

The Impact of Business Intelligence on International Entrepreneurial Orientation and the Capability of International Operation of the SME's

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Abstract - This study explores the business intelligence that may have an impact on human capability of Thai firms through international entrepreneurial orientation, which consists of management vision, innovativeness, and preparation for foreign operation. There are 449 subjects, who have worked for various small and medium enterprises (SMEs) which participated for the empirical investigation. The instrument was developed from prior literature, specifically for the firms which operated in Thailand. The Structural Equation Model was applied for summarizing the results, since the model was composed of international entrepreneurial orientation as mediators between business intelligence and the capability of international operation. The findings imply that the utilization of business intelligence is crucial to supporting the firms' international entrepreneurial orientation which includes innovativeness and preparation for foreign operation. This supports the capability of operation abroad, measured by human resource capability.

Keywords - Business Intelligent, SME, International Entrepreneurial Orientation

I. INTRODUCTION

According to the World Economy, which has continuously growth from investment across national border for many years, foreign

direct investments (FDI) have a positive impact on an economic growth of the host countries. This success comes from knowledge and technology transfer, capital inflow, human resource development, managerial skills, and eventually, the growth of economics [1, 2]. Furthermore, the FDI encourages the development of local business firms and has supported economic growth of the recipient countries for both developing and developed countries for more than 10 years [3, 4]. In addition, the multinational corporations (MNC's) have been the pioneer on international investment in terms of both production and sales [5, 6]. Consequently, the operation of the MNC's over host countries require other local firms (both small and medium enterprises) (SME's) to support their activities as the supplier of goods, and services [7]. This is a significant opportunity for local SME's to develop their operation in order to meet a global standard and eventually become the investors in foreign countries. As the trend of SME's engagement in internationalization has been significantly increased, there have been an increase of researchers in SME's which are part of international firms founded for almost a decade [8]. The internationalization of SME's in terms of capital investment, financial management, and performance, has been made aware by researchers for a long period of time [9, 10]. SME's are important to the global business environment and economics since they mainly support the

movement of multinational enterprises and perform labour intensive employment, which drives the Country economy. Furthermore, some research has found that the role of SME's is often under estimated, especially when compared with multinational firms [11]. The evidence is that there has been an increase in number of SME's expanding to the international market for more than 2 decades [12].

In Thailand, the economy has been developed depending upon the business investment from both foreign direct investment and local business investment. The role of SME's has been obviously found as a major supporter to the industry and economy. In addition, many SME's have been developed to operate internationally in the global business environment. However, the regional economic integration as part of the Asian Economic Community (AEC) has encouraged SME's to adapt their strategies for international engagement, but not many SME's have been prepared themselves. Foreign Direct Investment (FDI) has enhanced the economic growth in Asian countries for a long period of time and labour and capital is crucial to that growth [13, 14]. Thailand is one of the countries in South East Asia that has its economic development dependent on the FDI. The growth of FDI in Thailand has an impact on many small and medium enterprises (SME's) who are vendors of those foreign firms. This is a relationship between the investment of multinational enterprises and the small and medium enterprises in term of the development of Thai local firms to respond to the necessity of being international firms.

However, the business intelligence which is concerning to information technology and digital marketing have been developed very fast and supports every organizations to their competitive advantage. This development can support even small firms to become multinational companies within a short period of time. The question is if SME's have been concentrating on the development and utilization of business intelligence which is lower in cost and effective to their operation.

Therefore, it is n important to study SME's in Thailand in terms of their information technology and international orientation for their potential in competing internationally. This study focuses on the development of the Thailand's SME's regarding business intelligence in order to gain a competitive advantage for operating abroad.

A. Small and Medium Business Enterprises

The role of SME's in economic development for both developed and developing countries has been accepted as an important mechanism [15-17]. SME's provide almost 50 percent of the added value for economy in Asia and the Pacific region. However, they have constraints in many factors such as a lack of scientific management skills, implementation, a lack of market intelligence, inadequate access to materials, supplies, equity, labour issues, and technical and operation discrepancies [18].

