

## Electronic commerce – a mobile commerce concept for the development of small and medium enterprises

Hathairat Thiabsang, Anuchavadee Chaithongsri\*

Program of Information Systems, Department of Business Administration, Faculty of Industry and Technology, Rajamangala University of Technology Isan, Sakon Nakhon Campus, Sakon Nakhon, 47160, Thailand

\* Corresponding Author: [anuchavadee@gmail.com](mailto:anuchavadee@gmail.com)

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### Abstract

The researcher's objectives are to develop innovative concepts that support and encourage Small and Medium Size Enterprises (SMEs) to develop better performance in their production, distribution and service activities. The researchers performed research to develop an understanding of the size of the market, as well as assisting consumers with a better understanding of the product's position in that market. The researchers found that by creating "Big Data", Electronic Commerce (E-Commerce) and Mobile Commerce (M-Commerce) technologies can provide a better competitive advantage by establishing the entrepreneur's network. This network contributes to better data analysis and easier data accessibility. In conclusion, the use of "Big Data" can increase the SME's competitive advantage in order to compete with the present business situation, as well as enhancing the country's social and economic conditions, by distributing an income towards the country's population and the SME's entrepreneurs. Big Data Analytics is the leading information source for in-depth analysis, SME marketing planning and SME business decision making, using semi-structured and unstructured data analysis from various sources. It also provides an innovative SME business model with new forms of electronic commerce. The measurement method is Big-O Notation, a Key Performance Indicator.

**Keywords:** Small and Medium Sized Enterprises (SMEs), Electronic Commerce, Mobile Commerce, Information Technology Quality (QIT), Big Data Analytics

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### 1. Introduction

Thailand is an agricultural country. The agriculture in Thailand is highly competitive. Agriculture used to be an engine of economic growth. Agricultural production is mainly based on rice, Para rubber, palm oil and crops. Currently, agricultural prices remain low, due to the country's overall economic slowdown. In June 1-21, 2015, the

number of foreign tourists traveling to Thailand grew by 1.56 million people, a high level of 53.6 percent per year, reflecting the strong growth of the tourism sector abroad [1]. The adaptation of Thailand to increased opportunities from tourism has prompted SME entrepreneurs to develop a standard product and good service at a fair price for tourism markets such as Japan, the European Union, Africa and ASEAN + 9. This can be done by bringing modern technology into their applications such as big data, electronic commerce (E-commerce) and mobile commerce (M-commerce), in order to promote innovation and service to *the right customers*. Through the development of innovative products in line with the group's enterprises, SMEs can be considered an additional distribution channel, resulting in increased revenue to the members of households, as well as innovative, effective competition in the business.

## 2. Materials and Methods

Small and Medium Sized Enterprises or SMEs have been adapted and translated into Thai as "SMEs". The meaning of "Enterprises" covers three groups of important issues related to the growth and performance of SMEs, in all of Thailand's economic sectors as follows:

The production sector is the sector of an economy that includes agricultural processing, manufacturing and mining. The trading sector covers the wholesale and retail operations of the economy.

The service sector covers manufacturing and making things for Small and Medium Sized Enterprises (SMEs). Given the high value of fixed assets, Small and Medium Sized Enterprises or SMEs are deemed to have a significant effect on overall economic development. Small and Medium Enterprises act as catalysts in the economic development of Thailand. Therefore, SMEs are very critical for the development of every sector of the economy in Thailand.

This stance was reiterated by the office of SMEs promotion in 2011 and 2012. In 2011, the number of SMEs in Thailand was estimated to be 2,652,854. SMEs are enterprises with the flexibility to adapt quickly to the changing circumstances of the country, as well requiring less funds than large enterprises when doing so. Such examples have already emerged in parts of Thailand. Most developing countries have changed from agricultural to industrial economies. These enterprises are a factor in achieving this outcome and developing the community. In the past, people who were poor and lived in the countryside received help from the government, boosting economic growth in the local area and decreasing the rate of immigration from the countryside, due to development. In the last few decades, industrial development has spread throughout the country. This offers a good chance for medium-sized and small industries to export their products to the international market, because these industries have advantages over big industries. Although, SMEs have a big contribution to make to the Thai economy, many SMEs have faced several barriers. These barriers have significantly adverse effects. The research results have identified some aspects of the problem, with the following implications.

