, education, occupational status, and household income are significant determinants of internet usage in both countries. Many non-users might have chosen not to use the internet because they did not see the benefits of doing so. Unfortunately, these individuals mostly came from an unequal society, and not using the internet might cast them aside even further.

Reisdorf (2011) stated that hindrance to internet usage is related to socioeconomic reasons, such as lack of skills, access, and economic resources. Helsper (2011) showed that the digital underclass is associated with factors influencing traditional digital differences, such as age, education, income, employment, and disability. According to Helsper (2011), the digital underclass involves people with lower education levels and a lower probability of employment. The research also showed that unemployed

internet users with lower education levels have included the internet in fewer aspects of their everyday activities. Regrettably, even though their internet usage has increased, they are still becoming relatively less advantaged than other internet users. Less-educated and unemployed users have the lowest adoption rates of online activities.

The number of less-educated internet users - especially the less educated who are also unemployed - is much lower than the number of better educated internet users. Helsper (2011) argued that the lack of trust causes the most disadvantaged groups of users to be excluded from full involvement with online opportunities, even when they obtain internet access. Conversely, research by Zillien and Hargittai (2009) showed that people with higher social status have more extensive use of the internet. Van Deursen and Van Dijk (2014) concluded that age and gender, along with education, are the most critical predictors of differences in internet use.

The previous chapter discussed MSE entrepreneurs who use the internet in their businesses. This chapter discusses those who do not use it. As a reminder, the internet access model used in this study is based on Van Dijk's resources and appropriation theory (2005). The results of several studies have indicated that MSEs in Indonesia are dominated by male entrepreneurs (Basry & Sari, 2018; Lubis & Junaidi, 2016; Purwana, Rahmi, & Aditya, 2017; Roosdani, Wibowo, & Widiastti, 2018; Saleh & Hidayat, 2017). Gender is proven to be another factor influencing internet use for business purposes. Male entrepreneurs are found to be more motivated to use the internet for their businesses. However, the data from Indonesia's Ministry of Communication and Information Technology show that the majority of MSEs in Indonesia have not implemented and utilized information technology and the internet in their businesses despite being dominated by male entrepreneurs. Low educational background and limited physical and skill access to the internet are likely to be some of the causes. This chapter identifies the reasons that prevent Indonesian MSE entrepreneurs from using the internet in their businesses.

5.2 Theory and Proposed Model

The research in this chapter departs from a study from Kim (2005) that explored the motivational phase of the internet access model by Van Dijk (2005). This chapter compares the internet users and internet non-users among Indonesian MSEs in terms of motivation. Kim (2005) identified two groups of non-users, namely, digital laggards and out-digitals. Both lack access to digital technologies but differ in their reasons. Digital laggards are people who are willing to adopt digital media but have difficulties doing so, such as the elderly, the poor, the disabled and other underprivileged groups. Conversely, out-digitals are those who do not want to accept and mentally resist digital technologies. In addition to those groups, there are also former users. Wyatt (2003) defined former users as people who have stopped using the internet because their initial motivation did not come from themselves but from the pressures of their family and friends. With older people, the cessation of internet use may be caused by the costs and difficulty of use; however, younger people tend to stop using the internet because they lost access or lost interest (Wyatt, 2003).

5.2.1 Motivational Internet Access

The reasons for not using the internet are related to the people's motivations or their attitude that underlies the reason. However, Reisdorf (2011) stated that their lack of motivation in using the internet is often based on inadequate knowledge and their ignorance about its benefits. In accordance with Reisdorf (2011), Facer and Furlong (2001) also concluded that some entrepreneurs did not feel any need to learn and use the internet, and some even resisted digital media, which made them fall out of the out-digitals category. They assume that they do not need the internet in their business operations because their businesses still run without the internet. Bronson (1998) and Cho et al. (2003) summarized more comprehensive reasons behind MSE entrepreneurs' lack of motivation to use the internet, such as shortcomings in confidence, the lack of a need to use the internet, and computer anxiety. Other barriers that cause people to not be interested

in using the internet are the perceived costs and lack of knowledge or required skills (Van Deursen & Van Dijk, 2006). These populations are categorized as digital laggards.

MSE entrepreneurs' perceived internet knowledge and skills are related to their self-efficacy. Self-efficacy is defined as an individual's perception about their ability to use a computer to complete a job (Compeau & Higgins, 1995). The level of self-efficacy can be detected by observing use time, the persistence of use, and the frustration level when confronted with failure (Park & Chen, 2007; Stanley, 2003). Usually, low self-efficacy leads to a lack of technology adoption and use. People lacking self-efficacy feel less motivated to use the internet.

5.2.2 *Unmotivated Non-users*

MSE entrepreneurs might use the internet for their personal/consumer goals but not for businesses (non-users). Wyatt (2003) stated that some refuse to use the internet because they have alternative information sources and forms of communication suited to their needs other than the internet. MSE entrepreneurs who use the internet for their personal use but not for business primarily use the internet for information retrieval and communication but are not motivated to use it for efficiency and productivity. They seem to focus on real-time information or more practical information such as news. Furthermore, Kelan (2007) and Song (2004) explained that some users utilize the internet for self-expression and self-image display. They may engage in more effective uses through social networking sites. These users put more focus on the personal recreational, entertainment, and self-expressive functions of smartphones, such as decorating a phone and otherwise personalizing user interfaces.

Conversely, some disadvantages can occur from not using the internet. These individuals mostly come from less fortunate societies, and their decision to not use the internet potentially widens the gap between the user and non-user groups. Many non-users might choose not to use the internet because they do not see the benefits of using it. Reisdorf (2011)

stated that the main reasons for not using the internet are socioeconomic reasons, such as a lack of material internet access and economic resources. Moreover, previous research also observed the negative impacts of the internet on social life. Some researchers argued that the internet promotes the growth of pseudosocieties rather than real communities. Nie and Erbring (2000) reckoned that the internet not only connects but also disconnects social networks. It allows individuals to be disconnected from their families and friends and turns them into loners and internet addicts.

5.2.3 Potential Future Users

The influence of personality on technology acceptance depends on the specific application and technology used. Van Dijk (2020) explained the Big Five personality traits (Goldberg et al., 2006) that are linked to the use of computers and the internet:

- Openness to experience: The curiosity and appreciation for news and new ideas make an individual eager to explore the web and to find new relationships through social media.
- Extroversion: The assertiveness, social skills, activeness, and positive emotions expressed through social media.
- Awareness: Organized, structured, reliable, and obedient behavior is positively related to computer use because of its routine and reliable operations.
- Agreeableness: Being friendly, considerate, likeable, prosocial, and helpful toward others is negatively related to internet use because these people prefer face-to-face communication.
- Neuroticism: The characteristics of being anxious, nervous, and insecure are associated with computer anxiety and an insecure internet environment.

Other than personality, education is often considered the most important predictor of digital exclusion (Robinson et al., 2003; Van Dijk, 2005). However, in some countries, age is proven to be the most important factor among an internet user's demographics. Young people obtain earlier

and more access to computers, mobile phones, and internet connections than older people. The younger generation is also more innovative and willing to experiment with digital media while the older generation is more attached to traditional media. Another structural effect is that young people are required to attend computer classes in the formal education system while older people must learn to use digital media by themselves or through adult education computer classes. The structural effect tends to remain while the generation effect will disappear after several generations (Van Dijk, 2020).

Highly educated senior internet users are more involved in information/news and cognitive improvement activities. Nevertheless, senior non-users, those who are over 75 years old with higher education, are more willing to start using the internet in the future. Rensel et al. (2006) studied the impact of the condition of the virtual and physical facilities of public internet access points on an individual's willingness to use the internet. The results showed that physical and virtual internet facilities in public places influence users' perceptions and their willingness to use the internet.

Crenshaw and Robison (2006) explained that political openness is one of the significant drivers of internet usage distribution and growth. Developing countries trying to catch up with other developed countries will also change the perception and motivation from non-users to users. Kauffman and Techatassanasoontorn (2005) revealed a strong regional contagion effect, which explained that technology diffusion in a country is influenced by diffusion in its neighboring countries in the region. The digital gap between developed and developing countries concerning this technology is one of the reasons for a country that has not yet actively used the internet to more actively use it.

According to Van Dijk (2020), the most common reason for nonuse among non-users is a lack of motivation, while for others, the reason is their rejection attitude because of the assumed bad features. Non-users see more negative effects from internet usage. Someone who says that they do not want a computer or smartphone and genuinely does not like such tools might

be because they could not afford them or do not know how to use them. Therefore, if they have the ability to buy and use it, there is a possibility that they will use the internet in the future.

5.2.4 Future Internet Skills and Internet Usage Among Non-users

In a survey in 2002, more than half of American and European non-users said that they were not planning to use the internet (Lenhart et al. 2003; Katz and Rice 2002; Van Dijk 2005). However, not long after delivering that statement, they changed their minds, and more people were inspired to go online. The gap of use and the number of internet activities between non-users, including former users, and regular users is growing. Regular users are more motivated and have more positive attitudes, but non-users remain at the same level.

Reisdorf and Groselj (2017) highlighted differences among internet users in terms of frequency of use and the amount of usage time. From a baseline of 'nonuse', through 'low use', 'regular use' and 'broad use', the frequency and the number of hours during which people use the internet increases. Ortega (2007) classified internet users based on Roger's diffusion of innovation theory and the technology acceptance model (TAM). The results identified five types of internet users: internet non-users, laggards, confused users, followers, and advanced users. Internet non-users are those who never use the internet. Laggards occasionally and infrequently use the internet, and confused users use the internet rarely but for various purposes. Followers use the internet frequently but not on a daily basis. Advanced users have the highest frequency of using the internet and with the most various purposes. Zou et al. (2014) categorized internet users into advanced users, information users, enjoyment users, communication users, and internet non-users. Those who access the internet with very varied and broad internet behavior are termed advanced users while people with the highest mean scores in goal-oriented activities (e.g., searching for information about goods or services) are labeled instrumental users. Those who have the highest access to the internet for enjoyment activities such as downloading games or music are categorized as entertainment users; and those who possess

occasional or no internet access are categorized as sporadic users or non-users, respectively. The research was conducted among Chinese city residents where internet use is a very common recreational activity. Age, gender, income level, and education level were also identified as important factors influencing internet access in general.

Park and Lane (2015) classified internet user entrepreneurs based on their generation, which affects their ease and activeness in using the internet. Active internet users have higher levels of confidence than less active users (Song, 2004). In addition, active users tend to consider their smartphones to be more efficient, timely, informative, and useful in doing business or schoolwork compared with less active users (Park & Lane, 2015). Furthermore, there are also groups of non-users who are restrained from using the internet because of their mental and psychological conditions such as computer anxiety and technophobia that can make them experience discomfort, stress, or fear when faced with computers (Brosnan, 1998; Chua et al., 1999; Rockwell & Singleton, 2002). Entrepreneurs who have low self-confidence and low motivation to use the internet will find it difficult to be willing to use the internet in the future.

5.2.5 Internet Skill Access and Expected Outcomes

It is important to explore the ability of entrepreneurs to use the internet in their businesses. The technological readiness concept has been developed to understand the use of new technology by consumers to achieve goals (Parasuraman, 2000). Technology readiness was conceptualized as a tendency to embrace technology and was expected to influence entrepreneurs' use of new technology (Parasuraman, 2000). Technological readiness includes the ability and comfort of the users while using the technology.

One of the main aspects of the digital divide discussed in this study is the effect of unequal abilities or skills. This effect is often related to the literacy concept, where digital literacy is compared with traditional literacy. According to Van Dijk and Van Deursen (2014) and Van Deursen and Van Dijk (2016), there are differences between digital literacy and traditional literacy.

Digital media simplify information-finding by using search engines, but users need new and specific skills to be able to use a search engine to find information or browse the internet. The skills are not available and taught in traditional literacy. Other skills, such as contacting and communicating with potential customers, are also changing compared with what is learned in traditional literacy. Van Deursen and Van Dijk (2016) also suggested that digital literacy is needed, especially for MSEs in rural areas, to use the internet efficiently and effectively.

Internet and computer skills are also critical for other jobs and areas of expertise. More jobs need to be performed using a certain level of digital skills, which proves that education is no longer sufficient without being able to use a computer and the internet. According to Selwyn (2004), having physical access is useless without the requisite skills, knowledge, and support for effective usage. Moreover, Van Dijk (2020) stated that new users need useful skills and applications to support the economy, society, and culture. Without digital skills, users and non-users will not achieve the expected outcomes, regardless of whether the outcomes are from the economy, social life, or society.

5.2.6 *Hypothesizing internet access*

One of the purposes of the current study is to assess internet access in business, particularly in Indonesian MSEs. The model is again based on the internet divide phases, namely, motivational internet access, material internet access, internet skill access, and internet usage access. According to Van Dijk (2005, 2020), motivational internet access is partly shaped by attitudes toward technology as the first step in engagement with the internet. Hence, motivation comes before physical access. People with a negative attitude toward communication and information technology are assumed to be less motivated to use the internet. Van Dijk's Resources and Appropriation theory (2005) showed that the motivational and attitudinal effects are more important for all the following phases of access (physical, skills, and usage access). To use the internet, material internet access

requires physical access and an internet connection, either at home or in a business environment.

After adopting a favorable attitude toward the internet and acquiring a physical connection, a user must also have the skills to use the internet (Van Dijk 2005). Internet skill access is conceptualized as a distinction between medium- and content-related skills that consist of information, communication, content creation and strategic skills (Van Dijk and Van Deursen, 2014). Furthermore, internet usage access is defined as the frequency or duration of internet use or type of online activities. A study from Van Deursen and Van Dijk (2014) showed that less-educated people may spend more time online in their free time than more educated people but for different purposes. For example, they may spend most of their online time engaging in social interaction and gaming rather than for educational purposes, information seeking, or work-related reasons.

The study object in this chapter is Indonesian MSE entrepreneurs who do not use the internet in their businesses. A previous preliminary study revealed that MSE entrepreneur participants who do not use the internet owned a smartphone, but they lacked an internet connection. Therefore, material internet access is not used as a variable in this study. Table 5.1 summarizes the operational variables used in this study. Those variables correlate with the proposed three-level internet divide, e.g., motivational internet access as the first level, digital skills and usage as the second level, and internet usage outcomes as the third level.

With material internet access being excluded, the internet access for the non-user population in this study consists of three phases of internet access that are assumed to influence business outcomes, as depicted in Figure 5.1. The detailed explanations are described as follows:

1. Motivational Internet Access: The motivation or reasons that drive non-user MSE entrepreneurs to use the internet.
2. Skill Access: Operational skills for doing business.
3. Usage Access: The perceived opportunity for future internet use among non-user MSE entrepreneurs.