The definitions of SME's in various countries vary depending upon the situation of countries' context. The criteria for determining the business enterprises to be small or medium enterprises are mostly measured by employment, assets, capital, and turn over.

1. International Operation of SME's

For SME's that have extended their operation into foreign countries, international entrepreneurial orientation is important. Knight [19] stated that it projects the pro-activeness and aggressiveness of firms when entering foreign markets. Thailand SME's are crucial to economic and social development. They created 33% of total exports and an estimated 38.8% of total GDP during the period of 2000 to 2009 [20]. In the year 2013, SME's occupied 97.16% of total enterprises in Thailand or 2,763,997 firms from the total of 2,844,757 [21].

According to information from the office of the National Economic and Social Development Board, compiled by the office of Small and Medium Enterprises Promotion, SME's created a national GDP structure of the services sector accounting for 34.8%, the

manufacturing sector by 29.6%, and trade and maintenance sectors by 27.7%. Those SME's have operated for both business to customer (B2C) and business to business or to customers that are business or industrial firms (B2B). Some customers are multinational enterprises that need those SME's to supply them with material or services. According to the economic integration over the Asia Pacific region such as the Asian Economic Community, Thai SME's have to be aware of managing change in their firms for long term operations they may face with new competitors of other countries within the community. Thai SME's have to develop their firms in both strategy and operating performance to create a competitive advantage for sustainable growth. They can have a development and sustainable growth based upon a entrepreneurial mindset of management, innovation, efficiency operation, risk taking, and a proactive approach to business [19, 22]. The entrepreneurial mindset is a starting point for the management in order to sustain a competitive advantage. It is generally based upon the potential of a firm to allocate the resources for business opportunities and create rapid growth and innovative business [15].

The entrepreneurial mindset can be considered in terms of a multifaceted concept starting new businesses, economic and sociological events, and an approach to strategic management in terms of innovation and growth [23]. Compared to rival multinational firms, the SME's tend to lose some competitive advantage of capabilities, low bargaining power, and a low resource base. However, even with the disadvantage of competitiveness, Thai SME's have to proceed into international operations for greater market opportunities, and efficiency for their operations. The critical issue is how Thai SME's can create the capability of international engagement for their competitive advantage in long term sustainability.

2. SME's Innovation

Currently, small and medium enterprises are concentrating on sustainability oriented

innovation (SOI) for their competitive advantage [24, 25]. The reasons come from a higher competitive environment that has rivalries in globalization and a shorter product life cycle [26]. Research shows that SME's have increased recognition of sustainable development which they derive from innovation [27, 28]. Innovation in general, is the new product or services being introduced into the market successfully. According to some study of SME's that operate across borders, innovation is important for cooperation between companies [29]. Because many SME's that operate across border are suppliers of multinational enterprises, then, they have to develop products to fit the needs of customers. This provides capabilities for SME's using the resources available in a global network. The global network of resources will help them in creating competitive advantages for their operations. Moreover, the cooperation in a global network can help them develop sustainable competitive advantages in terms of innovations that offer clear benefits to their operations. However the conflicts in a network may involve a decrease in activities of some firms operating abroad.

Many studies support the importance of innovation over SME's internationalization that can create competitiveness for the firms [30, 31]. Some studies found that marketing, innovation, and learning capabilities have a positive relationship with the SME's performance [32]. Other studies indicate that the government policies in supporting innovation by encouraging networks with universities, have a positive relationship with regional SME innovations and can be determined in terms of supply chain and networks [33]. Innovation may require a period of time to be completed when being introduced to the markets. However, innovation should spend less time developing since there are always the newer products from competitors being continuously introduced into the market. Roadmaps for SME technology is necessary to reduce the timeframe to 2-3 years [34]. According to the emerging markets, the important factors in developed economies are also important to developing economies and

innovation [30]. The key to success of SME innovation is a manager who has a personality in the adoption of innovation [35].

