

INDONESIAN MSMEs AND BIG DATA: SEIZING OPPORTUNITIES BY MINIMIZING BOTTLENECKS

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ABSTRACT

The purpose of this paper is to examine challenges benefits, barriers and strategies to decrease barriers to adopt the technology faced by MSMEs in Indonesia. We used library research which is based on a review of literature, both online and print. The results showed that the MSMEs' actors were still experiencing difficulties in using and utilizing Information and Communication Technologies (ICT) from the upstream side. Literacy capacity and technology exploitation in the upstream side is still relatively limited. This was triggered by limited human capital in managing both technical and technical aspects of ICT operations. For that, the formulation of strategies and policies in the use of ICT for MSMEs should be able to combine proactive and reactive approaches, so optimization of productive resources can be achieved. The major limitation of this paper is that it only reviews relevant literature and that empirical findings are not obtained to give a wide insight into ICTs adoption by MSMEs.

Keywords: Management, Marketing, MSMEs, Analysis, Big data

INTRODUCTION

Information technology has developed rapidly since the emergence of the internet. Trillions of bytes of data are generated daily through various sources such as social media, smart grids, video surveillance, and sensors. This ocean of data leads to a Big Data terminology. The data itself has an essential role in strategic decision making. Those who can sort and utilize the data available in large volumes, varied diversity, high complexity, and high speed of adding data can benefit greatly. However, unfortunately, the application of Big Data analysis is still not very popular in Indonesia. So far, the three main business sectors of Big Data users in Indonesia are banking, telecommunication companies, and producers of consumer goods (Setiadi, 2019). Big data technology can be used by many parties, including the government, large companies, and small and medium enterprises. Even though the use of Big Data is complicated and expensive, even SMEs with small capitals can take advantage of it as long as they know exactly what their business objectives are, thus facilitating the process of identifying the data needed to get more significant benefits from the investment that is spent. Some of the benefits of big data that have been felt, especially for the business world, include knowing the public response to products issued through sentiment analysis on social media; help companies make more precise and accurate decisions based on data; help improve the company's image in the eyes of customers; for business planning by knowing customer behavior, such as in telecommunications and banking companies; as well as

understanding market trends and consumer desires. In today's digital era, the use of big data can be a factor in decision making, so that SMEs can find out about trends that are currently busy in society, all can be seen through transactions on digital platforms. In addition, by using big data, businesses can see marketing opportunities and trends, which are currently loved by the public, so that they can encourage themselves to increase and be interested in digital sales platforms.

SMEs play an important role in all the economics of the world. In developing countries, SMEs contribute to job creation, income generation, and distribution. The use and utilization of ICT for Micro Small and Medium Enterprises (MSMEs) always attract attention. The challenge faced by SMEs includes limited access to manufactured inputs, especially high-quality imported goods, and a lack of skilled human capital to exploit and improve information and communication technology (ICT) within the business. Also, lack of managerial skills, finance, market information, commercial intelligence, small market, inadequate regional integration, poor infrastructure, bad governance, legal and administrative hindrances, and failure to access credit (Ongori & Migiro, 2010).

Unfortunately, several factors hinder or discourage SMEs from fully realizing the benefits of ICTs, including lack of knowledge, resources, and trust. There are also a host of other challenges faced by SMEs in different countries. Several challenges make it difficult for SMEs in developing countries to adopt it. Moodley (2010); Kotler et al. (2002); and Mutula and van Brakel (2006) identified some of these challenges like the high cost of access to telecommunications, lack of government policy towards ICTs, use of obsolete technologies, underutilization of existing technologies, a limited indigenous base, and digital illiteracy, lack of skilled and trained manpower, poor communication infrastructure; ignorance of ICTs benefits, high cost of internet connectivity, cost of ICT equipment and resistance to change.