4. Business Outcomes: The expected outcomes of using the internet for non-user MSE entrepreneurs.

The hypotheses for the study of the Indonesian non-user MSE population are the same as those previously used for the user population. The only difference is that in this study, the internet access phases are assumed to be unrealized or are realized insufficiently. Based upon prior research and reasoning, the hypotheses derived for this study are described as follows:

H1: Motivational access influences skill access

H2: Skill access influences usage access

H3: Usage access influences business outcomes

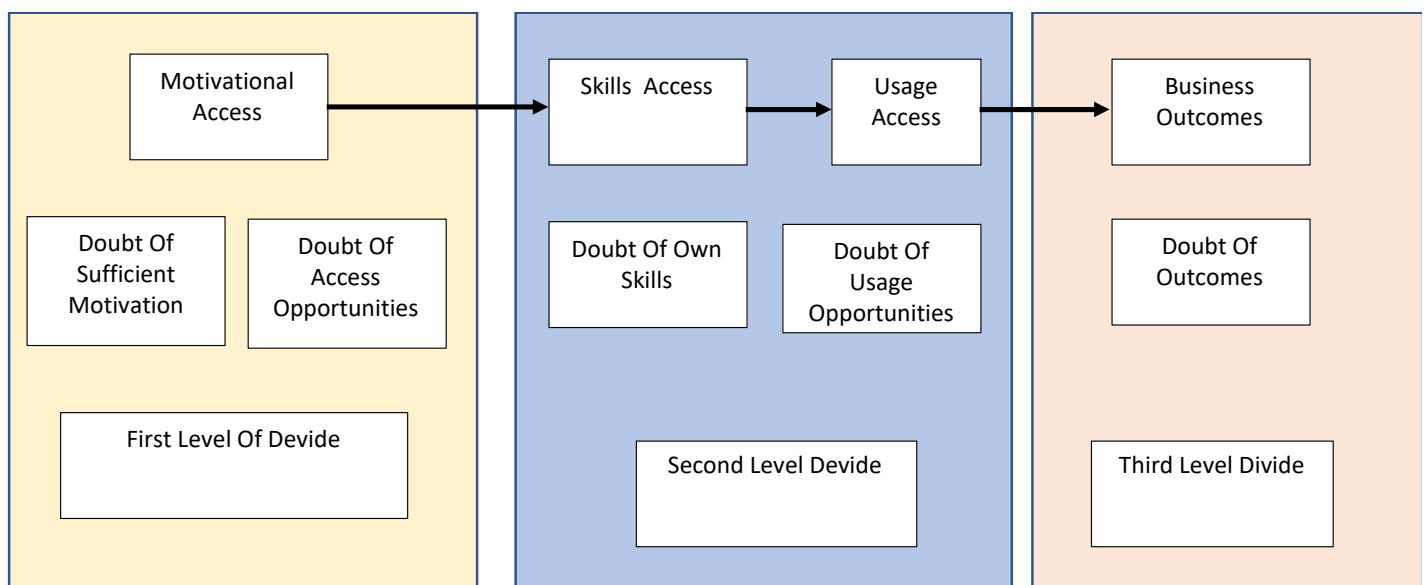


Figure 5. 1 The Internet Access Model for Non-Internet User Population

5.2.7 Internet access determinants

As in the previous chapter, sociodemographic factors will also be part of this study. The sociodemographic factors used in this study are the same as those in the previous chapter. Gender is considered to hold an important role for non-user MSE entrepreneurs to run their businesses. Van Deursen and Van Dijk (2015) revealed that men have a more positive attitude toward

computers and a more stereotypical attitude about who is able to use them. The internet is more widely used for social activities, even though the internet can be significantly valuable for developing business or increasing income. Male domination over women is also emerging among Indonesian MSE entrepreneurs. Some experience has shown that a particular business that was originally pioneered by women will soon shift its management and formal ownership to men after it develops and widens its reach. The reason is usually because it requires high mobilization and a higher level of skills and proficiency in using internet-based computer media, which is mostly mastered by men (Widyastuti et al., 2016). Van Deursen & Van Dijk (2015) have shown that although the physical gender gap has decreased in many developed countries, men still use the internet more often than women because of intense exposure to technology and other work-related requirements. Nainggolan (2016) proves that gender has a significant effect on an MSE's income earned and that MSMEs owned by male entrepreneurs achieve higher earnings than those owned by women.

Age is another critical predictor of the internet use. Older adults tend to own the lowest levels of internet usage (Marquie, Jourdan-Boddarert, & Huet 2002) and possess the fewest digital devices (Zickhur & Madden, 2012). Age has a negative relationship with media-related operational skills and content-related internet skills (Van Deursen, Van Dijk, & Peters, 2011). Takahashi (2009) showed that one of the success factors in small businesses is the level of education of the owners. Education can help businesses owners manage and help their businesses survive in complex environments while increasing business profitability. According to Monitor (2010), a higher education level increases an individual's confidence to start a business. The business will likely survive beyond the startup phase. Musdhalifah and Mintarsih (2020) stated that, in terms of business scale and business age, education has a significant effect on the use of information by MSMEs. Other important sociodemographic factors in addition to age and education are the business sector of MSEs and their geographic regions in Indonesia. As explained in Chapter 1 subchapter 1.2, the report from the Indonesian Creative Economy Agency and the Central Statistics Agency in 2017 stated

that most MSME owners are male (77%), aged between 40 and 49 (31%), have completed senior high school (37%) and are working in the food business. Furthermore, subchapter 1.3 explained the archipelagic factor as another important point in MSE businesses. The National Economic Census in 2017 concluded that 60,7% of MSMEs and LEs in Indonesia were located in Java, which is the most populated island and the center of economic activities, particularly the manufacturing industry, trade, finance, construction, agriculture, and services. The effect of sociodemographic factors on the four access types is predicted according to the following hypotheses:

H4: Gender influences motivational access (H4a), skill access (H4b), usage access (H4c), and business outcomes (H4d);

H5: Age influences motivational access (H5a), skill access (H5b), usage access (H5c), and business outcomes (H5d);

H6: Education level influences motivational access (H6a), skill access (H6b), usage access (H6c), and business outcomes (H6d);

H7: Business sector influences motivational access (H7a), skill access (H7b), usage access (H7c), and business outcomes (H7d); and

H8: Island of the business influences motivational access (H8a), skill access (H8b), usage access (H8c), and business outcomes (H8d).

The conceptual model presented in Figure 5.2 shows the hypothesized relationships between the access types and the explanatory variables.

5.3 Method

This study is explorative research that aims to provide an understanding of the barriers to internet adoption among non-user MSE entrepreneurs in Indonesia. As the first step, a literature review was conducted to prepare the questionnaire. The resources used included scientific journals obtained from the internet, newspaper articles, and other related websites. Then, a descriptive survey was conducted, and exploratory factor analysis was used to analyze the results and find relevant factors for

the preliminary model. The model uses four successive phases of access following Van Dijk's model. However, this model is incomplete for the domain of this study, so specific factors need to be explored and specified to add them to the framework of this study.

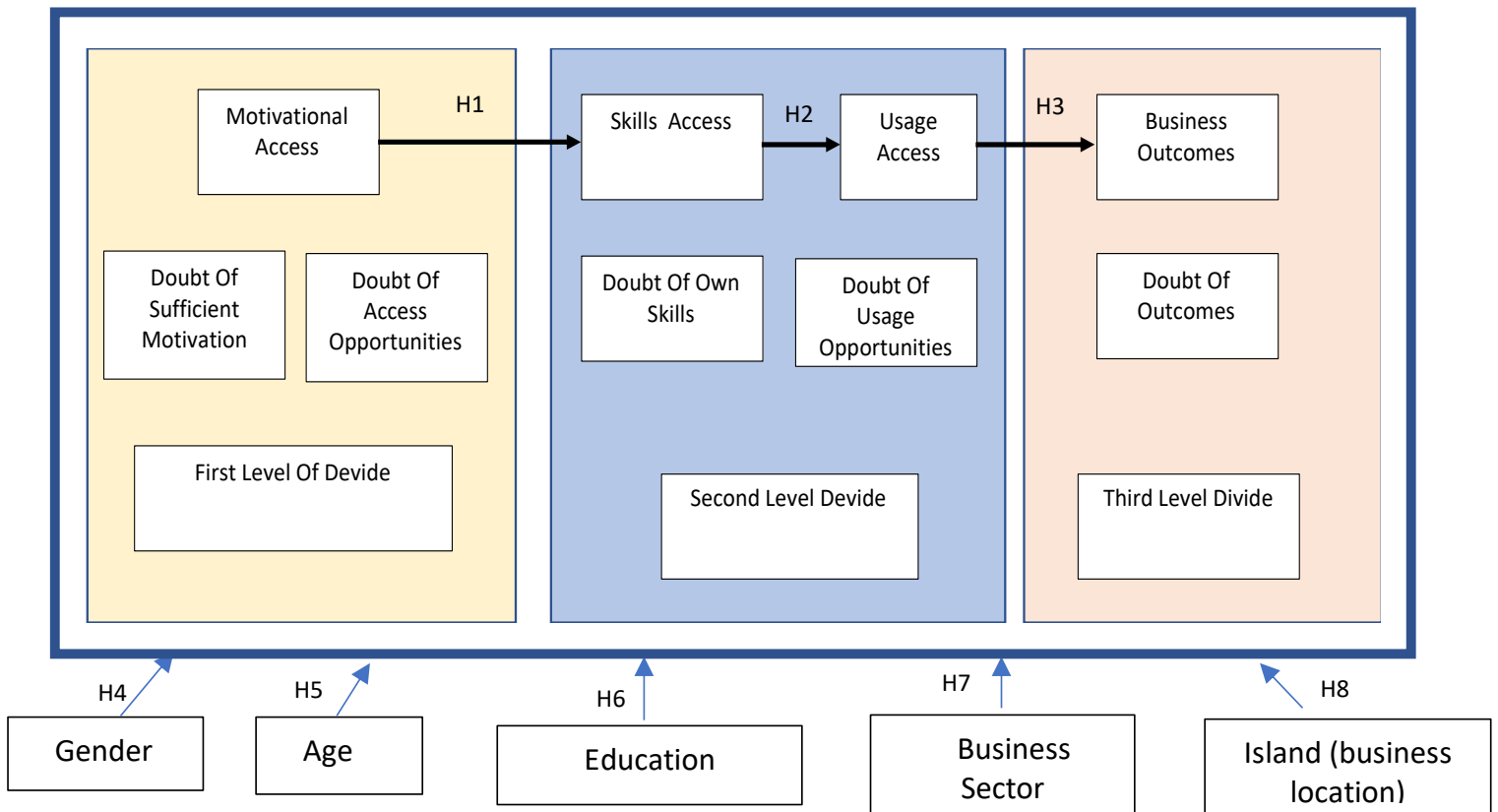


Figure 5. 2 The Hypothesized Model of Internet Access

This study can also be categorized as a cross-sectional survey. In a cross-sectional data survey study, researchers seek the relationships among independent variables (risk factors) with or without dependent variables (effects) measured only once. There is no longitudinal follow-up. This is also a correlational study exploring factors that can be assumed to be causal. The data for this study were gathered using questionnaires and analyzed using statistical methods to determine the relationships among variables and understand the barriers to internet adoption among MSE entrepreneurs in Indonesia.

5.3.1 Sample

As previously mentioned in Table 4.2, the population of MSEs in Indonesia was estimated to be 64.133.354 units in 2018. Approximately 6% of this population were internet users, and the remaining 94% were internet non-users. Therefore, the total number of internet non-user MSEs was 60.285.352 units. This study used Slovin's formula¹ to calculate the minimum sample size needed to validate the results. With a 5% margin of error, Slovin's formula estimated that the minimum number of samples for this study was 399,997 units, which was rounded up to 400 MSEs.

The samples were gathered by searching for representative MSEs in several regions in Indonesia, visiting special events such as national entrepreneurship festivals/training/seminars, and collaborating with local MSE communities. The samples were dual nonrandom convenience samples for both internet users and non-users from micro, small and medium enterprises (MSEs). At the beginning, the MSE respondents were given a questionnaire with two options: one was for internet user MSEs, and the other was for non-user MSEs. The sampling technique used in this study was nonprobability sampling, which is also called convenience sampling. This sampling technique does not allow members of the population to have the same opportunities to be chosen as samples. It consists of several types of sampling techniques, and this study used purposive sampling specifically. In purposive sampling, certain population members are deliberately chosen by the researchers as the samples. Purposive sampling was chosen to make the best comparison between both populations. The targeted samples in this study were MSE entrepreneurs who attended entrepreneurial events, seminars, or workshops. The events were held on Java Island, Sumatera Island, and Bali Island. MSEs who attended these events were asked to complete the distributed questionnaire.

The demographic characteristics of the respondents included gender, age, and education level. Furthermore, business-related

¹ The Slovin's Formula = $n = N / (1 + (N \times e^2))$

Where, n = sample size, N = Population and e = margin of error

characteristics included the last job before starting a business, business sector, net wealth, and annual sales. The demographic characteristics were expected to provide a relatively clear picture of the respondents and their relation to the problems and objectives of the study. Table 5.1 summarizes the total numbers of questionnaires distributed, returned, and used in this study.

Table 5. 1 The Total Number of Collected and Returned Questionnaire

Distributed Questionnaires	650
Unreturned Questionnaires	54
Returned Questionnaires	596
Aborted Questionnaires	33
Used Questionnaires	563

Based on Table 5.1, 596 questionnaires were returned, but only 563 questionnaires qualified to be used in this study. The other 33 questionnaires were removed because they were incomplete. The total number of questionnaires used in this study met the minimum sample size; hence, the total sample in this study was sufficient for the statistical analysis.

Table 5. 2 Characteristics of the Sample and the Population

Variable	Non-user Sample	%	Population %
Gender			
Male	351	62.2	77.4
Female	212	37.8	22.6
Age			
≤29 years old	66	11.8	11
30 – 39 years old	247	43.8	26.9
>40 years old	250	44	62.1
Education Level			
Elementary School	185	32.8	6.2
Junior School	71	12.6	6.8
Senior High School/ Vocational High School	70	12.4	37.2
Diploma Program	236	42.2	7.2
Bachelor	-	-	36.1

Master			6.5
Business Sector Undergoing			
Fashion	224	39.8	18.2
Culinary	108	19.2	41.7
Service	123	21.8	17.6
Design/craft	70	12.4	15.7
Others	38	6.8	7
Duration of Business Experience			
1-2 Years	113	20.0	N/A
3-5 Years	361	64.2	N/A
6-9 years	78	13.8	N/A
>10 Years	11	2.0	N/A
Number of employees			
MIE (0-10)	558	99.2	
SE (11-30)	5	0.8	
ME (>30)	0	0.0	
Labor Conditions (In Last Two Years)			
Decreased	53	9.4	
Stagnant	467	83.0	
Increased	43	7.6	
Island For Business			
Ambon (Maluku)	7	1.20	1.8
Bali	25	4.40	5.7
Jawa	508	90.20	60.7
Kalimantan	20	3.60	5.1
Sulawesi	3	0.60	8.1

Table 5.2 summarizes the respondents based on their profile and compares the composition of the samples with the composition of the population. The composition of the sample matches the composition of the population. Most of the respondents were over 40 years old, which is aligned with the population data and states that most of the non-user MSE entrepreneurs are over 40 years old. This condition indicates that most of the non-users are senior entrepreneurs who, based on previous literature, are the age group with the least internet skills and usage. Furthermore, regarding education level, most of the respondents were senior high school/vocational

Table 5. 3 Operational and Descriptive Statistics

INDEX	INDICES	ITEMS AND QUESTIONS	Frequency				M
			1	2	3	4	
Motivational Access	Mot 1	Motivational	What is your opinion about Internet				1.89
	Mot 2		The Internet is not important for my business				2.85
	Mot 3		I do not need to use the Internet				1.88
Skills Access	OP1	Operational	I do not know how to install apps on a mobile device				2.45
	OP2	Skills	I do not use the Internet because the Internet is complicated				2.44
	OP3		I do not use the Internet because I don't have insufficient skill				2.44
	OP4		I do not know how to find online information				2.44
	OP5		I don't know how to fix an Internet connection problem				2.45
	OP6		I do not know how to download apps to my mobile device				2.45
	OP7		I do not know how to keep track of the costs of mobile app use				2.45
Usage Access	PO 1	Perceived	I do not see the opportunity to use the Internet in the future				2.44
	PO2	Opportunity	I do not see the opportunity to use the Internet for business in the future				2.45
	PO3	for Future Use	I do not see the opportunity to learn how to use the Internet in the future				2.45
Business Outcomes	BO 1	Expected	I do not think that I will have more customers if I use Internet				1.83
	BO 2	Outcomes	I do not think that I will more confidence doing a business with my business partners by using Internet				1.82
	BO 3		I do not think that I have a better relationship with business partners if I use Internet				1.84
	BO 4		Business opportunities can be achieved more even without using Internet				1.83
	BO 5		In terms of attracting customers, can be described our business effectively without Internet				1.82
	BO 6		Customer and stakeholder satisfaction can be achieved better without using the Internet				1.83
	BO 7		I do not think that I will have more business partners if I use Internet				1.84

high school graduates. The highest education level of all respondents was a diploma program, and none of them held bachelor's or master's degrees. This implies that non-user MSE entrepreneurs are less educated compared with user MSE entrepreneurs.

