Practical Study on Small-medium Enterprises Using Information Communication Technology

Jing YU¹,a and Kuo-Yan WANG²,b,*

¹,²School of Economics and Management, Guangdong University of Petrochemical Technology, Maoming, Guangdong, China
³yujing@gdupt.edu.cn, ⁴kywang@gdupt.edu.cn

*Corresponding author

Keywords: Information divide, Policy support, Information communication technology (ICT).

Abstract. The information divide can evolve into unequal distribution of social resources and serious confrontation. Despite the most influential governmental authorities of the world are attempting to address the information divide phenomenon. The divide, however, still exists, and particularly in small and medium enterprises (SMEs) facing strong competition from large-scale enterprises during global recession in the pandemic period. This study, which is based on the viewpoint of profit earning, examines how SMEs can improve their ability to straddle an information divide effort using information communication technology (ICT) and policy supports. The findings and implications of this study provide insights for later research.

1. Introduction

Overwhelmingly significant information changes have led to economic patterns and to the development of a knowledge-based economy. In recent years, the United Nations (UN) is committed to reduce the information divide and construct the sound information society. Therefore, countries around the world are making efforts to narrow the information divide. As a policy-making issue, however, the income inequality of each country, group, and individual is still a significant problem.

The related evidence illustrates that in addition to the gap between economic conditions, the extent of communications facilities and the number of computers can reflect a country’s financial situation [1-2]. Straddling the information divide, specific to small and medium enterprises (SMEs) is a major factor for strengthening business performance. However, few empirical academic studies have focused on how SMEs conquered the information divide. For this reason, this study collected many data surveys from government sector information about the bridging the digital divide of the SME project from regional government level.

This paper is structured as follows: Section 2 discusses the rest of world make efforts to straddling information divide especially SMEs; Section 3 is the research findings overview; finally concludes this study in Section 4.

2. Importance of Straddling an Information Divide

The information divide (also called ‘digital divide’) is currently understood as the ‘information and technology gap between people communication’ that easily causes information and sources
asymmetry [3-4]. If the situation continues under laisser-faire, it will drift into social extremism. To prevent prolonged circumstances, each country, organization, and individual should make efforts to straddle the information gap phenomenon. To reduce the information divide, certain developed economics have already begun to assist developing countries to construct information and communication technology (ICT) facilities and provide appropriate information education. Despite the tremendous potential factor for social overall development, previous related works have suggested that the single best strategy to conquer the information divide is strengthening information and the telecommunication infrastructure [5]. However, high economic differentiation existing among countries is the major reason to illustrate the information divide. Even European countries experiencing remarkable economic growth for more than fifty years development compared to other continents, also have huge information divide among locations. Some commentaries have voiced that countries that excessively pursue real-time information are unable to maintain their own culture and character, moving toward Westernization (or Americanization), and are also called to protect individual’s ‘right to be ignorant’. That is why certain literatures believe that the information gap is difficult to mitigate.

In the business development perspective, the commentaries at the above cannot help them effectively grow a business scale. To support SMEs using ICT for added-value overall performance, each country must pay attention to straddling the information divide and considering economic policy as important. In particular, ‘affordable prices’ and ‘easy accessibility’ are two most substantial factors as the U.S government makes efforts to narrow the information gap policy-making [6]. This study, therefore, explores whether have positive significant impact between SMEs using ICT and their financial performance.

3. Findings

3.1. Sample Selection

SMEs are not only facing the relocation industry reality, but also confronting the economic recession in domestic market dilemma. The characteristics of SMEs are commonly as follows: small scale, uncomplicated structure, decision-making by limited numbers, and closely approach to customers. As compare to large enterprises, SMEs have stronger mobility to perform the task and effectively adopts business environmental change. The disadvantages are, however, a shortage of capital operation, talent scarcity, and highly individualized decision-making style etc. usually harmful to development of SMEs.

This study defined SMEs as the follows: the paid in capital less than 156,110 USD approximately; firm founded before 2000; excellent local reputation; firm uses of ICT before the average annual turnover less than 1,561,100 USD approximately. Therefore, through a comparative analysis of sample selection, the study employs four representatives SMEs that industries have covered a gourmet snacks store with local flavor, a textile company, a bicycle parts agent, and a culture crafts workshop. All these firms were using ICT that creating more profit in the last four years. And their organization scale, the amount of total capital, the annual total business turnover, and geographic distribution are in line with the definition of the study. Above of all samples are participated in regional government initialed the bridging the digital divide of the SME project in 2019. This survey attempts to explore the period of 2014 to 2019 on their profit performance growth.
3.2. Financial Performance

Financial performance of the sample firms can be divided into five criterions: annual turnover, cash-flow adequacy ratio, debt ratio, gross profit margin, and media budget ratio. This research is attempting to explain the rate of growth and decline of each criterion which the firms using ICT to assist business operation before and after.