3. Business Intelligence

The growing competitive business environment requires SME's to have updated and accurate information to support their operations. All firms can utilize information technology by applying business intelligence and the use of digital marketing and e business for lower cost in overall operations [36]. With the rapid change of e-commerce technology, business intelligence can help support information in marketing strategies [37]. The application of electronic records has resulted in an accumulation of information. Business intelligence which includes Decision Support System, Executive Information Systems, Data Warehousing, and Data Mining into a system that can support the organization is beneficial for decision making. Business intelligence technologies can support management by leveraging data that can improve operations and efficiency [38]. There are some organizations that use business intelligence technologies to organize data and increase efficiency [38-40]. Business intelligence performs as moderators of information systems to support the success of management in using the data [41].

Currently business management has changed to the utilization of knowledge and information and business intelligence plays an important role for management in order to create a competitive advantage for their firms [42, 43]. Due to the necessity of analysing the market in the times of rapid change, business intelligence is beneficial for an organizations business process [36, 44, 45]. Business intelligence can support the strategic implementation and strategic decision making by systematically tracking and transforming relevant factors that need to be improved by optimizing time for managing sustainability [46-48].

Adoption of Enterprise Resource Planning (ERP) systems, which is a part of business intelligence, is important for SME's accurate

decision processing during a period of crisis [49, 50]. Business intelligence and enterprise resource planning systems have become key strategic tools in today's competitive environment [51]. Business intelligence systems can support the decision making process in developing business strategy, and an organization's value chain [52, 53]. In terms of multi-factor decision making, such as a manufacturing, business intelligence can help to combine information about product features and information for making decisions about a product's life cycle [54]. Moreover, business intelligence is beneficial in risk management of any firm [55]. However, some studies found that in banking industry this may not true. Some studies indicate the way business intelligence enhance the strategic value of both tangible assets, and intangible assets can't support that organization's value chain [52]. The above studies support the importance of business intelligence over competitive advantage of business firms including SME's.

4. Digital Marketing

Technological development in communications, logistics, and marketing enables many businesses to operate globally. E-Commerce has created opportunities of both firms and customers to access global markets. Currently, the environment of many firms, whether public or private, is to engage in e commerce. E-commerce creates global opportunities for small and medium enterprises to broaden their international operations effectively [56]. For private firms such as SME's, e commerce has played an important role in their operations resulting in higher performance and lower costs [57].

Another study supports the importance of e commerce of SME's in the United Kingdom where they apply e-commerce for corporate strategy and expect to use the internet for their transformation development [56]. In addition, e-commerce technologies can support high productivity for SME's, particularly to those that operate between business to business (B2B) [57]. Therefore, they can apply e-commerce to create added value for their marketing, services, and business model to

support their operations in an international competitive environment with lower cost and reduced time. However, some studies have found that even SME's are aware of the importance of B2B marketplace website, but they could not utilize e-commerce effectively [58]. It depends on the firms that implement e-commerce technology to operate in an international context. As e-commerce is one of the important channels of SME's in communicating with foreign customers effectively, it is crucial to investigate its relationship to international orientation.

5. The Capability of Thai SME's Operating Abroad

The importance for small firms' competitive advantage is the ability of its management in identifying and evaluating employees' innovative behaviour and transfer ability. In considering international operations of business enterprises in Thailand, SME's are also crucial to exports and imports compared to large enterprises. The data indicates almost a straight line, even though they slowed down in the year 2013. As mentioned earlier, Thailand has received direct foreign investment from multinational enterprises. Thus Thailand's SME's have to develop their products or processes in order to meet the requirements of their foreign customers. To become innovative, firms need a system that can provide accurate information continuously and systematically for updating the rapid change of the situation for their business process [44]. For a long period of time, some firms preferred imitation rather than innovation. Imitation has been viewed as extreme opposition to innovation. However, some studies concerning Chinese firms that used to be well-known for imitation are gradually changing to becoming innovative as they have learned to create systematic improvements in research and development [59].