Most of the respondents ran their business in culinary and service areas and possessed 3-5 years of business experience. All their businesses were worth less than Rp 50 million, which is in line with the definition of an MSE. Unfortunately, not all regions or islands of Indonesia were part of the sample, but the sample still covered a sufficient area to represent the MSE population in Indonesia.

5.3.2 Measures

The survey in this study was developed based on the previously defined variables of internet access. Included are Motivational Internet Access (the motivation or reasons that drive non-user MSE entrepreneurs to use the internet), Operational skills for doing business, the perceived opportunity for future internet use among non-user MSE entrepreneurs, and the expected outcomes of using the internet for non-user MSE entrepreneurs. Each variable was broken down into several indices, and each index was also broken down into indicators (items), as shown in Table 5.4. Each indicator represented a question in the questionnaire. The questionnaire used four-point Likert scales to measure respondents' agreement with the statements: one represented the lowest agreement, and four represented the strongest agreement. Table 5.4 also summarizes the responses gathered for each questionnaire item.

5.4 Descriptive Analysis

The questionnaire in this study used a four-point Likert scale, which means that the interval for the continuum line was 0,75. The categories for each agreement level on the continuum line are shown in Figure 5.3.

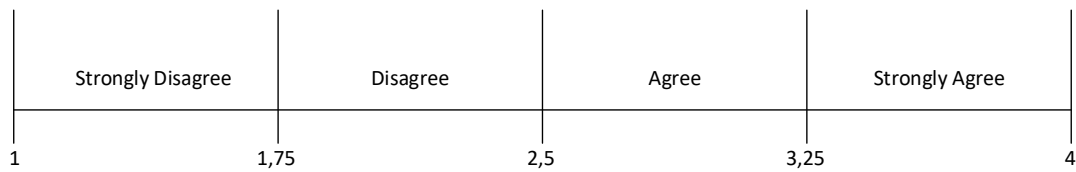


Figure 5.3 The Continuum Line

Based on Table 5.4, there are four main variables: motivational access, skill access, usage access, and business outcomes. Motivational access consists of three indicators, and the indicator with the highest average score is Mot2: “The internet is not important for my business”, which falls on the agreement level on the continuum line. A total of 89.8% of the respondents agreed with this statement, which indicates that non-user MSE entrepreneurs are either unaware or may just ignore the benefits of the internet for their businesses.

Skill access consists of seven indicators, all of which are related to internet operational skills. All indicators achieve relatively the same average score, which is 2.45. This score falls at the “disagree” level, although it is close to the “agree” level. This means that the number of respondents with internet operational skills is almost equal to those without operational skills. Usage access shows the same results as the skill access variables, and all three indicators demonstrate relatively equal average scores of 2.45, meaning that the number of respondents who are willing to use the internet for business purposes in the future is almost equal to those who still do not want to use the internet in the future.

The last variable, business outcomes, consists of seven indicators related to the expected outcomes of using the internet. All indicators also show almost equal average scores, which fall on the “disagree” level on the continuum line. Because the questionnaire in this part used negative statements, it means that the non-user MSE entrepreneurs think the internet could help them achieve their business goals or improve their business performance.

5.5 Results

5.5.1 Outer model testing

The first step in PLS-SEM is creating a model that connects variables and its construct (Hair et al., 2014). The model consists of two parts, namely, the inner model and outer model. The inner model shows the relationship between the construct while the outer model evaluates the relationships between indicators and the corresponding construct (Hair et al., 2014). The next step is to assess the outer model to determine the validity and reliability of the measured constructs (Hair et al., 2014). Indicators of latent variables are tested to measure the extent to which the item can approach its latent variable (Indrawati, 2017). Structural or outer model testing consists of several measurement methods, including convergent validity, discriminant validity, and reliability (Henseler, et al., 2009; Ringle, et al., 2012; Urbach & Ahlemann, 2010). Figure 5.4 shows the outer model of this study.

Convergent Validity

Hair et al. (2014) defined convergent validity as the extent to which an indicator is correlated to other indicators on the same construct. The convergent validity is measured using the outer loading value (Santosa, 2018). The minimum outer loading necessary for an indicator to be valid is 0.7 (Barclay et al., 1995). The outer loadings for all indicators in this study is listed in Table 5.5. The table shows that all indicators have outer loading values that are greater than 0.7. This means all indicators in this study are valid. The outer loading value for each latent variable is discussed in detail in the following subsection.

Table 5. 4 Convergent Validity

Latent Variable	Indicator	<i>Outer Loading</i>	Description
Motivational Access	Mot1	.959	Valid
	Mot2	.856	Valid
	Mot3	.943	Valid
Operational Skills	OP1	.976	Valid
	OP2	.996	Valid
	OP3	.992	Valid
	OP4	.986	Valid
	OP5	.985	Valid
	OP6	.963	Valid
	OP7	.992	Valid
Perceived Opportunity for Use	PO1	.979	Valid
	PO2	.997	Valid
	PO3	.989	Valid
Business Outcome	BO1	.961	Valid
	BO2	.979	Valid
	BO3	.960	Valid
	BO4	.981	Valid
	BO5	.878	Valid
	BO6	.970	Valid
	BO7	.940	Valid

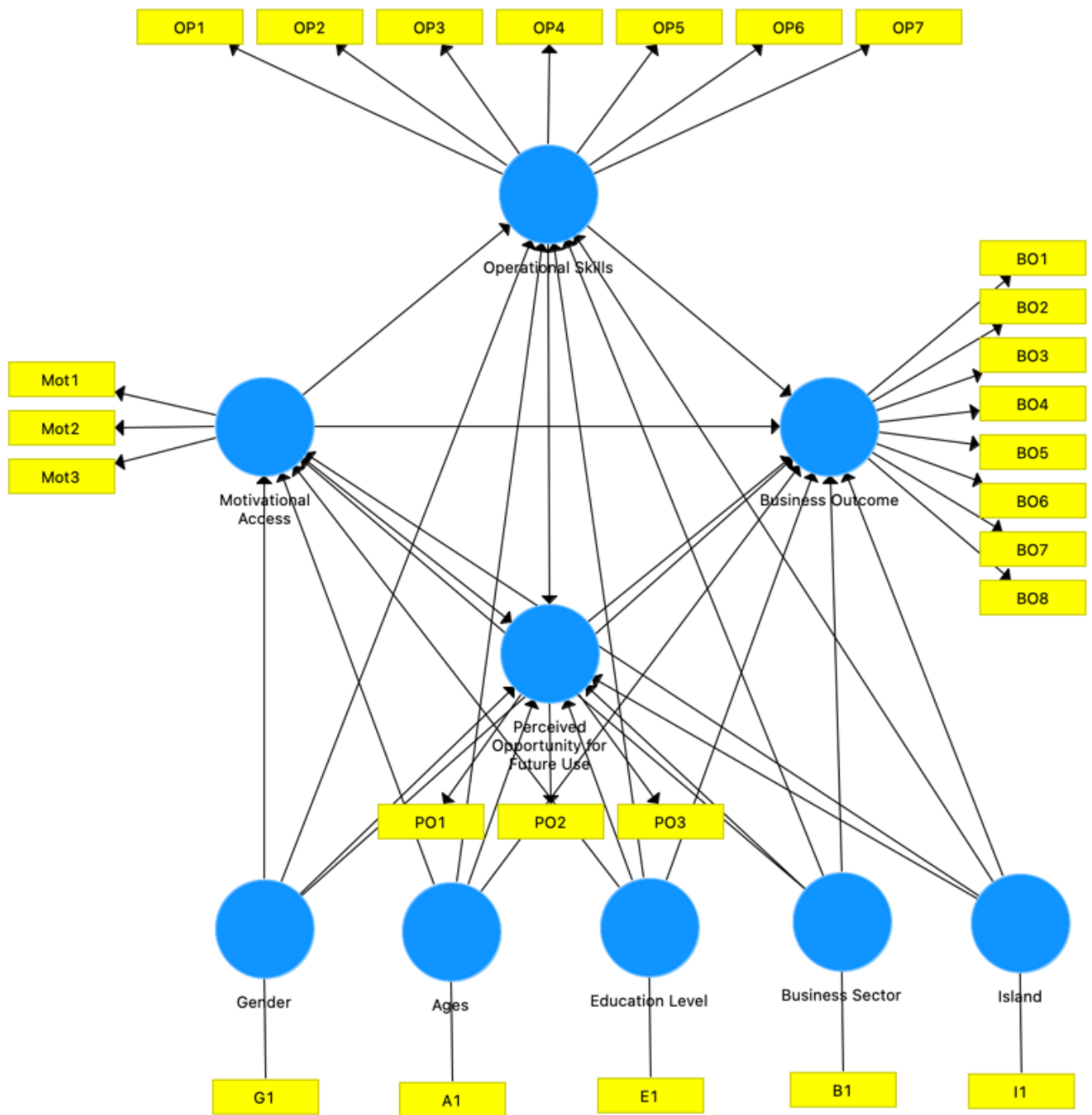


Figure 5. 4 Outer Model Loadings

Convergent Validity for Motivational Access

Table 5.5 shows the outer loadings for the indicators in the motivational access variable. Each outer loading is greater than 0.7, which means that all indicators in the motivational access variable are valid.

Table 5. 5 The Outer Loading value of Motivational Access

Latent Variable	Indicator	Outer Loading	Description
Motivational Access	Mot1	.959	Valid
	Mot2	.856	Valid
	Mot3	.943	Valid

Convergent Validity for Skill Access

Table 5. 6 The Outer Loading value of Skills Access

Latent Variable	Indicator	Outer Loading	Description
Operational Skills	OP1	.976	Valid
	OP2	.996	Valid
	OP3	.992	Valid
	OP4	.986	Valid
	OP5	.985	Valid
	OP6	.963	Valid
	OP7	.992	Valid

Skill access consists of seven indicators related to internet operational skills. Table 5.6 summarizes the outer loadings for the skill access variable. The outer loading for each indicator is greater than 0.7, which means that all indicators in skill access are valid.

Convergent Validity for Perceived Opportunity for Use

Table 5.7 presents the outer loadings for the perceived opportunity for use variable. Based on the data, all indicators for this variable are also valid.

Table 5. 7 The Outer Loading value of Perceived Opportunity for Use

Latent Variable	Indicator	Outer Loading	Description
Perceived Opportunity for Use	PO1	.979	Valid
	PO2	.997	Valid
	PO3	.989	Valid

Table 5. 8 The Outer Loading value of Business Outcome

Latent Variable	Indicator	Outer Loading	Description
Business Outcome	BO1	.961	Valid
	BO2	.979	Valid
	BO3	.960	Valid
	BO4	.981	Valid
	BO5	.878	Valid
	BO6	.970	Valid
	BO7	.940	Valid

Convergent Validity for Business Outcomes

The outer loadings for the indicators in the business outcomes variable are shown in Table 5.8. The data indicate that all indicators are valid because the outer loadings are greater than 0.7.

Average Variance Extracted (AVE)

In addition to outer loadings, the AVE is also used to determine the validity of the outer model (Hair et al., 2014). The AVE must be 0.5 or higher for a variable to be considered valid (Hair et. el., 2014). Table 5.9 shows the AVEs of the variables used in this study.

The AVEs for motivational access, operational skills, perceived opportunity for use and business outcome are higher than 0.5, which means that each variable in this study has met the convergent validity criterion. See Table 5.9.

Table 5. 9 AVE Score

Latent Variable	AVE Score
Motivational Access	.847
Operational Skills	.969
Perceived Opportunity for Use	.977
Business Outcome	.916

Discriminant Validity

According to Hair et al. (2014), discriminant validity shows the differences between two constructs. This means that a construct measures what it is intended to measure. Discriminant validity indicates that a construct is unique and captures a phenomenon not captured by other constructs (Santosa, 2018). The discriminant validity is measured by using the cross-loading (Santosa, 2018). The cross-loading of an indicator for a construct must be greater than the cross-loading of the indicator to other constructs (Barclay et al., 1995). Table 5.11 shows the cross-loadings for each indicator and variable in this study.

Table 5. 10 Cross Loading Value

Motivational Access	Operational Skills	Perceived Opportunity for Use	Business Outcome
.959	.064	.056	-.001
.856	.019	.005	.018
.943	.050	.032	-.007
.058	.976	.961	.086
.056	.996	.956	.088
.062	.992	.955	.087
.032	.986	.970	.077
.060	.985	.954	.075
.044	.963	.949	.084
.048	.992	.949	.088
.033	.977	.979	.077
.041	.961	.997	.052
.042	.942	.989	.047
-.008	.081	.071	.961
-.039	.062	.055	.979
.049	.094	.058	.960
.000	.077	.052	.981

.036	.041	.031	.878
.014	.101	.068	.970
-.020	.081	.052	.940

Another parameter to assess the discriminant validity is the root of the AVE (Santosa, 2018). The root of the AVE of a construct must be higher than its correlation with other constructs (Fornell & Larcker, 1981). The roots of the AVEs for this study are shown in Table 5.11 The results indicate that each variable has met the discriminant validity criterion.

Table 5. 11 AVE Root Value

Latent Variable	Motivational Access	Operational Skills	Perceived Opportunity for Use	Business Outcome
Motivational Access	.920			
Operational Skills	.052	.984		
Perceived Opportunity for Use	.039	.972	.989	
Business Outcome	.002	.085	.060	.957

Reliability Test

According to Abdillah (2018), reliability measures the consistency and stability of an instrument. Reliability was measured using Cronbach's alpha (CA) and the composite reliability (CR). A variable is reliable when its CA and CR are greater than 0,7 (Hair et al., 2008). Table 5.13 summarizes the CAs and CRs of the variables used in this study, and the results show that all variables are reliable.

Table 5. 12 Reliability Test

Latent Variable	Cronbach's Alpha (CA)	Composite Reliability (CR)
Motivational Access	.912	.943
Operational Skills	.995	.995
Perceived Opportunity for Use	.988	.992
Business Outcome	.987	.989

5.5.2 Structural Model (Inner Model) Measurement

After the validity and reliability of the outer model are confirmed, the next step is to evaluate the inner model. According to Hair et al. (2014), the inner model or the structural model is evaluated by using the coefficient of determination (R²) and the path coefficient (T-value). The path coefficient value shows the level of significance in hypothesis testing and is indicated by the T-value, which must be above 1.96 for two-tailed hypothesis testing with a significance level of 5% (Hair et al., 2008).