Table 1 illustrates that financial performance of firm A from 2014 to 2019. Firm A was founded over 70 years ago and operates as a traditional Chinese pastry store with well reputation. With western-style cake popularity growing, however, firm A market share turnover have deteriorated sharply. Despite of a large existing loyal customer supports; gradually ageing customer makes firm A generates a sense of crisis. Attract young customer eyeballs—especially young prospective couples—has become a priority of operation task.

Initially, firm A increased the media budget approximately 16% of the annual operation cost, but it cannot be attracting young customer layer to purchase their traditional pastry. Due to higher development of ICT facilities and the on-site delivery market, under the government upgrading information ability project assistance, firm A open the national market gradually. In addition, the annual turnover originally maintains roughly 5% growth rate. After firm A employs ICT to build up electronic business (E-business) sale chain, not only expands their sales network, and active its cash-flow that makes more robust operation. Firm A was involved on fixed 16% media budget each business year, through improving information divide situation, the media budget downing to 3%. Gross profit margin grows by leaps and bounds to 60.72% in 2019 from 43.12% in 2014.

|                | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  |
|----------------|-------|-------|-------|-------|-------|-------|
| Annual turnover (USD) | 673,130 | 708,790 | 842,370 | 1,008,600 | 1,131,200 | 1,210,800 |
| Cash flow adequacy ratio (%) | 23.73 | 28.02 | 37.71 | 40.25 | 51.27 | 50.64 |
| Debt ratio (%) | 36.18 | 44.83 | 48.94 | 21.38 | 19.69 | 15.77 |
| Gross profit margin (%) | 43.12 | 40.08 | 46.87 | 53.23 | 58.61 | 60.72 |
| Media budget ratio (%) | 15.66 | 16.00 | 7.21 | 5.20 | 3.32 | 2.81 |

Firm B doing as a clothing manufacturer for overseas well-known apparel brands. Along with more than 50 years of history, firm B at the outstanding reputation among the industry. Due to limitation of its operating style, the firm’s profit is stagnation for a long time. In the beginning of 2015, the management decided that promote new own brand on the internet with competitive price. Table 2 indicated that the annual turnover rapid improving 13.2% in 2016, the cash-flow adequacy ratio more than doubled in 2019 compared to 2014, and the gross profit margin also have double growth. Moreover, E-business successes also save the advertising cost for firm B.
Table 2. Firm B’s financial performance from 2014 to 2019.

|          | 2014          | 2015          | 2016          | 2017          | 2018          | 2019          |
|----------|---------------|---------------|---------------|---------------|---------------|---------------|
| Annual turnover (USD) | 1,520,100     | 1,560,900     | 1,678,500     | 1,899,400     | 2,004,000     | 2,176,300     |
| Cash flow adequacy ratio (%) | 32.47         | 36.94         | 53.12         | 60.80         | 63.38         | 61.43         |
| Debt ratio (%) | 40.02         | 41.32         | 42.17         | 33.89         | 27.64         | 23.05         |
| Gross profit margin (%) | 22.69         | 28.01         | 30.83         | 33.08         | 35.09         | 40.87         |
| Media budget ratio (%) | 5.33          | 6.01          | 5.00          | 5.00          | 1.78          | 1.51          |

A bicycle parts importer, firm C, main business is an agent for well-known bicycle parts brands in middle area. Over 80% customer source is bike shop makes their gross profit margin never been able to grow. While high oil price drives to bike workouts, firm B attempts to improve more bicycle enthusiasts that in term of attractive prices. After adding in the project in 2015, firm C’s annual turnover have increased nearly 5 times, debt ratio, cash-flow control, and gross profit margin also have very excellent performance as the table 3 shows.