Some studies have found the importance of using information technology for innovation comes from collaborative research and development of the SME's [60]. The information system and the use of information

can support the firms in terms of creating innovation in both inside the company or by close innovation and the collaboration with other firms. Other studies have found that organizational innovation has a greater impact on small sized firms rather than medium sized firms [61]. Therefore, even small firms can create their competitive advantage from innovation and have the capability to compete with other large firms. The relationship between a company's structure of an information system or business intelligence and the innovation of the Thai SME's is interesting in terms of its relationships and capabilities operating abroad that were measured by their employees' engagement and loyalty. The reason is that human resource practices have been closely associated with the corporate market entry mode, which consequently supports a firm's success. For small and medium sized firms, owners have to be critical of the turnover rates. A low turnover rate of employees will have an impact on firms' capabilities in operating abroad, since human resource is very important for international operations.

II. RESEARCH OBJECTIVES

A. Research Objectives

The purposes of this study are to:

- Study the result of decision support system of SMEs that affect international entrepreneurial orientation that include vision, innovativeness, and the preparation for foreign operation.
- Study out the use of digital marketing of SMEs that affect international entrepreneurial orientation that include vision, innovativeness, and the preparation for foreign operation.
- Study the international entrepreneurial orientation that includes vision, innovativeness, and the preparation for foreign operation that affect human capability for foreign operation.

B. Research Contributions

The results of this study make several contributions to the management of SMEs.

For theoretical contribution, the result of this study will contribute to firms in term of first, the management can identify policy and strategy to develop the decision support system of firm that contribute to create vision, innovativeness, and the preparation for foreign operation. Second, firms can use for developing the digital marketing of firms that contribute to create vision, innovativeness, and the preparation for foreign operation. Finally, the result can help in monitoring the link between applying the decision support system, and monitoring the use of digital marketing to firms' human capability in working with foreign subsidiaries.

III. RESEARCH METHODOLOGICAL AND METHODS

A. The Research Model and the Structural Equation Model

From the above literature review, this study emphasizes the relationship between business intelligence and international operation and success, which has an international entrepreneurial orientation as a mediator. The basic business intelligence for Thai SME's includes a decision support system, utilization of information technology, and the use of digital marketing. In determining the international entrepreneurial orientation for Thai SME's, innovation and capability in operating abroad must be investigated. Accordingly, the sustainability is measured by the employee's confidence to their firms. The following framework and hypotheses were posited:

At the first stage of conducting the survey-based study, the researcher had completed a literature review on SME's and their international development. Interviewing three experts was conducted to uncover key factors that play an important role of the Thai SME's international success.

After the summarization of the experts, the instrument was designed basically from the review [19], and interviews of these experts by a panel discussion based upon the operating situation of Thai SME's. The structure of the

instrument was composed of three domains, business intelligence, international entrepreneurial orientation, and international operations. The three experts completed the index objective of item congruent for the summarization based upon the SME's actual activities and their vision about the future. The capability of operating abroad was measured in terms of employees' engagement and loyalty with the firms. The five-point likert scales were applied, ranging from "strongly agree" to "strongly disagree". After the process of investigation by questionnaires was completed, the in-depth interviews were conducted again from various fields of business to support the empirical results.

B. Data and Sample

This study is aimed at investigating Thai SME's potential in competing internationally based on business intelligence and international entrepreneurship. The population is Thai SME's under definition of the Office of Small and Medium Enterprises Promotion (OSMEP). These come from a range of industries operating in Thailand, some never even operated internationally. This study needs to investigate the employees in SME's independently from their organizational control. The questionnaires, then, were distributed to subjects who have worked for SME's directly. A total of 1,000 employees from various SMEs were selected by "snowball method" for the empirical investigation. Those employees have worked for the firms in many different positions. They were asked to fill in the questionnaire which was specifically designed for this investigation. The final number of subjects who participated in this study is 449.