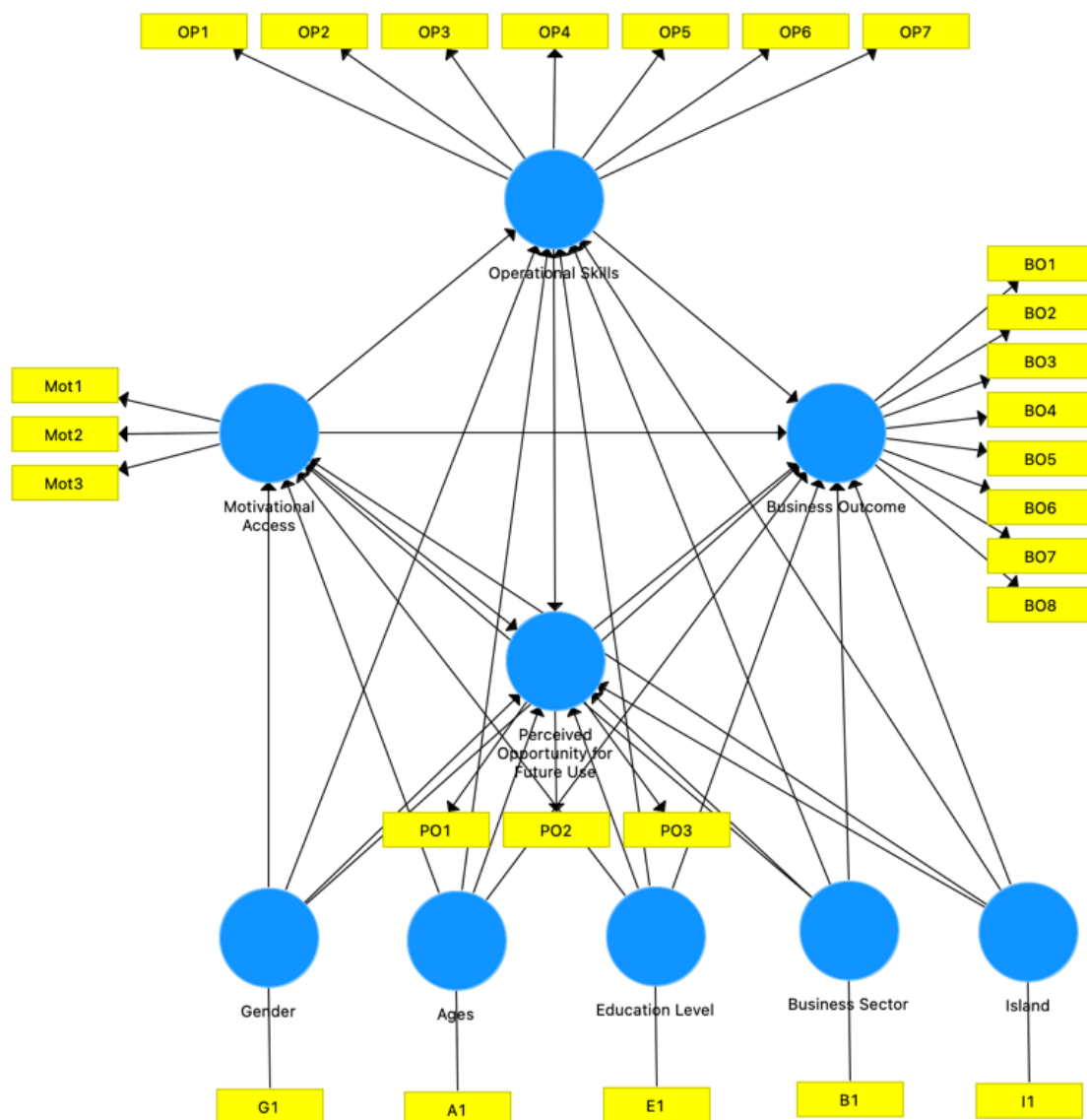


Figure 5. 5 Structural Model

The structural model or inner model measures the influence of one latent variable on other latent variables (Indrawati, 2017). It will also show the results of hypothesis testing with the T-value and the origin sample (standardized beta) as the analyzed parameters (Abdillah, 2008). The path coefficient value or T-value is obtained through the bootstrapping process (Indrawati, 2017). Figure 5.5 shows the inner model for this study, and Table 5.14 and Table 5.15 summarize the inner model measurement results.

Table 5. 13 T-Values and the Internet Access

	Paths	Beta	T Values	P Values	Description
H1	Motivational Access-> Operational Skills_	.848	21.169	< 0.05	Accepted
H2	Operational Skills_ -> Perceived Opportunity for Future Use	1.190	5.743	< 0.05	Accepted
H3	Perceived Opportunity for Future Use -> Business Outcomes	.256	3.921	< 0.05	Accepted

Table 5. 14 T-Values and The Internet Access determinants

		Beta	T Values	P Values	Description
H4a	Gender_ -> Motivational Access	.316	4.666	< 0.05	Accepted
H4b	Gender_ -> Operational Skills_	.276	4.370	< 0.05	Accepted
H4c	Gender_ -> Perceived Opportunity for Future Use	.153	2.403	< 0.05	Accepted
H4d	Gender_ -> Business Outcome	.248	4.005	< 0.05	Accepted
H5a	Ages_ -> Motivational Access	-.384	5.448	< 0.05	Accepted
H5b	Ages_ -> Operational Skills_	-.328	5.123	< 0.05	Accepted
H5c	Ages_ -> Perceived Opportunity for Future Use	-.153	2.260	< 0.05	Accepted
H5d	Ages_ -> Business Outcome	-.300	4.647	< 0.05	Accepted
H6a	Business Sector -> Motivational Access	.028	0.839	0.402	Rejected
H6b	Business Sector -> Operational Skills_	.018	0.555	0.579	Rejected

H6c	Business Sector -> Perceived Opportunity for Future Use	.060	1.966	< 0.05	Accepted
H6d	Business Sector -> Business Outcome	.030	0.975	0.330	rejected
H7a	Education Level_ -> Motivational Access	.344	4.486	< 0.05	Accepted
H7b	Education Level_ -> Operational Skills_	.436	5.853	< 0.05	Accepted

Table 5.14 continued

H7c	Education Level_ -> Perceived Opportunity for Future Use	.534	6.349	< 0.05	Accepted
H7d	Education Level_ -> Business Outcome	.532	6.685	< 0.05	Accepted
H8a	Island For Business_ -> Motivational Access	.203	3.440	< 0.05	Accepted
H8b	Island For Business_ -> Operational Skills_	.214	3.406	< 0.05	Accepted
H8c	Island For Business_ -> Perceived Opportunity for Future Use	.076	0.920	0.358	Rejected
H8d	Island For Business_ -> Business Outcome	.139	1.869	0.062	Rejected

5.5.3 Hypothesis Testing

Tables 5.13 and 5.14 show the results of hypothesis testing for this study. The results can be explained as follows:

Hypothesis H1 - Motivational Access Influences Operational Skills - is accepted and indicates the positive impact of motivational access to operational skills. MSE entrepreneurs who are motivated to use the internet for their businesses possess better internet operational skills.

Hypotheses H2 - Operational Skill Access Influences Perceived Opportunity for Future Use - is also accepted, suggesting that MSE entrepreneurs who have internet operational skills are more likely to use the internet for their businesses in the future.

Hypothesis H3 - Perceived Opportunity for Future Use Influences Business Outcomes - accepted, which suggests that MSE entrepreneurs who

see themselves using the internet in the future will have a higher probability of achieving better business outcomes.

Hypotheses H4a - Gender Influences Motivational Access - is accepted, which suggests that gender has a positive influence on motivational access. This result implies that male entrepreneurs, as the majority of the entrepreneurs, are more motivated than female entrepreneurs.

Hypotheses 4b - Gender Influences Operational Skills - is accepted, which suggests that the gender of MSE entrepreneurs also affects their internet operational skills. Male entrepreneurs generally possess better operational skills than female entrepreneurs.

Hypothesis 4c - Gender Influences Perceived Opportunity For Future Use - is accepted; hence, the gender of MSE entrepreneurs influences their future internet use. Male entrepreneurs are more likely to use the internet for their businesses in the future.

Hypotheses 4d - Gender Influences Business Outcomes - is accepted, which indicates that male MSE entrepreneurs usually obtain better outcomes in their businesses.

Hypotheses 5a - Age Influences Motivational Access - is also accepted, meaning that age affects MSE entrepreneurs' motivation to use the internet. Younger MSE entrepreneurs are more motivated to use the internet, and vice versa.

Hypotheses 5b - Age Influences Operational Skills – is accepted, which means that age influences MSE entrepreneurs' operational skills. Younger MSE entrepreneurs tend to have better internet operational skills due to their massive exposure to the technology compared with older entrepreneurs.

Hypothesis 5c - Age Influences Perceived Opportunity For Future Use - is accepted. Younger MSE entrepreneurs are more open to the possibility of using the internet for their businesses in the future.

Hypotheses 5d - Age Influences Business Outcomes - is accepted; thus, age influences business outcomes. Younger MSE entrepreneurs are

more likely to achieve better business outcomes than older MSE entrepreneurs.

Hypothesis 6a - Business Sector Influences Motivational Access - is rejected, meaning that the business sector in which an MSE operates its business does not affect the entrepreneur's motivation to use the internet.

Hypothesis 6b - Business Sector Influences Operational Skills - is also rejected, and the business sector does not influence the owner's internet operational skills.

Hypothesis 6c - Business Sector Influences Perceived Opportunity for Future Use - is accepted, which means that the business sectors of MSEs affect their probability of adopting the internet in the future, which may be due to the pressures from their customers and competitors or the changing nature of their business areas.

Hypotheses 6d - Business Sector Influences Business Outcomes - is rejected. This rejection proves that MSE business outcomes are not affected by its business sector.

Hypothesis 7a - Educational Level Influences Motivational Access - is accepted, so education level is proven to affect motivational access. More educated MSE entrepreneurs are also more motivated to use the internet.

Hypothesis 7b - Educational Level Influences Operational Skills - is also accepted. This indicates that education level influences an MSE entrepreneur's operational skills when using the internet. Highly educated MSE entrepreneurs tend to have better internet operational skills.

Hypothesis 7c - Educational Level Influences Perceived Opportunity For Future Use - is accepted, so education level is proven to influence the probability of MSEs using the internet in the future. More educated MSE entrepreneurs have a greater probability of using the internet for their businesses.

Hypotheses 7d - Educational Level Influences Business Outcomes - is accepted, which means that education level affects business outcomes. Education levels are in accordance with entrepreneurs' management and operational abilities and their decision-making processes, which allows

highly educated entrepreneurs to achieve better business outcomes than less-educated entrepreneurs.

Hypotheses 8a - Island For Business Influences Motivational Access - is accepted. This acceptance indicates that the geographical location of an MSE will affect the entrepreneur's motivation to use the internet. MSEs located on a well-developed island will be more motivated to use the internet due to availability and easy internet access.

Hypothesis 8b - Island For Business Influences Operational Skills - is also accepted. The location of an MSE also influences the entrepreneur's ability to use the internet. MSE entrepreneurs with easier access to internet infrastructures have better internet skills.

Hypothesis 8c - Island For Business Influences Perceived Opportunity For Future Use - is rejected. Geographic location has no effect on the probability of MSEs using the internet in the future.

Hypotheses 8d - Island of Business Influences Business Outcomes - is also rejected. The location of an MSE has no influence on its business outcomes.

5.6 General Conclusions

The data from Indonesia's Ministry of Communication and Information Technology show that the majority of MSEs in Indonesia have not implemented and utilized information technology and the internet in their businesses. This study was conducted to explore the barriers to internet adoption among MSE entrepreneurs in Indonesia. The model is based on the framework of internet access by Van Dijk (2005). There are four variables of internet access in this study, namely, motivational access, skill access, usage access, and business outcomes access. The object of this study is MSE entrepreneurs who do not use the internet in their businesses. Motivational access is defined as the motivation of MSE entrepreneurs to use the internet. Skill access includes the operational skills needed to use the internet. Usage access is the perceived opportunity for future internet use, and business outcome access is defined as the expected outcomes after using the internet.

Five out of twenty-six hypotheses are rejected, and twenty-one are accepted. Motivational access is proven to influence operational skills. Non-user MSE entrepreneurs who are better motivated to use the internet tend to have better internet operational skills because the motivation will drive them to improve their skills. Unfortunately, based on the questionnaire results, most of the non-user MSE entrepreneurs consider the internet to be unimportant for their businesses, so it can be concluded that non-user MSE entrepreneurs in Indonesia lack the motivation to use the internet.

Operational skills affect the perceived opportunity for future use. Non-user MSE entrepreneurs who possess sufficient internet operational skills are more likely to use the internet for their businesses in the future, which will also increase their expected business outcomes. The descriptive analysis of the questionnaire results shows that the number of non-user MSE entrepreneurs who have adequate internet operational skills is almost equal to those who lack the skills.

Perceived opportunity for future use is also confirmed to have an effect on business outcomes. Non-user MSE entrepreneurs who are willing to use the internet in the future will have a better probability of improving their business outcomes. The number of non-user MSE entrepreneurs who see themselves using the internet in the future is almost equal to those who do not. The descriptive analysis results also indicate that non-user MSE entrepreneurs think the internet could help them achieve their business goals or improve their business performance.

Furthermore, sociodemographic factors also influence MSEs' internet access. Gender is proven to influence motivational access, operational skills, perceived opportunity for future use, and business outcomes. Male entrepreneurs, who dominated MSE entrepreneurs in Indonesia, tend to be more motivated to use the internet and have better skills. They are also more likely to use the internet in the future, which will improve their business outcomes.

Age also affects motivational access, operational skills, perceived opportunity for future use, and business outcomes. Younger MSE entrepreneurs tend to have better motivation and internet skills. Younger

non-users are also more likely to adopt the internet for their businesses in the future, which will improve their business outcomes. Most of the non-user MSE entrepreneurs in Indonesia are from the older group age, which is older than 40 years old.

The business sectors in which MSEs run their businesses do not affect motivational access, operational skills, or business outcomes. However, this factor affects perceived opportunity for future use, which may occur because of the pressures from their customers and competitors or the changing nature of their business area.

Education level is proven to influence motivational access, operational skills, perceived opportunity for future use, and business outcomes. More educated MSE entrepreneurs are usually more motivated and have better internet skills than those who are less educated. Highly educated non-user MSE entrepreneurs are also more likely to use the internet in the future and achieve better business outcomes, which may occur because they have more knowledge of the internet and its benefits for their businesses. Most of the non-user MSE entrepreneurs are less educated at a level lower than a diploma program.

The locations of MSEs influence their motivational access and operational skills but do not influence the perceived opportunity for future use and business outcomes. MSE entrepreneurs who run their businesses on a well-developed island will be more motivated to use the internet and tend to have better internet skills because of the availability and easier internet access.

The results of this study reveal that non-user MSE entrepreneurs are predominately by male entrepreneurs from older age groups and low education backgrounds. Although most of them know that the internet is important for their businesses and some are willing to use the internet in the future, they still lack the motivation and skills to use the internet. This condition can be improved by increasing their awareness of the importance of the internet for MSEs and encouraging them to improve their skills.

CHAPTER 6.

GENERAL CONCLUSION AND DISCUSSION

6.1 *Introduction*

This research is carried out to explore and identify internet access usage among Indonesian MSE entrepreneurs. It also aims to encourage MSE entrepreneurs to use the internet in their businesses. The undertaking started with a general description of internet access and its development, especially for MSEs in Indonesia. The assumption is that the internet for business usage has significant impacts on the effectiveness and efficiency of many companies. The internet has been used for personal and social activities as well as for business purposes, especially when it is a one- or two-person company, but the digital divide has emerged among MSE entrepreneurs in terms of the opportunities to access information and communication technologies (ICT) and their benefits.