Most SME employees do not have the necessary knowledge of information technologies; it becomes difficult for them to adopt ICTs in their business. Similarly, Chinaware and Dick (2008) indicated that the ignorance surrounding technology fuels concerns about security, lack of physical infrastructure, costs, legislation, and interoperability of the ICT tools. Besides, ICTs adoption theoretically fails to benefit SMEs due to several challenges from the external business environment.

LITERATURE REVIEW

Big Data Concept for Small Business

The concept of big data consists of several keywords: volume (volume), variety (variety), and speed (velocity) (Zikopoulos & Eaton, 2011; Beyer & Laney, 2012; Diebold, 2012). Data and digital, are two things that will form the basis of all endeavors in this modern era. Digital technology can facilitate MSMEs in product marketing. While the data can analyze marketing patterns that happen in society. The use of data and digital technology will eventually be able to help MSMEs to market their products more precisely target, faster, and will better suit market tastes. However, it still has not been able to catch up with the existing big businesses. The rapid flow of information requires a viable marketing analysis in real-time. Therefore, the processing and utilization of Big data is the solution to the problem. The advantages of using big data technology in MSMEs are that MSMEs will be innovative and competitive even in the international arena compared without big data technology. These advantages are also based and supported by the contribution of Indonesian society itself to the big data.

The use of digital technology in everyday life has been changing people's behavior in almost all aspects of life. The user internet in Indonesia even reached 88.1 million. MSMEs can take advantage of big data technology in various ways, wrong the other is analyzing the historical data they already have. UMKM that have to utilize web technology in marketing their products as well as have a stand for one year, will produce data that is quite large and varied. Data historically they can analyze them to determine the characteristics of the results in their sales. That way, MSMEs can track what products are the most interested in buyers, looking at their busiest time on the web, digging up information when the right product is marketed to determine their market segmentation appropriately.

The use of big data technology at MSMEs can also be done by analyzing the sentiments of social media users both positive and negative, then analyzes the unstructured data for information valuable companies that can use in making business decisions in the future. The density of activities on social media provides opportunities for the use of big data because it has become common knowledge that activities on social media have become routine activities for some people. Big data can help MSMEs understand their customer preferences it is better as well as to decide which products need improvisation. In short, there is no limit for companies to know everything about their customers using big data. By getting to know the customer better and understand how they interact on social media platforms differently, MSMEs can use big data to make decisions better marketing strategy. Has a lot of information and is capable of analyzing it correctly allows MSMEs to convey the message right to the community so that they buy products made by MSMEs.

Situation and Macro Condition of MSMEs in Indonesia

The condition of MSMEs in Indonesia is unique not only because of business sector reasons, but also due to other factors related to business ownership, geographic work area, and maturity in business management. Based on the results of the Economic Census conducted by the 2016 Central Bureau of Statistics, there are 26.71 million business units included in the MSME category in Indonesia. Of the number of business actors in that category, the amount of contribution to GDP amounted to 61.41% or Rp. 6,228 trillion by absorbing 96.7% of the total workforce. Meanwhile, in terms of investment contribution, MSME players contributed 56.2% of the total national investment. The awareness of MSME actors in utilizing ICT sophistication as well describes a positive signal. Data in 2017 from Kominfo, there are more than 4.7 million actors of MSMEs who have utilized digital technology for internal business interests in various formats (e-commerce and marketplace platforms). Actor growth business is predicted to continue to grow with a variety of incentives in the form of accelerated services to the public to facilitate the growth of business activities (Anggraeni, 2020). However, the roles of MSME players in encouraging export activities are still relatively limited. Contribution MSME exports are only around 15.7% of the total non-oil and gas exports in the country (Coordinating Ministry for the Economy, 2017).

The uniqueness of the contextual diversity of MSMEs in Indonesia cannot be simplified only on the issue of technology adoption and sophistication. More than that, increased competitiveness and resilience are necessary for ICT to truly become a catalyst for sustainable development and bridge the digital divide commonly found in a developing country like Indonesia.