The problem of marketing SMEs in Thailand is that most of them are family businesses and SME owners typically have their own management styles, which sometimes is not of an international standard. In addition, they have problems such as a lack of knowledge about product design, product development, developing the right

marketing strategy, marketing promotions, and the use of marketing research as a marketing tool. Thus, this problem affects their marketing management, organizational development, information management, and so on, which makes them ultimately ineffective. Therefore, these management problems commonly persist, particularly in the increasingly competitive business environment and complex supply chains. In addition, SMEs face a limitation of information, which makes them slow to develop their businesses.

The problems of finance arise when SMEs lack access to financial support, because they do not have good knowledge of accounting systems and the ability to write sound business plans. Furthermore, most of them do not have enough assets to guarantee their bank loans. This financial problem pushes them to borrow money to support their businesses, from underground capitalists at high interest rates.

Labor is a problem that affects business management. It is difficult to find skilled workers because many move away to work in large factories where they can make more money, and many workers like to work in large enterprises. This issue is reflected in the quality of the workforce and uneven development in general. It impacts on production efficiency and product quality. Therefore, skilled labor is an important factor for entrepreneurs.

The problem of a restriction on production technology means manufacturing SMEs are particularly labor-intensive. SMEs often use manufacturing techniques that are not complicated because of low investment, together with a lack of the basic knowledge required by operators and employees to support modern manufacturing techniques. Consequently, products lack development and possess poor standards of quality.

Most SMEs have problems with marketing management because owners often operate their businesses based entirely on their own experiences. They often lack proper knowledge of management and administration practice, together with important learning experiences. The study discovered owners primarily rely on family members or relatives to assist management in this same manner. This is far from ideal, despite the advantages of the thorough care demonstrated by family members, friends and relatives. This problem causes a lack of business development. In addition, owners and managers have problems such as a lack of knowledge about product design, product development, developing the right marketing strategy, marketing promotion, and the use of marketing research as a marketing tool.

There are problems in supporting the promotion of SMEs to establish a number of unconventional forms of business, such as plants produced by production houses which are not registered factories. They also fail to obtain Commercial Registration or comply with trade registers. Consequently, these factories are unable to use the services of the government. They also avoid paying taxes and don't adhere to the principles of environmental preservation or security as required by law. In addition, the acquisition of investment is subsequently hindered, despite the government reducing the size of mandatory capital requirements and easing the conditions of employment, in an attempt to encourage small and medium enterprises. Thus, only 8.1% have been promoted by the government.

The problems of developing support services has restricted the growth of both the public and private sectors. Promoting the development of SMEs in the past has been carried out by government agencies and relevant private organisations such as the Department of Industrial Promotion, Department of Skill Development,

Department of International Trade Promotion, Ministry of Commerce Thailand, The Board of Investment of Thailand, Small Industry Finance Corporation, Industrial Finance Corporation of Thailand, the Thai Chamber of Commerce, the Federation of Thai Industries as well as various trade associations and industries. However, small and medium sized enterprises are numerous and scattered throughout the country. The regional offices of support agencies can be limited in the assistance they provide, because their operating budgets may not be complete and adequate.

There are problems for SMEs when they encounter restricted access to information. SMEs face a limitation of information because they have a lack of knowledge regarding policies and measures for gathering marketing information. In summary, SMEs are very important in developing countries. SMEs are still one of the important factors that help and support the growth of the economy over the decades. Thai manufacturing SMEs make an important contribution to the economic development of the country. They can help create jobs and reduce poverty, provide value-added output, reduce imports and increase exports, and are a source of skill development. Moreover, they connect with large and productive sectors such as agriculture, which can enhance skills development programs in the SMEs through joint production ventures, trade, transport, retail activities and business in general. For the operation of such services to be effective, there needs to be a strategy to boost profits in managed services firms, such as enhancing creativity in products and services. Leading edge technology should be utilized to handle the speed of production and the distribution of services, in order to keep pace with the demands of customers and reduce the problems of the foregoing. Therefore, the government or related agencies should promote and address the problems of SMEs which makes the economy with SMEs sustainable forever.