The models in this research are based on internet access by Van Dijk (2005), which includes motivational access, material access, skills access, and internet usage access. A preliminary study was conducted to explore the existing condition of internet access among Indonesian MSE entrepreneurs. It is carried out by holding a focus group discussion attended by both internet-using and noninternet-using MSE entrepreneurs. The next step was to perform empirical studies on MSE entrepreneurs who are both internet users and noninternet users. This empirical study aims to deepen the understanding of determinants and barriers to internet usage in both groups. This chapter summarizes the results from Chapter 3, Chapter 4, and Chapter 5 so that the findings about MSE and internet users and nonusers can be seen and compared. The problems and obstacles experienced by MSEs related to internet access phases are also discussed in this chapter. The implications of this research and recommendations for MSEs, the government, and other stakeholders are discussed in the next chapter.

6.2 The Comparison of Internet-User and Non Internet-User MSE Entrepreneurs

MSE entrepreneurs, as the objects of this research, are divided into two main groups, namely, internet users (users) and non-internet users (nonusers). The analysis result shows that user MSE entrepreneurs are mostly males under 29 years old with education levels higher than the Diploma Program. Nonuser MSE entrepreneurs are mostly males older than 40 years of age with education levels lower than the Diploma Program.

From the internet access point of view, MSE user entrepreneurs have better motivation and skills and are willing to invest more in internet materials. They also use the internet more frequently for various purposes. Most users have sufficient knowledge about the internet and its benefits for their businesses. MSE entrepreneurs who are nonusers lack motivation and internet skills as well as knowledge about the internet. They think that the internet is not important for their businesses and that they can still run their businesses effectively without the internet.

6.3 Internet Access Result Analysis

Indonesia is an archipelago consisting of more than 17,504 islands. ICT infrastructure has not been equally available or publicly used by all its citizens. The government planned four medium-term strategies from 2015 to 2019 that focused on increasing the competitiveness of Indonesia's commodity sector and encouraging the development of human resources, particularly in science and technology. However, its implementation is still limited to infrastructure development and reducing subnational disparities between urban and rural areas. MSEs are one of the economic sectors that are still falling behind in ICT use.

The results of this study can be one of the references for the government or other stakeholders planning ICT strategies and policies for MSEs. This study revealed that internet access for business use is still relatively new for MSEs in Indonesia. Some of the outcomes for each internet

phase from the two groups are different, while the others are the same. The detailed results are explained in the next section.

6.3.1 Conclusion of Internet Access for MSE Entrepreneur Internet Users

A. Motivational Internet Access

Motivational internet access remains relevant because it is associated with all stages of appropriating digital technology. This research confirmed that motivational access affects material access among internet-user MSEs. It directly influences the connection quality and the number of devices used. This implies that MSE entrepreneurs who are motivated to use the internet tend to be more willing to invest in internet devices and have better internet connections. Motivational access will also indirectly internet skill access and internet usage access.

Motivational access is the first-level divide of potential users to adopt the internet for their businesses. As a tool for doing business, the internet offers some benefits, such as wider market reach, lower operational costs, flexibility, etc. The direct benefit of the internet for conducting business is facilitating interaction with consumers and business partners and helping to improve company performance. These benefits motivate MSE entrepreneurs to use the internet. This result is consistent with the causal test of the model from Van Deursen and Van Dijk (2015), which suggested that the increase in a person's motivation to use the internet might also increase all subsequent phases: Material internet access, internet skill access and usage access.

Barriers to internet usage among MSE internet users are related to motivational access, e.g., insufficient English skills, lack of confidence, and little interest in using the internet. These obstacles make MSEs less motivated to use the internet. It will also lessen the interest in learning about new technologies and the English language that are needed for accessing the internet. The Indonesian government, through the Ministry of Communication and Informatics and the Creative Economy Agency, has already created programs to overcome these problems, such as organizing an annual festival to increase motivation and knowledge in internet usage.

However, it is still not sufficient to improve internet usage among internet-using MSEs. In addition, unequal availability of internet facilities is also an obstacle that could affect MSE motivation. Table 6.1 shows the barriers related to motivational access that delay internet adoption among MSE users in Indonesia.

Table 6. 1 Barriers in Motivational Access for MSE Users

Motivational Internet Access	Obstacles	Problems
<i>"I have to study and increase the English language."</i>	Insufficient English skills	There is motivation, but confidence is lacking because of insufficient English skills and other necessary skills in using the website.
<i>"Does not have confidence in using website. Social media is enough for now".</i>	Lack of confidence	
<i>"I am not fond of using the internet but have to because it is necessary."</i>	Lack of interest in using technology	Lack of interest in using technology and only using it when needed.

B. Material Internet Access

Favorable motivational internet access induces users to find a better connection quality and a greater number of devices, which are part of material internet access. The results showed that material internet access directly affects internet skills access. MSE entrepreneurs who have a good internet connection and owned more than one internet device have more opportunities to increase their internet skills, which in the end will also increase their internet usage and improve their business outcomes. Referring to the respondents' characteristic data, it is also found that most internet user sample groups have both laptops and smartphones. This result is consistent with other studies showing that users need stable and high-speed internet connections for their businesses (Mossberger et al., 2012). Mossberger (2012) also found that the quality of broadband influences individual skills. DiMaggio et al. (2004) and Hargittai (2002) revealed that

actively participating in online media requires regular access to the internet using tools and connections that can accommodate all online activities. The availability of proper infrastructure and facilities will lead MSE internet users to better business performance.

Unstable signals and limited devices are two of the main problems experienced by user MSEs, especially in rural areas, related to material internet access. Unstable signals and limited devices prevent MSEs from fully utilizing the internet. Mossberger et al. (2012) stated that a stable internet connection is necessary for business users. The Ministry of Communication and Informatics and the Creative Economy Agency have created programs to improve material internet access for internet users by providing internet access in public places such as schools and government offices and by creating a government incentive program for local MSEs to develop their businesses. The barriers to material internet access among MSEs are summarized in Table 6.2.

Table 6. 2 Barriers in Material Internet Access for MSE Internet Users

Material Internet Access	Obstacles	Problems
<i>“Unstable signal which is uncontrollable.”</i>	Unstable signal	The unstable signal makes entrepreneurs unable to utilize the internet effectively.
<i>“Using a mobile phone for the internet because it is more practical than using a laptop.”</i>	Limited Device	Even though there are many kinds of devices, MSEs still choose mobile phones because of the practicality and lack of skill in using computers.

C. Internet Skill Access

Internet skill access primarily consists of operational internet skills and online business skills. Operational skills related to the entrepreneurs’ basic ability to use the internet and their knowledge of ICT while Online business skills are related to the individual's ability to handle product-service systems, payment systems, sales and after-sales systems, and customer

loyalty systems. The results showed that internet skills have significant relationships with the frequency of using the internet and the diversity of internet usage purposes.

These results imply that both internet operational skills and online business skills are equally essential for optimizing the use of the internet. Therefore, in operating a digital business, MSE entrepreneurs need to have the basic skills in using the internet, such as connecting to and disconnecting from the internet, using wifi networks, applying shortcuts, operating applications, etc. This is consistent with Mossberger et al. (2003), who stated that the skills needed to use technology are technical competence in using hardware and software and literacy in finding, understanding, evaluating, and applying information online.

Table 6. 3 Barriers to Internet Skills Access for MSE Internet Users

Internet Skill Access	Obstacles	Problems
<i>“security skills to understand how to use the internet safely.”</i>	Lack of skills in system security	<i>Doubt about the internet:</i> Lack the knowledge in system security and insufficient internet skills, especially business skills
<i>“Have to increase internet usage for product marketing.”</i>	Lack of skill in internet business skills	

Obstacles for MSE internet users are correlated with internet skill access, e.g., lack of skills and knowledge in internet security and internet business. Mossberger et al. (2003) showed that skills, especially internet business skills, are required to use technology effectively. Unfortunately, programs for internet skills improvement are still scarce, especially government and literacy programs. The existing internet enhancement programs by the Indonesian government do not focus on internet business skills. Table 6.3 shows the problems related to internet Skills Access among user MSEs.

D. Internet Usage Access

This study found that internet business usage is related to business outcomes. MSE entrepreneurs who use the internet already know the benefits of the internet for their businesses. The internet will lead their business to more extensive opportunities, e.g., expanding market reach and making easier transactions. The internet can improve business communication and networks. It also eliminates the barriers time and location barriers in the market and makes market information easier to find. These results are in line with the research of Adera et al. (2014).

Mbuyisa and Leonard (2016) also stated that the internet is a facility to communicate, search, and share information. Based on the data, on average, user MSE entrepreneurs have been using the internet for two years with a duration of five hours per day. Most of the time, they use it for discussions and responding to consumer requests. They also used the internet to pay bills (online transactions). Internet usage is related to perceived opportunities to benefit from internet activities such as communication, information, sales, and marketing activities.

Table 6. 4 Barriers to Internet Usage Access for MSE Users

Internet Usage Access	Obstacles	Problems
<i>"Have to learn to research new product innovation."</i>	Perceived Opportunity of Internet Usage for Business	<i>Lack of Internet Business Usage Opportunities</i>
<i>"Have to increase internet usage for product marketing."</i>		

A lack of opportunities to use the internet is the main problem related to internet usage faced by user MSEs, especially in rural areas. This problem makes it difficult for them to improve their skills and obtain the maximum benefits from internet usage (Adera et al., 2014). The Ministry of Communication and Informatics, through the UMKM Go Online program, has

been trying to improve user access, but the scope and outcomes are still insufficient for MSEs in rural areas. Table 6.4 elaborates the main problem in internet usage access for user MSEs.

E. Business Outcomes

Additionally, this research revealed that internet users perceived more business opportunities and business outcomes by using the internet. They are aware of the internet's benefits, such as building better and more effective relationships with customers, expanding business networks, gaining more business opportunities, and facilitating information analysis. Therefore, the implementation of ICTs is instrumental in facilitating communication, accessing information, identifying markets, increasing transactions, gaining access to international markets, making online sales, building networks, and reducing transaction costs.

From a financial point of view, the internet can help businesses reduce expenses and generate higher profits. This follows previous research from Kiveu and Ofafa (2013) that suggested cost reductions by using the internet. This finding is also in line with the study of Esselaar et al. (2007), which stated that the use of smartphones results in lower costs for business.

Equally important, the use of information and communication technology would lead to an increase in competitiveness, productivity, and income (Ongori & Migiro, 2010; Barbara-Sanchez et al., 2007). Therefore, based on the literature and on the positive results of this research, it can be concluded that micro- and small-business internet users will have considerable benefits from internet usage in their business activities, such as having more customers, developing a wider network of customers, maintaining customer satisfaction, and providing a competitive advantage.

Internet-using MSEs face obstacles in achieving their business outcomes because of a lack of business strategy. MSEs that use the internet do not have sufficient knowledge to build a business strategy involving the use of the internet. Suggestions for improving internet usage, especially the policies and programs of government bodies and ministries, will be explained

in more detail in Chapter 7. Table 6.5 shows the obstacles and problems in internet Usage Access.

Table 6. 5 Barriers to Internet Usage Access for MSE Internet Users

Outcomes	Obstacles	Problems
<i>“Lack of knowledge is a good strategy for using internet for business.”</i>	Lack of strategy business	<i>Lack of Outcomes: lack of an online business strategy</i>

6.3.2 Conclusion of Internet Access for Non-User MSE Entrepreneurs

A. Motivational Access

Based on data analysis, motivational access influences operational skills, perceived opportunity for future use, and business outcomes. Motivated nonuser MSE entrepreneurs are more likely to improve their operational internet skills and have a better chance of using the internet in the future, which can help them enhance their business outcomes. For nonuser MSE entrepreneurs, motivational access is related to awareness of the benefits of internet access for business. The results show that most nonuser MSE entrepreneurs are aware of the benefits of the internet for businesses, but they assume that the internet is not important enough for their businesses because they can still run their businesses effectively without the internet. This result indicates that nonuser MSE entrepreneurs lack the motivation to use the internet.

Table 6.6 presents the obstacles and problems related to motivational internet access among nonuser MSEs. The obstacles and problems for noninternet-using MSEs regarding motivational internet access come from the lack of intention of using the internet and lack of knowledge about information technology. These problems will hinder the growth and development of MSEs because their market is restricted by physical limitations. Regrettably, education and motivation improvement programs, especially those from the Ministry of Communication and Information and

the Creative Economy Agency, are still scarce and rarely target noninternet users in rural areas.

Table 6. 6 Barriers to Motivational Internet Access for Non-Using MSEs

Motivational Internet Access	Obstacles	Problems
<i>"I did not have the courage to use the internet."</i>	Lack of intention of using the internet	Low motivation because they think the market is limited, and that they lack the knowledge in marketing & technology.
<i>"I had no intention of using the Internet because it was not needed."</i>		
<i>"Because I lack the technical knowledge."</i>	Lack of knowledge and information about technology	
<i>"I did not know how to use the internet."</i>		

B. Material Internet Access

The results from the preliminary study disclosed that nonuser MSE entrepreneurs lack an internet connection. They have devices such as mobile phones, but they have no physical access to the internet. Therefore, material internet access is not included in the study of nonusers. In rural areas, internet infrastructures are still insufficient. In other locations with adequate infrastructures and facilities, nonuser MSEs are not aware of how to use the internet or are unwilling to pay for the connection.

Table 6. 7 Barriers to Material Internet Access for Non-User MSEs

Material Internet Access	Obstacles	Problems
<i>"The cost of installing the connection is expensive while their capital is limited."</i>	They cannot afford the Internet	Expensive
<i>"bad Internet connection, especially in rural areas, compare to center of Bandung."</i>	The connection in a rural area is not stable	Bad connection (rural area)
<i>"I have not used the Internet because the connection is not supported by an adequate network."</i>		

The main barriers to material internet access among nonuser MSEs are the lack of funds for internet access and unstable internet connections in rural areas. These problems result in reluctance to use the internet. As stated by Esselaar et al. (2007), a mobile phone is at least needed to support MSE business operations, but MSEs in rural areas lack the knowledge and funds to use a mobile phone with internet access. The Indonesian government does not have a program that focuses on establishing internet access for MSEs in rural areas. Table 6.7 shows the obstacles and problems related to material internet access for nonuser MSEs.

C. Internet Skill Access

Internet skills access for nonuser MSE entrepreneurs is related to the operational skills needed to use the internet. The results suggested that operational skills affect the perceived opportunity for future use and business outcomes. MSE entrepreneurs with sufficient internet operational skills have a better chance of using the internet in the future and of achieving the expected outcomes. The numbers of MSE entrepreneurs who have operational internet skills are almost equal to those who do not. MSE entrepreneurs without sufficient skills are unwilling to use the internet because they do not know how to use it, while others with enough skills are unwilling to use the internet because they do not think the internet is important for their businesses. According to Warschauser (2004) in Valeria and Dimitrios (2010), the most important thing about ICT is not the availability of the infrastructures but the ability of the people to use it. Most nonuser MSE entrepreneurs come from the older group age—older than 40 years of age—so it is possible that some of them want to use the internet for their business, but they do not know how to use it.

Lack of technology skills and business experience on the internet are the main obstacles and problems for nonuser MSEs regarding internet skill access. Some nonuser MSEs do not possess the ability to use the internet or internet devices. Several policies and programs have been initiated by the Indonesian government to improve skill access, especially for nonusers, but the majority of MSEs in rural areas are not aware of this program. Digital

literacy is also a problem for nonuser MSEs, and programs to overcome this problem are still nonexistent. Table 6.8 summarizes the problems in internet skills access for nonuser MSEs.