Table 3. Firm C’s financial performance from 2014 to 2019.

|          | 2014          | 2015          | 2016          | 2017          | 2018          | 2019          |
|----------|---------------|---------------|---------------|---------------|---------------|---------------|
| Annual turnover (USD) | 323,990       | 403,060       | 624,810       | 724,350       | 1,134,000     | 1,522,600     |
| Cash flow adequacy ratio (%) | 32.47         | 36.94         | 53.12         | 60.80         | 63.38         | 61.43         |
| Debt ratio (%) | 40.00         | 41.32         | 42.17         | 33.89         | 27.64         | 23.05         |
| Gross profit margin (%) | 22.69         | 28.01         | 30.83         | 33.08         | 35.09         | 40.87         |
| Media budget ratio (%) | 5.33          | 6.00          | 5.00          | 5.00          | 1.78          | 1.50          |

Firm D’s main business is aboriginal culture handicrafts production. Theirs product are quite popular for foreign tourists. However, as a workshop, output and sales are limited. In order to improve the situation, the owner of firm D decided that to recruit more staff that came from the different tribe to make a various culture and style works, and started uses ICT to construct an electronic shop on internet. Since 2015, firm D’s financial annual report have gradually improving in every business year (Table 4) especially total gross profit margin.

Table 4. Firm D’s financial performance from 2014 to 2019.

|          | 2014          | 2015          | 2016          | 2017          | 2018          | 2019          |
|----------|---------------|---------------|---------------|---------------|---------------|---------------|
| Annual turnover (USD) | 95,426        | 76,544        | 96,434        | 100,890       | 113,630       | 127,900       |
| Cash flow adequacy ratio (%) | 23.08         | 20.71         | 26.54         | 30.00         | 32.52         | 33.25         |
| Debt ratio (%) | 61.36         | 70.84         | 62.97         | 49.28         | 43.72         | 38.97         |
| Gross profit margin (%) | 15.25         | 18.00         | 20.69         | 27.33         | 35.81         | 38.26         |
| Media budget ratio (%) | 20.00         | 20.00         | 20.00         | 15.00         | 10.00         | 8.00          |

4. Conclusions

E-business in the 21st century is gradually playing a significant role in the whole sales channel.
This study verified that SME exercises enhanced ICT overall strength in specific cash-flow, gross profit margin, and media budget ratio in competence financial performance, and it also concluded that ICT facility and policy support must complement each other. Despite the highly developed computer and telecommunication industry in nowadays, straddling the information gap promotion policy is also important to SMEs successfully straddle the information divide.

Many researches have focused on the outcomes of straddling the information divide in each country, continent, or even cross-continent, however, these studies rarely examine the object’s performance which uses ICT to narrow the information gap. A well-developed ICT encourages a very efficient and convenient door-to-door physical delivery network and serves as an incentive for the micro business to adopt e-Commerce. Low cost hardware and software, popularity of information education, and more-speed-more-progress telecommunication technology are treated as essentially independent innovations. Unlike the past practitioner and academician’s viewpoint on the economic capital system, currently views, internet as an indispensable role, create a knowledge-based economy. Besides, has a decisive influence for SMEs sustainable development.

This study suggests that future studies compare both developed and developing economics to various performance dimensions of SMEs utilizing ICT. This research also targets SMEs in straddling information divide efforts at rural or mountain areas in countries moving toward SMEs.

Acknowledgement

This article is in the research project of Guangdong University of Petrochemical Technology (No. 702-519197).

References

[1] Röller, L.-H., and Waverman, L. Telecommunications infrastructure and economic development: a simultaneous approach, American Economic Review, 91:4, 2001: 909-23.

[2] Silva, B. N., Khan, M., & Han, K., Towards sustainable smart cities: A review of trends, architectures, components, and open challenges in smart cities. Sustainable Cities and Society, 38, 2018, 697-713.

[3] Marshall, A., Dezuanni, M., Burgess, J., Thomas, J., & Wilson, C. K. (2020). Australian farmers left behind in the digital economy—Insights from the Australian Digital Inclusion Index. Journal of Rural Studies, 2020.

[4] Warschauer, M. “Technology and social inclusion: rethinking the digital divide”, The MIT press, Cambridge’, MA. 2003.

[5] Rasiah, R., Oyelaran-Oyeyinka, B. Reducing the digital divide: A critical focus, Journal of Cyber Culture and Information Society, 2004: 1-26.

[6] Barzilai-Nahon, K. Gap and bits: Conceptualizing measurements for digital divide/s, The Information Society, 22: 2006: 269–278.