Technology is the collection of techniques, methods or processes used in the production of goods or services or in the accomplishment of objectives, such as scientific investigation. Technology can be the knowledge of techniques, processes, etc. or it can be embedded in machines, computers, devices and factories, which can be operated by individuals without detailed knowledge of the workings of such things. Technology can be viewed as an activity that forms or changes culture. Additionally, technology is the application of math, science and the arts, for the benefit of life as it is known. A modern example is the rise of communication technology, which has lessened barriers to human interaction and as a result, has helped spawn new subcultures; the rise of cyber culture has, at its basis, the development of the Internet and the computer. Not all technology enhances culture in a creative way; technology can also help facilitate political oppression and war via tools such as guns. As a cultural activity, technology predates both science and engineering, each of which formalize some aspects of technological endeavor. This is because many devices rely on information technology, be it a computer, mobile phone, PDA, GPS, satellites and the Internet. This indicates the social importance of the computer. Technology refers to strategies for using a variety of tools to make it work more efficiently, such as computerization that will produce faster results. Greater efficiency usually relies on high technology, also referred to as the abbreviation, Hi-tech. In summary, technology refers to Information Technology Quality; the knowledge to develop new benefits to work in various fields, including convenience, increasing the volume of goods or services and reducing production times. Technology can create storage systems for fast data processing, speeding up the analysis of the results of the processing. It can also focus on providing better formats to display and disseminate such results. Furthermore,

technology can communicate that information to other agencies with the computer and mobile internet used as a medium.

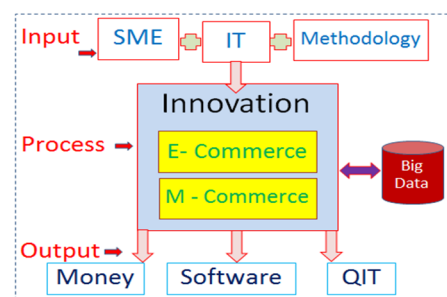
### 3. Results and Discussion

There are a number of marketing problems for SMEs. They have problems such as a lack of knowledge about product design, product development, developing the right marketing strategy, marketing promotion and use of marketing research as a marketing tool. Thus, these problems affect their marketing management, organizational development, information management and so on, which makes them ineffective. The researchers have a concept that should be a technology called the Electronic Commerce (E-Commerce) on Mobile technologies that can provide a better competitive advantage by establishing the entrepreneurs' network. It supports the promotion and expansion of markets both domestically and abroad. Electronic Commerce (E-Commerce) refers to commercial transactions over electronic media in any way, such as electronic goods and services advertising via electronic media, whether it is a phone, TV, radio or Internet, etc. The objective is to reduce costs and increase organizational efficiency [2]. Types of electronic commerce include trade from a consumer to a business (C to B), business to business (B to B), or trade from a business to a consumer (B to C), or consumer to consumer (C to C). This concept to focus on communication via mobile phones was developed because the mobile phone is considered to be sensitive electronic equipment. It has become an essential factor over the years for enabling people to communicate. Since 2009, the number of registered mobile phone users reached 65.9 million mobile numbers, which at that time was equivalent to 97.3% of the population of Thailand. In 2011, the number increased to 77 million, equivalent to 115% of the population. Such a large number of customers highlights the opportunities and possibilities for growth in electronic commerce on mobile phones [3]. Currently, usage is primarily used for things like the sale of ringtones and games, conducting bank transfers and credit card transactions, payments at the convenience store, PayPal, Pay buy, mpay or accessing the services of 3G / UMTS. It can be used to pay fees for various services, including the transfer of information, such as predicting the results of football matches via SMS, etc. Currently, business via mobile phones is gaining widespread popularity in Japan, Korea, Thailand, Europe and America. Many companies have developed this system. This has resulted in the economy growing in many areas through the creation of new businesses and employment, which also increases public revenues and the growth rate of the GDP of the country [4].