Table 6. 8 Barriers to Internet Skills Access for Non-User MSEs

Internet Skill Access	Obstacles	Problems
<i>“Frankly, I’m still blank about how to use the Internet, I’ve never tried to use Google.”</i>	Lack of skills in technology	Operation Skill Business Skills
<i>“I do not have enough Internet capability; I rarely use email because my child handles the account.”</i>	Lack of skill of Internet business	

D. Internet Usage Access

The fourth phase of access is internet usage, which for nonuser MSE entrepreneurs focuses on the perspective of usage opportunities. Perceived opportunities to use the internet in the future have a significant influence on expected business outcomes. The numbers of MSE entrepreneurs who are willing to use the internet in the future are almost equal to those who are not. Nonuser MSE entrepreneurs never try to use internet connections for business, and they usually obtain information from newspapers or televisions. Although they are aware that the internet could improve their business performance, they are still not motivated enough to use it. Low motivation to use the internet leads to a low level of internet usage.

The barriers to internet usage access for nonuser MSEs are that they do not see the opportunity to start using the internet or that they still think the traditional and direct business approach is the best way for their businesses. Some MSEs that do not use the internet do not want to use the internet because they still have doubts about its benefits and advantages. When they start to use the internet, they will use it mainly for personal purposes such as surfing the internet or reaching relatives rather than exploring the opportunities of internet usage for business. Improvement programs are needed for MSEs in rural areas to teach, train and educate

them about the usefulness and benefits of the internet for their businesses. Table 6.9 presents the obstacles and problems in internet usage access for nonuser MSEs.

Table 6. 9 Barriers in Internet Access Usage for Non-User MSEs

Internet Usage Access	Obstacles	Problems
<i>"So far, I have not started using the internet for business yet, but I've been using BBM and whatsapp."</i> <i>"Face-to-face contact with clients is a better way to do business".</i>	Perceived Opportunity of Internet Usage for Business	<i>Doubt of Usage Opportunities</i>

E. Business Outcomes

The third level of digital divide research addresses business outcomes. The use of the internet is expected to improve business performance and achieve better business outcomes. The findings show that most nonuser MSE entrepreneurs agreed that the internet helps to improve their businesses, but it is not enough to motivate them to use the internet. The low motivation to use the internet is because of the lack of materials and skills or because they presume that their business has done well enough without the internet. Low motivation could also be caused by the lack of self-confidence in using the internet for business, which is both a motivational and skills issue. A study from Mossberger (2012) revealed that a person's ability to use the internet depends on the cellular and broadband access they use. Table 6.10 shows the obstacles and problems faced by nonuser MSEs in Indonesia regarding business outcomes.

Table 6. 10 Barriers in Business Outcome for Non-User MSEs

Outcomes	Obstacles	Problems
<i>"My market is limited only covering Soreang area."</i> <i>"I have not used the Internet until now since customers</i>	The Market is limited	They cannot see the business opportunities

always come and the market share is still limited.”

Table 6.10 implies that nonuser MSEs do not see that the internet can help to improve their businesses. They assume they do not need the internet because their market is still limited to their local area. Those nonuser MSEs are not aware of the business opportunities that can be available for them when they start using the internet. It is also possible that their lack of awareness is because they do not have sufficient internet skills.

6.4 Conclusions of the Causal Models of Internet Access

Chapters 4 and 5 evaluate two models of internet access for both internet-using and non-internet-using MSEs and MSEs, respectively. Both models are based on the internet appropriation theory by Van Dijk (2005). The models propose five phases of internet access: motivational access, material access, internet skills access, internet usage access, and business outcomes.

The first major finding reveals the differences in internet access between user and nonuser MSEs, which means that the focus for improvements is also different for each group. For user MSEs, the focus should be on the enhancement of internet skills and internet usage access. MSE entrepreneurs who use the internet in their businesses are sufficiently motivated to use the internet. They are aware of the benefits of the internet for their businesses and are willing to invest in internet devices and connections. User MSE entrepreneurs also have operational internet skills and online business skills, but they still need to improve their capabilities beyond the basic skills needed to operate the internet. These skills are affected by their motivation and the materials they own. Meanwhile, motivation access should be the focus of improvement among nonuser MSEs; they lack the motivation to use the internet because they are unaware of the internet's benefits for their businesses and because they do not possess adequate skills to use the internet. Because they are unwilling to use the internet, they do not see the need to invest in internet connections, so

they have no material access. These results imply that user MSEs have moved through all phases of internet access, while nonuser MSEs still remain in the first phases.

The second major finding is that all four types of access to digital technology identified by Van Dijk (2005) also apply to internet access for businesses. Moreover, they appear to be associated in sequence, as proposed by Van Dijk (2005). This means that all phases need to be addressed simultaneously. Nonuser MSEs are still in the first phase, which is motivational access. Thus, to encourage them to use the internet, the first step is to motivate them to use the internet. This can be achieved by raising their awareness of the benefits and opportunities of the internet for their businesses. If they were motivated enough to use the internet, they would be eager to invest in the right materials and improve their skills. User MSEs have moved through all four phases. Hence, in their case, the next step is to enhance their skills so that they can attain the maximum benefits of the internet for their businesses. Providing better internet infrastructures and opportunities to improve internet skills is one of the alternatives to support internet-using MSEs.

The third major finding in this research is that sociodemographic factors are proven to influence different types of internet access. This has consequences because all types of access are related to each other. In non-internet-user MSE entrepreneurs group, Gender are proven to influence all four internet phases while in internet user group, Gender does not affect Internet Usage Access and Business Outcomes. The differences in internet motivation, material and skills between male and female entrepreneurs are most likely caused by the distinguished exposure to technology (Zillien and Hargittai (2009); van Deursen and van Dijk (2015)). However, once they have the same motivation and access to the internet, it is logical that they could carry out the same online activities and have the same opportunities to gain from the internet.

Age is also proven to affect all internet access in non-user group, but it only influences material internet access and internet skills access among user MSEs. While having differences in internet material and skills due to

their knowledge and capabilities, both younger and older MSE entrepreneurs who use the internet in their businesses are equally motivated in adopting the internet. They are eager to use the internet to boost their businesses and once they have used the internet, they have the same possibilities to maximize their internet usage and acquire its benefits.

Education level is verified to influence all internet access both in internet-users group and non-internet-users group. On the other hand, business sector only influences internet motivation and skills access in internet-user group. It could be explained that all business will need the same equipment and infrastructures to access the internet regardless of their sectors. After they have used the internet, they have the same opportunities to use the internet for various activities and maximize their benefits. Among non-user group, business sector only future internet usage. It is likely to be caused by the external pressures, such as change in the market or customer pressure, on specific business sector which could drive MSE entrepreneurs to start adopting the internet even though they were reluctant to use it.

The location of MSEs affects their internet skills and internet motivation access. It is related to the uneven availability of internet infrastructure between rural and urban areas. Easy access to adequate internet infrastructure encourages MSEs to use the internet more often and improve their skills, and vice versa.

6.5 *Process of Internet Access among User and Non User MSEs*

6.5.1 *Process of Internet Access for the User MSE Population*

The result from the internet-user population, as stated earlier in Chapter 4, is in line with previous research regarding the process of internet access. Motivational internet access is the main factor for the internet-user population and has a strong influence on material internet access, which consists of two main parts, e.g., internet connection and the number of devices. User MSE entrepreneurs who are adequately motivated to use the internet for their business will not hesitate to invest in material internet access. They tend to have more than one internet device and a better

internet connection. Material internet access influences internet skill access and internet usage access. Sufficient material internet access, specifically internet connection, will make them use the internet more frequently and give them a greater chance to increase their internet skills. The increase in internet skills access and internet usage access will, in turn, increase their business outcomes. As explained in Chapter 4 and other business or research literature, the internet offers many benefits and opportunities for businesses and will improve business outcomes.

6.5.2 Process of Internet Access for the Non-internet-User MSE Population

The result from the nonuser population is similar to the internet-user population in the sense that all of the internet access phases are relevant and sequential. The differences lie in the priority and the starting phase of internet access. Unlike internet users, nonuser MSEs are still in the first phase of internet access, which is motivational access. The majority of nonusers are unmotivated to use the internet because they lack awareness of internet benefits and consider the internet unimportant; neither do they have sufficient internet skills. However, similar to internet-user MSEs, the initial factor toward internet adoption among nonuser MSEs is motivational internet access. Motivation to use the internet can drive nonuser MSEs to purchase the material needed and improve their internet skills. After that, their frequency in using the internet will also increase, and in the end, the use of the internet can lead them to achieve the expected outcomes. Therefore, nonuser MSEs still need support from other people or parties to educate them about the internet and motivate them to adopt the internet. Intervention from the government and other stakeholders might be needed to increase motivational access among nonuser MSEs, which will sequentially increase other internet accesses and business outcomes.

6.6 Limitations and Future Research

The first limitation of this research are the sampling methods for the focus group and the other two surveys. The convenience sampling method was used. This may cause the sample to be unrepresentative of all Indonesian MSEs. For example, the proportion of MSEs from Java Island and those in the culinary and fashion business sectors were oversized. However, it is still acceptable for this exploratory approach. Further research needs to use the random sampling method from all regions of Indonesia and business sectors so that the sample is more representative of the population.

The sociodemographic characteristic findings show that educational background, age, and business experience are different between the two groups of MSEs. Internet-user MSEs are dominated by younger entrepreneurs with bachelor's degrees, while the non-internet-user MSEs are dominated by older entrepreneurs with high school and vocational training as the highest education background. This result supports the conclusion from Van Dijk (2005, 2020) that the education divide is one of the main factors affecting internet access. According to Baumol et al. (2007), education plays a role in economic growth, while education is a necessary but insufficient condition. However, instead of focusing on educational background, it might be better for future research to identify the specific education needs for particular businesses and for improving business growth. Therefore, instead of measuring the education background from a very general economic perspective, it would be better to measure it in terms of the training and development skills required to use the internet that can support business performance and lead to revenue growth.

The comparison analysis shows that both groups follow the internet access process differently. The user MSEs have followed all phases, while the nonuser MSEs are still in the motivation phase. This means that motivation is the most important phase that needs to be addressed among nonuser MSEs. Future research can further explore this phase to obtain a better and more practical understanding.

The investigation of the digital divide among internet-user MSEs reveals that internet skills are also an important factor to be improved. This

study defines two types of internet skills, namely, operational skills and online business skills. The result suggests the need for two different interventions, one for internet-user MSEs and another for non-internet-user MSEs (see the next chapter). Future research needs to further specify these skills so that the result could be more specific regarding the skills needed for each group.

CHAPTER 7

*INTERNET ACCESS FOR
INDONESIAN MSEs*

CHAPTER 7.

INTERNET ACCESS FOR INDONESIAN MSEs

7.1 Introduction

Indonesia is the largest archipelago country in the world, consisting of 17,504 islands with 81,000 km of coastline length. The water area consists of the territorial sea, archipelago water and 2.7 million km inland water, forming 70% of the total area of Indonesia. The shape of the islands causes the population to be divided into urban, rural-urban and rural populations. The utilization of the internet that can be enjoyed by the Indonesian population depends on the facility and distribution of the internet carrying capacity in every region. The rural areas have the lowest internet users. The devices used in accessing the internet are smartphones. In urban areas, smartphone ownership reaches 70.96%, and in rural areas, it reaches 29,04. The total population in the urban areas in Indonesia will be larger than the population in rural areas, with compositions of 56% versus 44%.

The gap between the urban and rural populations requires a government's role of optimizing equal facilities that can be enjoyed by all people. Residents in urban areas still dominate the use of the internet. Although free service facilities have spread to rural areas since 2009, facilities still have not been evenly distributed throughout Indonesia.

This condition is a challenge for the Ministries of Communication and Informatics (Kominfo) because there is still a digital divide at the urban-rural community level. In this study, it was also found that internet business users are operating in urban communities and nonusers in rural communities.

According to the Ministry of Communication and Informatics (Kominfo) data in 2019, judging from the internet coverage map with administrative approach, Indonesia has 83,218 villages where there are 12,548 villages that have not reached 4G signal. Of the 12,548 villages, there were 9,113 village 3T exits and 3,435 non3T village exits. In 2020, 1,096 villages headed to 4G, 113 villages were upgraded from 2G/3G, and 7,094 villages were underserved.

If it is viewed with a geographical approach (land area of Indonesia), from a total area of 1,899,753 km², 49.33% or an area of 937,126 km² get a 4G signal, then 44.35% or an area of 842,526 km² get a 3G signal and 68.54% or an area of 1,302,030 km² get a 2G signal.

Indonesia, in making the vision of the country that leads to digital transformation, set strategic plans to realize its vision. The plan aims to steer Indonesia toward an innovation-based economy with world-class technological capabilities, skilled human resources (HR), and a digitally cultured society and ready for the future. The strategic plan is to build safe and reliable infrastructure and connectivity with high-quality services, improving digital capabilities in priority sectors, one of which is MSEs to improve geostrategic competitiveness and drive inclusive growth, and build a digital culture and, most importantly, to empower the people of Indonesia in developing the digital world.

In terms of developing and encouraging ICT becomes a catalyst that can increase national competitiveness. Society as an individual must obtain adequate literacy to want to adopt technology, use digital technology for daily purposes, utilize technology for income, and improve the quality of life. In the industry growth setting in the digital age, MSE as an individual must also be able to adjust their abilities and competencies. From the government side, community literacy must be accompanied by healthy and safe internet quality and data security and privacy guarantees for the public.

Internet quality covers the following areas:

1. *Internet quality is a problem of infrastructure (uneven ICT growth in Indonesia).*

The difference between access and the use of information and communication technology (ICT) is caused by uneven ICT growth. The problem of digital inequality in Indonesia is largely caused by the uneven development of information and communication infrastructure and of supporting regulations in various regions. Indonesia's vast area and geographical condition in the form of islands, uneven population spread, and suboptimal use of satellites

cause the range of information technology dissemination to be uneven. Technology actually provides opportunities for wider educational equity solutions, but the unavailability of infrastructure makes the gap even wider. Communities in areas that are not facilitated by the internet will experience difficulties in the learning process. Internet skill or ability to use the internet is also needed so that the presence of a computer and the availability of internet access can be used optimally. The low literacy rate of using computers and the internet is quite low. So that the use of the internet is less efficient. Uneven internet access is still a challenge for Indonesia to reach the optimal point in improving a digital-based economy.

2. *Broadband Infrastructure Development.*

The development of broadband infrastructure and services is highly dependent on device – network – application (DNA). DNA, as the main ecosystem of broadband development, will determine the success of broadband infrastructure and service development in Indonesia. Palapa ring is the construction of a fiber-optic network that will become the backbone of national telecommunications, with the aim of providing internet coverage to the entire archipelago from Sabang to Merauke . Palapa Ring development is divided into two parts, sea and land, which have a cable length (fiber-optic network) of 35,280 km and 21,807 km, respectively, covering 497 districts/cities. Today, there are still 135 districts/cities that have not been reached by the national fiber optic infrastructure network (Palapa Ring).

This thesis shows that beyond infrastructure, digital literacy and motivation and trust in using the internet are the main problems. This has been acknowledged by some Indonesian institutions. For instance, in accelerating the quality of society in the face of the digital age, the Ministry

of Communication and Information Technology (Kominfo) has made several plans:

1. Digital literacy intends to reach all levels of society in various regions in Indonesia to utilize digital technology and the internet properly, responsibly and in accordance with the prevailing laws and regulations within the framework of Indonesia's Human Resource through seminars and workshops, both offline and online, and the dissemination of information using various available media.
2. Basic ICT literacy. Most of the activities are carried out offline by utilizing internet gallery facilities owned by the entire task force.
3. Dissemination of information and education about data and privacy. Special education and literacy on the protection of personal data, as well as the security of electronic transactions.

In its implementation, digital literacy conducted by Kominfo will cooperate with various partners from ministries/institutions, communities, nongovernmental organizations, private organizations, academics, civil society and media.