The government of the Republic of Indonesia has provided public provision through Law No. 19 of 2016 concerning electronic information and transactions and presidential

regulation No. 74 of 2017 concerning the roadmap for the electronic-based national trade system. Both legal tools were launched to confirm the importance of accelerating the realization of economic potential through ICT. Some formal steps have also been rolled out to show just how much the serious commitment of the stakeholders to encourage business growth productive through ICT. However, several efforts have been taken by the government it requires review and re-examination to be true to achieve the expected goals.

ICTs refer to the wide range of computerized information and communication technologies. These technologies include products and services such as desktop computers, laptops, handled devices, wired or wireless intranet, business productivity software, and data storage and network security among others (Ashrafi & Murtaza, 2008). The main purposes of this paper are to identify gaps in the literature relating to SMEs' adoption of ICTs. Especially, the review tries to give a full insight into the driving forces, role, and barriers to ICTs adoption in SMEs (Figure 1).

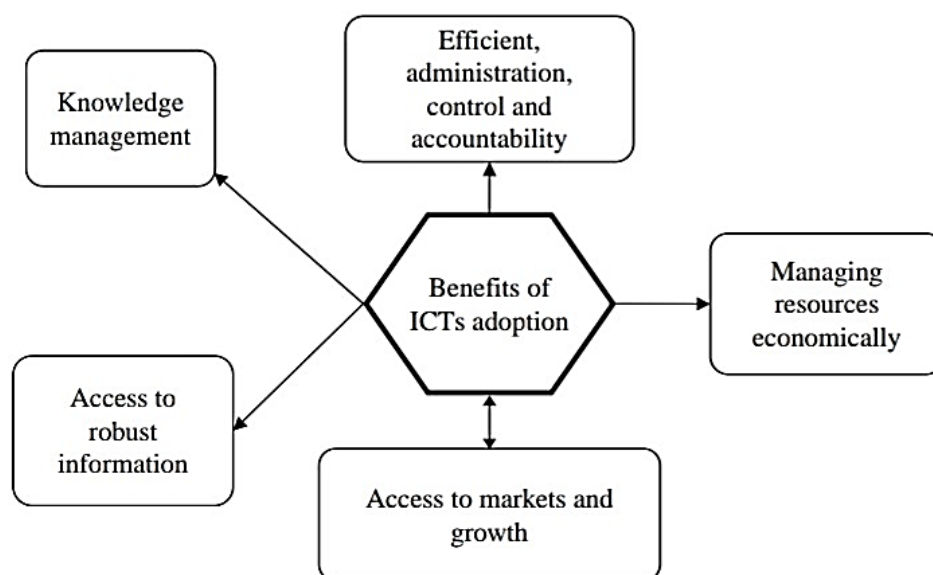


FIGURE 1

THE BENEFIT OF ICTS ADOPTION ON MSMES SOURCE: ONGORI AND MIGIRO (2010)

RESULTS AND DISCUSSION

Elaboration of business management behavior has relevance to efforts to encourage increased competitiveness and competitiveness resilient MSMEs in the face of changes in the global business environment. Several factors have been suspected to be obstacles in the effort development of competitiveness and resilience includes control technology and innovation, human capital capacity, compliance with legality aspects, access to funding sources and markets, and creative resources for the development of excellent products and services. Regardless of the limitations of MSMEs, situations, and conditions, the existing macroeconomics indicates gaps and potential for development which is still open to accelerating productive economic growth by relies on ICT-based innovation.