In summary, the faster growing technology referred to as mobile-commerce (M-Commerce), is based on electronic-commerce (E-Commerce) and has simply rebranded the technology. The former is based on the computer. The later utilizes a device that is easy to use, is small, delicate, beautiful and portable whilst providing fast access to the internet. Altogether this gives customers and users much greater satisfaction. It also provides employment and income for citizens and increases the growth rate of Thailand's GDP.

After enabling electronic commerce via mobile phones, information received from the system includes such items as purchases through an online system and information posted through Twitter, YouTube and Facebook which can be sent via text, images, audio or video signals from the GPS of a Smartphone. This information occurs

with more volume and a variety of data types, including data types of various structures which is particularly relevant when considering database storage thresholds. The data types of semi-structured information allows for decisions on issues that do not specify the process or how to get ahead in some cases, but not enough to always decide for sure. And the data types of un-structured information means a decision on the issue cannot be defined in advance, as the decision process requires the acquisition of more parts. Some information has a fast velocity close to real time, such as the instant travel time that elapses for the upload of photos to Facebook, the reading of signals emitted by radio-frequency identification (RFID) systems, Smart Meters and the processing of orders online. These are examples of “Big Data” applications for large enterprises and they herald a new era, promoting the many different ways to use the Internet and social networking sites on-line. Organizations and businesses are able to better understand customer behavior around products and services, by studying and analyzing information procured from online transactions and consumer visits to various web sites, including the organization’s own site. Links to see product and service categories on a web page can include the duration of each visit, to help find what motivates the target customers [5]. The advent of “Big Data” mirrors our technological evolution as a society: for the first time in history, we have the ability to easily and cheaply capture and store massive amounts of data in a way that was simply impossible before. This transition means that we are no longer constrained to statistical methods of sampling or estimation in order to extract meaning from data. Instead, collecting a complete data set means that we can now analyze the dataset in its entirety, as well. Simply put, analyses from here on out must focus on the subject  $N=all$ , rather than attempting to guess at a population or hope for a representative subset based on random sampling of data. “Big Data” means that we can have it all [6].



**Fig. 1** The concept for development of Electronic Commerce, Mobile Commerce for Small and Medium Size Enterprises by Big Data Analytics Information technology

In summary, “Big Data” describes a massive volume of both structured and unstructured data that is so large it is difficult to process using traditional database and software techniques. In most enterprise scenarios the volume of data is too big and moves too fast, or it exceeds current processing capacity. Examples include information from processing online trading systems, or interactions with Facebook. Such information can be collected and analyzed to better understand consumer behavior in relation to the products and services of an organization. Organizations can benefit from this analysis by planning strategies that increase the value of their

products, which will increase the income of the organization as well. Businesses can create further value by using the information to help devise new ways of distributing their products or services. Assisting consumers to know and understand more SME products gives consumers the best choice.

#### 4. Conclusion

Fig. 1 shows that small and medium sized enterprises (SMEs) are very important in developing countries. SMEs are still one of the most important factors that help and support the growth of the economy over the decades. The people in a country need to foster the wisdom and knowledge of local authorities, to develop products and services for generating revenue. They must also develop the concepts for creating new innovation and encouraging SMEs to develop better performance in production, distribution and service activities to assist consumers. Thus, creating the "Big Data" electronic commerce (E-Commerce) and mobile commerce (M-Commerce) technologies could provide a better competitive advantage by establishing the entrepreneur's network. This network contributes to better data analysis and easier data accessibility. In conclusion, the use of "Big Data" can increase the SMEs competitive advantage in order to compete with the present business situation, as well as boosting the country's social and economic conditions, by distributing an income towards the country's population and the SMEs' entrepreneurs.

Big data analytics is the leading information source for in-depth analysis, marketing planning and business decision making for SMEs, using semi-structured and unstructured data analysis from various sources. It provides assistance in building innovative business models that can greatly increase the commercial value of SMEs. It provides the information necessary for analysis, to determine the need for SMEs to supply products or services in new ways. This will also better meet the needs of end users. The data can support decisions to create advantages in the market, through proactive planning of present and future marketing plans that focus more on promoting distribution. Helping consumers to know and understand more SMEs' products gives consumers the best choice.

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