The Indonesian government has made significant efforts to remove bottlenecks, including increasing the use of cellular telephone and broadband connections, infrastructure improvement and open access. However, the formation of distinct user and nonuser populations could not be avoided. The problem lies not only in the facilities and infrastructures. The most important problem is that not everyone, including entrepreneurs, has the individual motivation and intention to want to use the internet.

7.2 A Model of Closing the Digital Divide and Improving Outcomes of Using the Internet for Indonesian MSEs

From the preliminary research and the comparison between two groups (Internet users and nonusers) of micro and small enterprises (MSEs) regarding internet access, the results found that the problems faced by MSE users and nonusers of the internet are different. The internet user group does not focus on the first phase of the access divide (motivation to use the

internet). The internet user group focuses on the fourth phase of the digital divide, which is internet usage. Meanwhile, the MSE's noninternet-user group still focuses on the first phase: the MSE motivation must be developed along with the intention to use the internet in the future so that awareness will be developed that will make MSEs have the desire to connect to the internet (phase two) and to learn and improve internet skills (the third phase) so that the increasing ability to use the internet will benefit their business.

A. *Motivation and Material Internet Access - First Level Digital Divide*

MSE low-level internet businesses are MSE internet nonusers who do not use the internet for business. This group already has motivational internet access, motivation, and attitudes toward using digital media. This group is also supported by a lack of material internet access; the characteristics show that MSEs own several types of computers or smartphones with a low internet connection. This group needs full intervention from the government, such as a mentor, to help their business adapt to digital behavior and increase the motivation and intention to use the internet by providing the opportunity for internet usage. MSE internet users have several types of material internet access, such as computers, smartphones, and an internet connection, and use the devices their business needs. The obstacles that they face are regarding the internet facilities and poor connection. The intervention that can be provided by the government for motivation access through awareness campaigns shows the benefits of the internet for MSE businesses.

The government intervention is by providing good facilities and infrastructure for using the internet. The government needs to support MSEs, especially those who are willing to learn and try to implement the internet in their business. The government also has to motivate local MSEs to try and implement the internet through its programs and policies because the benefits and opportunities of the internet are apparent. The government has to motivate MSEs to use the internet because until now, programs and/or policies to motivate MSEs are still minimal. These programs have to be accessible everywhere in Indonesia, especially in rural areas, because

many MSEs who live in rural areas still lack support and knowledge of the internet. With the condition of coronavirus right now, the opportunities and benefits of internet usage are becoming more apparent because trading and operations without the internet are increasingly more difficult. The government should take advantage of this to create regulations and programs that can motivate the nonuser group to use the internet and the internet users to increase the quantity and scope of internet usage in their businesses.

Material internet access also needs support from the government. Existing programs and policies are present, but the impact is still not able to provide support for rural MSEs. The central government needs to coordinate with the local government to provide access and facilities to rural area MSEs that need their help. Support for funding to MSEs for internet access support is also still nonexistent. The government needs to support MSEs that are willing to implement the internet and have the interest to learn but lack the necessary funds to procure the required material to access the internet.

B. Skills and Usage – Second-Level Digital Divide

In terms of skills and usage, MSE users and nonusers show different results. Internet nonusers might still have insufficient ICT skills, such as operational skills and business skills. In this stage, MSE noninternet users certainly need an intervention toward ICT skill improvement. Their willingness to learn ICT skills can be improved by enhancing the perceived opportunities of internet usage. For example, they will have to find the potential to expand their market or to learn that their transactions will become easier. In the case of MSE internet users, they already have motivational internet access with motivation and attitude to find internet business using digital media. Their experience is that the use of the internet improves their business performance. MSE internet users also have excellent operational internet skills access. MSEs have sufficient expertise to use digital media for their business. This group already has more internet skill access and internet usage access for business and has fully utilized the use of the internet for technical issues, but still has not fully utilized the internet for all

their business activities. Therefore, better physical access, better digital skills, and better internet application are becoming their priority.

The government's role will be apparent in this stage; without its support, internet users will have difficulty enhancing their skills, and internet nonusers will not be able to access the digital skills needed to use the internet without the help of the government. The government has already created several programs to boost the skills and knowledge of human resources in Indonesia, especially regarding digital and internet aspects. However, programs directly targeted to MSEs, either internet users or nonusers, are still deficient in terms of quantity. The scope and reach of these programs are also not wide enough to reach local rural area MSEs, where the need is greatest for training and the attention of the government. MSEs also lack digital literacy concerning security in accessing the internet, which is one of the reasons that the nonuser group does not use the internet.

Programs and policies for improving internet usage access for MSEs are also apparent, but there is still room for improvement. Existing programs are insufficient for increasing internet usage for MSEs located in rural areas, either internet users or nonusers. The government needs to improve the programs concerning internet usage access to enhance and increase usage.

C. Business Outcomes – Third Level Digital Divide

After the four phases of internet access, the outcomes of the process can be observed. The results of this process for noninternet users are not available. While internet users are fully aware of the positive effects of using digital media for business, they more or less reach these outcomes. In practice, this group develops digital skills, uses the computer and internet properly, and benefits from using the internet for business. This group finds more opportunities to expand its market (national and international), improve sales and productivity, and increase customer satisfaction.

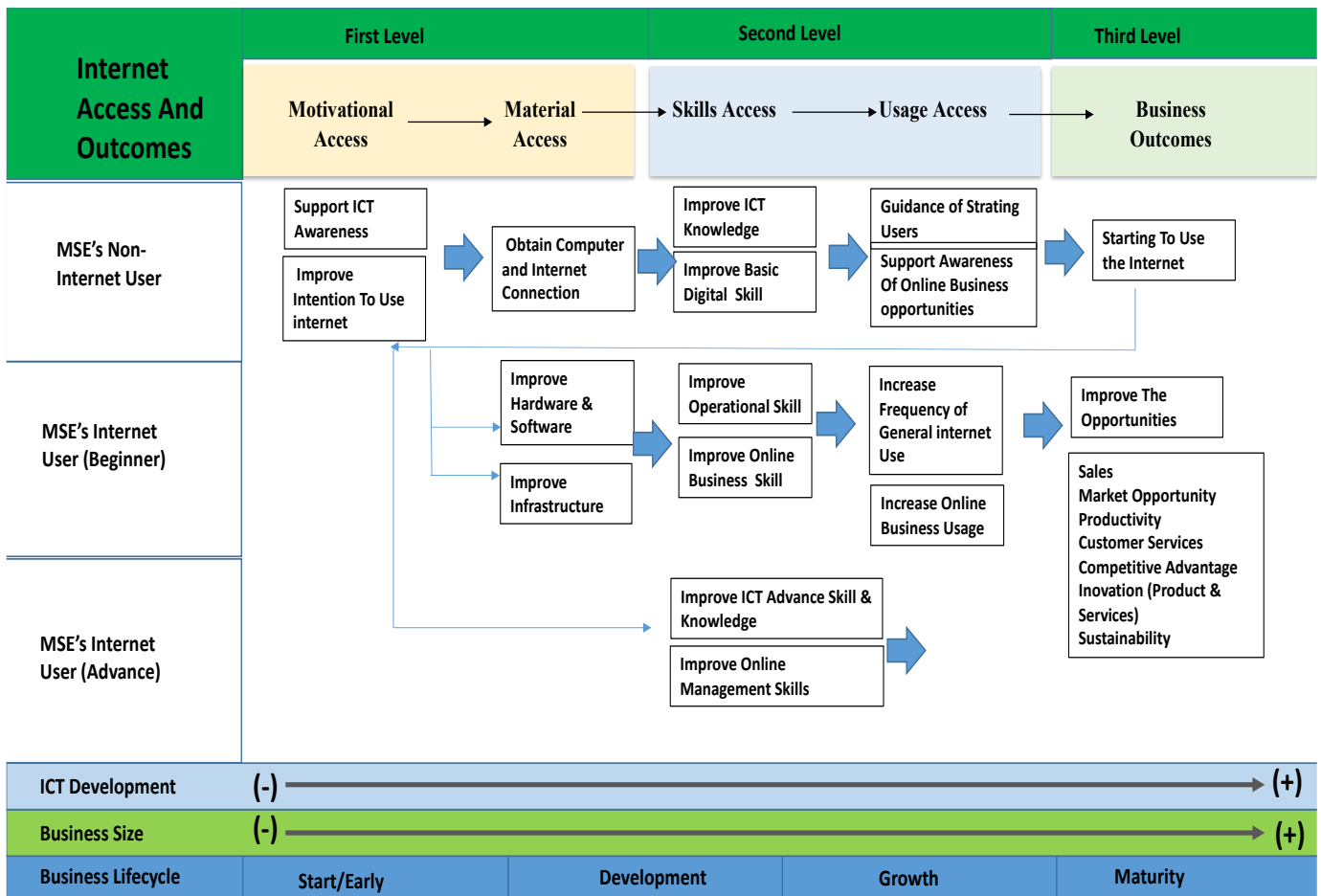


Figure 7. 1 A Model of Closing the Digital Divide and Improving the Outcomes for Using the Internet for Indonesian MSEs

Figure 7.1 shows the result of this model to close the digital divide in Indonesia and improve the outcomes for Indonesian MSEs that use the internet. There are two groups of MSEs: nonusers of the internet and users of the internet (beginner and advanced). The first level of the digital divide, which is motivational internet access and material internet access, is essential and crucial in developing internet usage, especially for nonuser groups. The government has to motivate nonuser groups of the internet to use the internet by introducing benefits and opportunities to use the internet for their business. Regular weekly programs with successful MSEs who already implement the internet in their business will motivate nonuser groups to also use the internet. Regulation to increase or improve material internet access is needed, especially for MSEs located in rural areas;

preliminary studies suggest little funding to procure internet access or the hardware needed. Internet user groups also need improvement, especially in public infrastructure, to access the internet because the results from this research suggest unstable connections as one of the problems for internet user groups.

The second level of the digital divide consists of skill access and internet usage access, which are equally important for both the internet user group and the nonuser group. The results from this study suggest that nonuser groups need improvement in their ICT knowledge and necessary digital skills, while beginner users need improvement in operational and online business skills. There need to be regulations and programs to support and improve the skills required for MSEs to operate and use the internet. This program should primarily target MSEs and has a wide scope, so MSEs in rural areas can still learn and improve their skills. Internet usage access consists of guidance for starting users of nonuser groups while beginner users of the internet user group need advice on how to increase the frequency of general use and business usage of the internet. The government must fill this gap by creating regulations or programs concerning internet usage access to enhance and boost internet usage, especially in business.

The outcomes of the regulation and programs for MSEs hopefully can encourage and make nonuser groups use the internet. This research also found that the type of MSEs that use the internet can be divided into two categories: beginning and advanced users. The level of motivation for them is the same, but material internet access, skill access, and advanced business use are different. MSE advanced internet users focus more on escalating their business through the internet than small to medium business users. The internet usage of this group is more frequent and more oriented to business purposes. Their target is often to expand their market internationally. Therefore, the government needs to provide them with advanced ICT knowledge and skills, supported by good business and management skills. The outcome of MSE advanced internet users is the improvement of their competitive advantage, product innovation, and sustainability.

Suggestions for the government will be presented in the next chapter with full details on the existing regulations and programs and suggestions on how to improve said programs, in particular, the reduction of the digital divide as a business outcome of advanced internet users.

7.3 Existing Policies And Programs From Indonesian Government Institutions And How To Improve Them

This study has also contributed by providing input to the Ministries of Communication and Informatics (Kominfo) in mapping the gaps that occur among young talent in Indonesia. Kemenkomnifo has several programs conducted for the public to be ready for facing the digital era. For instance, a digital literacy program is meant to increase public awareness in using the internet and ICT devices. Moreover, the Ministries of Communication and Informatics (Kominfo) also contribute to preparing national human resources, both for industries and the government, to be able to shift to the digital era by providing digital talent training.

The Ministry of Communication and Informatics has a strategic plan for the 2020-2024 period, which focuses on accelerating digital transformation to support the goal of national development. The strategic objectives and performance indicators of the Ministries of Communication and Informatics (Kominfo) related to human resource development and MSMEs for strategic plans in 2020-2024 are shown in Table 7.1. The table shows that the Ministry still focuses on equalizing digital literacy for the community. The purpose is to reach all levels of society in every region in Indonesia so that people can utilize digital technology and the internet correctly, responsibly, and in accordance with the prevailing laws within the framework of Indonesia's Human Resource Development. To encourage ICT to be the catalyst that can increase national competitiveness, the most important layer to digitally transform is society itself. Society, as individuals, must obtain adequate digital literacy to adopt technology, use technology for daily use, obtain income, and improve the quality of life. In the industrial growth in the digital age, individuals also need to adjust their abilities and competencies, so they can contribute to industry needs. From the

government side, society's digital literacy must be accompanied by healthy and secure internet quality and data security and privacy guarantees. With a population of more than 270 million people scattered across the archipelago, Indonesia has its own challenge. To be able to truly drive the success of national digital transformation, it is necessary to offer digital literacy programs to society as widely as possible. By 2024, digital literacy was targeted to a total of 50 million people. After society layers are improved, the next focus is to adopt digital technology in the business field, and a new strategic sector will be developed in 2021. Digital literacy will be conducted through various programs in the form of seminars and workshops, either offline or online. Moreover, information will be disseminated using various media available. In its implementation, digital literacy will cooperate with various partners from the government, communities, nongovernmental organizations, private sector, academia, civil society, and the media.

Table 7. 1 Strategic Objective Targets in the Ministries of Communication and Informatics (Kominfo) Strategic Plan 2020-2024

Strategic Objectives (SS)	2020	2021	2022	2023	2024
Percentage (%) of digital technology adoption rate in strategic sector and priority area	0	15	25	50	100
Number of MSMEs that scale up from MSE to MSE by adopting digital technology (cumulative)	0	0	7000	18000	33000
Number of active digital startups created (cumulative)*	20	35	70	110	150
Number of people who achieve ICT literacy	213.143	2.653.750	25.102.500	37.551.250	50.000.000

The Ministry of Communication and Informatics has created a digital scholarship program to provide additional skills that will be useful for young talent in developing startups in the future. The important thing that was submitted to the Ministry of Communication and Informatics from this study was the need for early motivation from the actors, for must-have basic skills before gaining additional digital skills, for special access to business use and for ease of access material and facilities used. Existing policies and programs from government institutions are listed in Table 7.1 below, including suggestions and improvements that can be made. From Table 7.1 below, we distinguish some programs by the Ministry of Communication and Informatics and the Travel and Creative Economy Body located in the four phases of internet access distinguished in this thesis. In all phases, suggestions are made to improve these programs according to the results of this thesis.

A. *Motivational Internet Access for Business*

Existing programs and policies from the Ministry of Communication and Informatics and the Creative Economy Body appear mainly in the form of annual festivals constructed by the Creative Economy Body to educate MSEs and motivate them by developing discussions with experts. This program can be improved by carrying out regular talk shows or educational programs with MSEs that successfully implemented the internet in their business and are able to generate profits in their business compared to the days pre-internet. This talk show or program has to be accessible on either television or radio because MSEs, especially in rural areas, lack the knowledge and material to access them online. Therefore, this program is a first step for rural area MSEs.

B. *Material Internet Access for Business*

Existing programs and policies from the Ministry of Communication and Informatics and the Creative Economy Body appear in many different forms. The Ministry, through its internet access program, focuses on building and providing internet access for schools, local government offices, and

public services in rural areas. This program can be improved by giving internet access either in schools or local government offices and sharing them with rural area MSEs that are willing to learn the internet but do not have the necessary equipment such as computers or internet access. The Creative Economy Body, through its Government Fund Incentive, tries to support local MSEs that need funds to develop and grow. This initiative can be improved by focusing, adding, or creating new programs with support funds dedicated to MSEs that lack the necessary funding to procure internet access in the form of mobile data or hardware, including computers and phones. We know that support for MSEs, especially in rural areas, for internet access is still negligible.