Development and acceleration of business activities carried out with support for communication and information technology (ICT) principally follows the flow of the management process. ICT can provide the potential to be creative and open new opportunities that can support the efficiency and effectiveness of business activities. However, the forms and models of ICT application cannot be equated between one activity and another. The implication is the public policy related to the development of ICT for MSMEs also cannot be singular and applicable for everything (one policy for all). In particular, the functions and roles of the ICT can be divided into several stages as follows Figure 2:

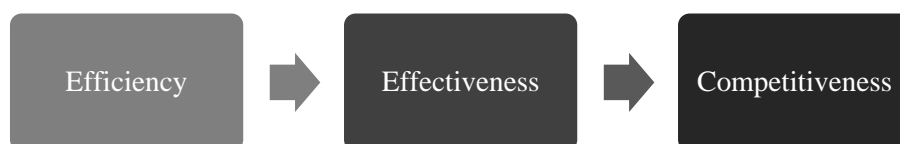


FIGURE 2

STEP BY STEP MSMEs ADOPT THE ICT

First Stage: Efficiency

At this stage, ICTs are still seen as a tool to help increase efficiency in business activity. Technology adoption was carried out to simplify business processes and support the smooth running of activities business operations. The form of the implementation of this stage is the use of ICT for office management, the use of software to replace manual processes, preparation of ICT-based reports, to website development to complete the process of business transactions that occur.

Second Stage: Effectiveness

In this second stage, ICT is not only interpreted on the surface, it's starting to take on a more central role. In this sense, ICT is not the only become tool for managing the office but has been used to help achieve business goals more effectively. Forms of activity implementation at this stage are the use of ICTs for safeguarding purposes sustainability and build a bond with customers (customer relationship management) or other strategic partners. ICT applications at this stage can also be carried out to increase competitiveness and internal resilience doing business through improving the product quality assurance process (quality control) sustainably. An introduction to the use and utilization of applications the internet of thing, like the application of censorship technology in agro-business, is part of the effort to control quality from the material selection stage, the production process, to post-production.

Third Stage: Competitiveness

At this stage, ICT plays a very important and strategic role in a business. ICT is becoming more interactive. ICT strategy must be aligned and in line with business strategy. In this case, ICT is used in various aspects of business activities such as mapping consumer behavior, making market models, compiling sensitivity analyzes, building more interactive product designs, and the need to build a global business network.

For the third stage to be realized, at least 3 (three) main prerequisites: ICT assets (infrastructure), ICT knowledge (human resources), and ICT relationship (connectedness). Adequate ICT infrastructure can be capitalized maximally to optimize its utilization. Good ICT-based human resources can increase capabilities and promote better adaptation in line with business changes and markets globally. The development of a harmonious ICT ecosystem is expected to be able to support the occurrence of good interactions and mutually reinforcing networks between and the various entities involved in it.

CONCLUSIONS

Adoption and assimilation of ICTs by SMEs is critical in this era of globalization. SMEs are the major drivers for the economic growth of an economy. The major determinants of ICTs' adoption by SMEs are competition and access to international markets. This review of literature will contribute to the body of knowledge by identifying to the owners/managers, policymakers, and other stakeholders the driving forces, benefits, and barriers to ICTs adoption. SMEs play a significant role in an economy especially through their contribution to economic growth and innovation. The limitation of this paper is that it is a preliminary work that needs to be contrasted with empirical findings to give a holistic view of ICTs adoption by SMEs. Also, there is a need for triangulation methods to be applied so that one can make concrete conclusions on the determinants, benefits, barriers, and strategies to resolve ICTs adoption and assimilation in SMEs. Lack of knowledge about big data and the need for resources capable human resources, hampering technology development this is in UMKM. It takes a special effort so that MSMEs in Indonesia recognize big data and take the initiative to take advantage of this technology in business development. These efforts can be made by more socializing the big data on MSMEs. In addition, assistance to the MSME players who will utilize big data also needs to be done to utilize this technology does not stop in the middle of the road because they need capable abilities to make use of it. These efforts can encourage more MSMEs to take advantage of big data technology so that MSMEs in Indonesia are increasingly growing and more competitive internationally. By applying big data technology, MSMEs will remain the bone's economic back in line with the times without worry swayed by the crises that hit. Therefore, it's all-time stakeholders who play a role in the development of MSMEs escort them in business development. So that the development of this nation can develop faster and bring Indonesia to glory and prosperity.

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