C. *Internet Skill Access for Business*

Existing programs and policies from the Ministry of Communication and Informatics focus on training and developing adequate human resources for the internet, especially for business development. The first program is a digital talent scholarship designated for 20,000 people each year to build digital knowledge. Compared to the number of MSEs in Indonesia that need or lack internet skills, this number is still minuscule. Another program is digital literacy, designed to improve human resources concerning the internet and to reduce the internet knowledge gap. The problem with this initiative is that it covers many different aspects of digital technology rather than knowledge about digital business and business using the internet.

D. *Internet Usage Access for Business*

An existing program and policy from the Ministry of Communication and Informatics pertaining to internet usage access is the UMKM Go Online program, which helps MSEs go digital by reaching out to MSEs in the local traditional markets and other local areas and providing them information and help in promotion. Improvement for this program entails broadening its scope; the UMKM Go Online program is not large and is only focused on cities, while rural areas are still untouched. The Ministry of Communication and Informatics and the Creative Economy Body should build a special MSE

center that focuses on internet development in areas where MSEs lack knowledge, especially regarding internet usage, to help them with readily available information, for example about market trends, and by promoting their products nationwide and worldwide.

E. Business Outcomes

Table 7. 2 Policies and Programs from Government Institutions

Government Institutions	Existing Policies and/or Programs	Detail Policies and/or Programs	Suggestions
Ministry of Communication and Informatics (Kominfo)	UMKM Go Online (Internet Usage Access Program)	Introduced in 2017 to help MSEs go digital by reaching out to local traditional markets. In its implementation, the program encountered several obstacles, such as digital gaps (access), low levels of digital literacy in areas that are targeted by the program, less-active local government, and assistance to MSMEs is not possible to be done intensively.	<ul style="list-style-type: none"> - Build a MSEs center that focuses on Internet development in areas where they lack knowledge especially on Internet usage to help MSEs understand and know the usage of Internet for their business with information readily available. - Provide an online market for innovative companies or MSEs that have studied and understood Internet use but lack the funds and access to materials needed to grow. The online market can be accessed by everyone including citizens and established companies that are willing to support MSEs trying to develop their business. - Create a MSEs forum across Indonesia and internationally to make MSEs learn from each other especially from those who already successfully integrated Internet in their business.
	Digital Talent Scholarship (Internet Skill Access Program)	Online program for 20.000 people who are registered for digital knowledge.	<ul style="list-style-type: none"> - Make the program and material more inclusive and accessible online to a majority of MSEs who lacks Internet access but are already registered for an online program improving skill access. - Create a new program focusing on training and educating MSEs that lack the knowledge and skills to use the Internet. This program should also be inclusive and accessible (Flash Disk, Online File, DVD) to the majority of MSEs who lack Internet access.

Table 7. 2 continued

Digital Entrepreneurship Academy	The Digital Entrepreneurship Academy (DEA) program is creating a new Digital Entrepreneur (Digipreneur) with a target of 22,000 people in order to prepare superior Human Resources to face the era of industrial revolution 4.0.	Digital Entrepreneurship Academy (DEA) program is creating a new Digital Entrepreneur (Digipreneur) with a target of 22,000 people in order to prepare superior Human Resources to face the era of industrial revolution 4.0.	Make programs and materials more inclusive and accessible online for the majority of MSE who do not have Internet access, by creating a special application for MSME training that can be accessed whenever MSE will join the program.
None	None	None	Enforce and suggest Internet Service Provider (ISP) companies to make programs targeted for MSEs with low price and stable access with a guidance as part of CSR (Material Internet Access Policies).
Digital Literacy (Skill Usage Program)	Improving human resources to lessen the knowledge gap of Internet access.	Improving human resources to lessen the knowledge gap of Internet access.	Focus more on MSEs and Intellectual Property Rights rather than just social media and online defamation law.
Internet Access Building (Material Internet Access Program)	Building Internet access for rural areas which focus on schools, government offices, and public services.	Building Internet access for rural areas which focus on schools, government offices, and public services.	Give more attention to MSEs because MSEs is a crucial part in supporting the Indonesia economy, especially in rural areas. Introduce an Internet program for schools in rural areas for MSEs entrepreneurs who do not have Internet access except for public access.
Travel and Creative Economy Body (BEKRAF)	Bekraf Festival Annually (Motivational Internet Access Program)	Annual festival that targets MSEs to share knowledge and information.	Establish regular weekly programs and talk shows with successful MSEs that already implemented Internet and make their business digital and share the program through television or online so rural areas can still access the program.
Government Fund Incentive (Material Internet Access Program)	Support fund for MSEs who passed the curation process by focusing on one industry each year.	Support fund for MSEs who passed the curation process by focusing on one industry each year.	Make funding program targeted to MSEs entrepreneurs who is trying to learn and use Internet for their business and need support and accessible across Indonesia especially in rural areas.

The UMKM Go Online program of the Ministry of Communication and Informatics connects MSEs that are knowledgeable about using the internet and e-commerce and about making their products available and ready to sell in e-commerce.

7.4 *Internet Access Policy and Regulation for MSEs in Indonesia*

Considering the large role of MSEs in improving the economy and the welfare of society, the government should have more awareness of the importance of accelerating the growth of the number of competent, independent entrepreneurs globally. The government is fully responsible for helping MSEs promote online business, obtain internet access easily and support business in countries outside Indonesia. Standard regulations and rules become one of the important needs that must be facilitated by the government, such as data protection law both for MSEs and the customer and copyright law to protect MSE content on the internet.

The laws and government regulations pertaining to MSEs in terms of production and operations will spur the role of MSEs in the economy. Regulations such as ease of business entry and stricter and more robust intellectual property rights (IPRs), especially regarding the internet and e-commerce, are needed because Indonesia lacks expert knowledge and laws concerning security for MSEs using the internet to conduct business.

For the government, regulations are needed to maintain public order and widely protect and provide facilities for MSE entrepreneurs. For entrepreneurs, regulation is a guarantee of security to facilitate business operations by MSE entrepreneurs. Regulatory policies are made not only related to internet network infrastructure but also to services, market access and trade transactions. Other regulations needed are related to improving the ability and mastery of technical aspects in running an internet-based business, which includes business management, product development and sales, financial administration, and overall entrepreneurship. The government realizes the important role of the government in supporting all sectors of development by issuing sectoral laws and regulations that mandate the need for an internet-based information system. To build

synergies in the application of laws with legal force between ministries, agencies and local governments, an electronic-based government system

(SPBE) is needed, which is used as a guide for central agencies and regional governments to achieve an integrated SPBE. SPBE, or E-Government, is the administration of government that utilizes ICT to provide services to government agencies, state civil servants, business actors, the community and other parties. SPBE provides an opportunity to encourage and realize open, participatory, innovative and accountable governance, increase collaboration between government agencies in carrying out government affairs and tasks to achieve common goals, improve the quality and reach of public services to the wider community, and reduce the level of abuse of authority in the form of collusion, corruption and nepotism through the application of an electronic-based public complaint and monitoring system.

The results from internet user groups and nonuser groups are proven to have stages in internet access for businesses that play a role in internet implementation. The difference lies in the essential stages of internet access. For internet users and nonusers, the initial factor that plays a role in internet implementation is access motivation. Motivation influences MSEs to improve their skills and their ability to use the internet. In the group of internet users, motivational internet access is a major factor for groups of internet users and has a strong influence on material internet access, which consists of two main parts, namely, internet connection and the number of devices. In nonuser groups, motivation is the starting factor, whereas the most important factor is access to skills and internet usage access. Therefore, recommendations are proposed based on the stages of internet access for businesses.

7.5 Internet Access Policies for Indonesian MSE Entrepreneurs

Internet access for business can be interpreted as follows:



Figure 7. 2 Internet Access Policies for Indonesian MSE Entrepreneurs

7.5.1 Motivational Internet Access for Business

In motivational internet access, another important thing in equalizing internet access for businesses among MSE entrepreneurs in Indonesia is that they come to understand the important role of the internet in developing their businesses. Human resources and social aspects on this matter are important to reduce the gap between MSE entrepreneurs who are familiar with the use of the internet and those who are not.

A. Human Resource Aspects of the Proposed Policies:

Education related to the importance of the internet for business by offering classes by public universities, conducting training through public facilities (Free Internet Spot Provided by State Owned Company) across Indonesia and inviting successful MSEs

- who have and still are using the internet for their business to motivate other MSEs.

- Creating a positive mindset about digital-based business for economic progress.
- Creating MSEs talent in e-business.

B. *Social and Environmental Aspects of the Proposed Policies:*

- Creating an atmosphere of internet access for businesses to increase the motivation of MSEs by introducing and supporting successful MSEs who have used the internet for their business and giving incentives to MSEs who are trying to adopt the internet.
- Providing access to study centers as a means of getting to know and learn about the internet.
- Providing a wider network for MSEs in establishing partnership relationships.
- Support and synergy from various groups, such as the Community, MSE Centers and Consultative Institutions, to help build the motivation of MSEs.

7.5.2 *Material Internet Access for Business*

Enhancing Digital Infrastructure of the Proposed Policies:

A. *Repairing the Internet Network in All Areas*

The availability of equitable internet networks for all Indonesians, especially in relation to business implementation, requires a stable and easily accessible network with low cost and guaranteed security. There is no stipulation from the government on low-cost internet, especially for MSEs that are still growing, and the cost of this internet will make MSEs shy away from internet usage. The government, through Telkom Corporation (state-owned internet service provider), should promote and increase internet usage for MSEs through development programs using Indihome's (Telkom's Fiber Optic Product) and Telkomsel's (Cellular Mobile Data Provider) networks and give incentives through joint ventures to minimize the cost of internet access incurred by MSEs; regrettably, there is currently no program

for MSEs, especially as both Indihome and Telkomsel are government owned.

B. *Providing Adequate Internet Devices*

Considering the continually soaring prices of internet devices, it is necessary to have internet devices such as smartphones, desktops, tablet PCs, etc., which are affordable for MSE entrepreneurs in supporting the smooth operation of their business. This requires assistance from the government in collaboration with the telecommunication industry to provide affordable devices and supporting features to facilitate MSEs in running their businesses.

C. *Creating Wider Internet Networking for MSEs*

Another important thing in building a business is to develop good networking with business partners and consumers. Broad networking is the key to the success of a business. In building a strong relationship with customers and business partners, it is important to establish a sense of trust and security as a guarantee of loyalty to the relationship. A system of cooperation and a wider form of network needs to be standardized in the rules. The policy network strategy is, since 2015, a combined effort of government, public, and MSEs to introduce more Indonesian MSE products nationwide to compete with imports, especially in the ASEAN Economic Community. The intention is to help people who have businesses in the MSE sector better introduce their products to the wider community. Thus, its application can be developed for local products to national and even multinational products. By using this policy network strategy, MSE products will be spread wider from rural markets to national and international markets using government and public infrastructure. Government and public e-commerce should put MSEs' products on the front page to boost their sales and introduce local brands through this initiative.

7.5.3 Internet Skill Access for Business

Basic skills in using the internet are a necessity that must be acquired by all Indonesians. The learning of internet skills includes operational and formal internet skills needed to access the internet. These basic internet skills have become an undeniable necessity, so internet learning must be prepared in the right curriculum, starting from basic academic education to nonacademic courses. With the right curriculum and proper training, the divide of digital skills can be minimized. The availability of various training facilities at the level of formal and nonformal education, and even through certification programs, is urgently needed. The government, educators and telecommunication industry are obliged to provide training services, not only through product and infrastructure services but also by ensuring the availability of facilities and = internet skills training for the entire community so that all Indonesians will have basic internet skills.

This general population-wide requirement is also considered basic capital for MSEs in using the internet for their business. MSEs in particular need to acquire internet skills for business, particularly those related to how to run, promote and implement strategies in their business. Internet skills for business are considered to be the main capital for MSEs. Therefore, the basic skills of the internet for businesses among MSEs in Indonesia are important. Learning can be achieved by using existing facilities, as explained in the previous section, which is wifi.id (municipal wireless network owned by the state-owned corporation) spot and by inviting experts or successful MSEs that have already implemented the internet as a part of their core business to provide coaching. Public online education can also be given through YouTube and online classes, considering the number of MSEs that have an interest in expanding their business through the internet. The government and corporations should also, through public universities such as Universitas Terbuka (government-owned public university available for everyone) in Jakarta and other public universities across Indonesia and in rural areas, offer free public classes each week for MSEs to use the internet for their business, which would help create digital programs that focus on training programs for

internet users and noninternet users, create a digital curriculum for MSEs related to the ability to do digital business, and improve MSEs' business skills.

7.5.4 Internet Usage Access for Business

It becomes important to understand the role of government in assisting MSEs in providing open access to all information needed for online businesses. Access is openly available and easy to use. Providing open access to accommodate business communications is required for online businesses and for the availability of a two-way discussion and inquiry service between MSEs and the government regarding anything related to updating business information and regulations, including developing information media for MSEs to understand internet trends, internet usage, cost information such as prices for similar products, and other important information. Provide promotion and marketing tools needed for online businesses.

7.5.5 Business Outcomes

With the increasingly even distribution of the internet network, the productivity benefits for rural Indonesia will be even higher. Access to 4G technology will generate growth in the number of mobile broadband consumers in rural Indonesia to estimate the overall productivity impact. In addition to the direct impact on the cellular ecosystem, the indirect impact on the economy will expand with the formation of the cellular ecosystem. Through the use of the internet, the business ecosystem encourages better domestic and international investment. The internet for business builds an ecosystem to support innovation and entrepreneurship. Accelerated use of technology enhances entrepreneurial skills and creates business opportunities to increase the number of ICT-based entrepreneurs.

SUMMARY

SUMMARY

Internet use has been growing rapidly in the last decade. The massive use of the internet has shifted the market and raised a new marketing era. To ensure their survival, companies are forced to adopt the internet including micro and small enterprises (MSEs). Unfortunately, the use of the internet for business purposes among Indonesian MSEs is very low and there are still gaps related to internet access in Indonesia. The data from the Indonesian Ministry of Communication and Informatics shows that only 13,5% of Indonesian MSEs have used online tools. MSMEs are the backbone of economic growth and innovation in Indonesia by contributing to 58% of Indonesia's National Gross Domestic Products and absorbing millions of employees in the country. Therefore, it is important to support and ensure the survival of MSEs in this digital era.

This dissertation aims to acquire a better understanding of internet access among Indonesian MSEs. The model used is based on Van Dijk's (2005) Resources and Appropriation Theory, which explains the digital divide as a succession of motivation, material, skills, and internet usage access. Three related studies were carried out, which are preliminary studies, internet access among internet user MSEs, and internet access among non-internet user MSEs. This dissertation contributes to measuring the impacts of internet access on business outcomes, determining socio-demographic determinants associated with internet access, and developing strategic policy on internet access for Indonesian MSEs.

The results prove sequential effects among internet access from motivational access, material access, internet skill access, and internet usage access and its effects on business outcomes both in internet user and non-internet user MSEs. Besides that, socio-demographic and geographic factors such as gender, age, education level, business location, are proven to have effects on internet access among both user and non-user MSE entrepreneurs.

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Internet use has been growing rapidly in the last decade. The massive use of the internet has shifted the market and raised a new marketing era. To ensure their survival, companies are forced to adopt the internet including micro and small enterprises (MSEs). Unfortunately, the use of the internet for business purposes among Indonesian MSEs is very low and there are still gaps related to internet access in Indonesia.

This dissertation aims to acquire a better understanding of internet access among Indonesian MSEs. It also aims to encourage MSE entrepreneurs to use the internet in their businesses.

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