C. Measurement

The structure of this study was developed from prior literatures and experts in Thai SME management. The independent variables are business intelligence, which includes the utilization of information technology from the decision support system and the use of digital marketing. The dependent variable is the human capabilities for foreign operation measured by the employees' loyalty, and

confidence in the company. However, international entrepreneurial orientation is a mediator between business intelligence and international success. This mediator is composed of the vision of management, innovativeness of the firm, and preparation for foreign operation.

D. Reliability and Validity

To achieve the robust test of reliability of the variable used in the model, this study applied Cronbach’s alpha for assessing the result. The result indicates all variables have value of Cronbach’s alpha higher than 0.8. To ensure normal distribution of data, the Kurtosis of these data were examined and found a value between -2 to +2, the lowest being -.779, and the highest is -.018. This proves that every collected variable has a normal distribution. Furthermore, the condition of Multiple Regression requires a non relationship between variables, the testing of Multi-Collinearity was applied. The test of Multi-Collinearity examined the value of Variance Instruction Factor (VIF) that must be less than 10, or the Value of Tolerance is more than 0.1. The result indicates every factor within the model presents no multi-co linearity between each other.

According to the validation of measurement, the purpose is to ensure that observe variables are valid for the group of latent variables in the structural equation model, the data were tested by two examining techniques as convergence and discriminate validity. In determining the convergence validity of the constructs, this study was tested and refined using confirmatory factor analysis to summarize the measurement model, including the decision support system, the use of digital marketing, innovativeness, vision, the preparation for foreign operation, and the capability of operations abroad. The convergence validity should normally be higher than 0.60. The standardized factor loading indicates a value range from .75-.92, indicating satisfactory convergence validity.

To assess the Discriminant Validity of the Multi-Item Measurement is to investigate the

correlation of the latent variable between each group. The correlation indicates the relation of the variables between each group is between 0.42-0.61, which indicates a low relationship of those variables from different groups of latent variables. To test the appropriate number of subjects used in this study, $[p*(p+1)]/2$ was used to find out the total number of indicators that can be used in the model, where p is total number of indicators and the maximum results of the overall observe variable and latent variable from a total of 400 subjects found that the maximum p is 28, while indicators in the model are only 22.

**TABLE I
VARIABLE DIMENSION**

Variable Label	Question Word	Mean	Std. Deviation	Cronbach's Alpha
VIS1	Always discuss about future long term plan	3.7171	0.994	0.946
VIS2	Always discuss about organization’s goals and objectives	3.8575	0.885	0.947
VIS3	Always discuss about creating competitive advantages	3.7572	0.895	0.948
INN1	Employee always attend the seminar for new knowledge	3.3898	1.064	0.946
INN2	Has a system to follow up technological updated	3.3697	1.007	0.947
INN3	Has some budget for develop and acquire new innovation	3.2539	1.008	0.947
OPE1	Has a strategic plan to compete internationally	3.2272	1.141	0.946
OPE2	Has discussed about the managerial system for international operation	3.2717	1.117	0.946
OPE3	This organization will expand to many countries and success	3.2517	1.105	0.946
OPE4	This organization can be multi-national corporation	3.1091	1.197	0.947
DSS1	Has a process of decision support system	3.3363	1.011	0.945
DSS2	Apply formal information for managerial decision	3.3286	0.968	0.945
DSS3	Has an information base for employees’ decision making	3.2673	0.984	0.945
IDM1	Has a benefit from using e commerce	3.4232	0.944	0.946
IDM2	Know and use of digital marketing	3.3296	0.997	0.947
CAP1	I will work with this organization for a long time	3.5078	1.088	0.948
CAP2	I am confidence with this organization	3.7394	1.033	0.947

E. The Analysis of Structural Equation Model

After the testing of validity was completed, the structural equation model was constructed for achieving the result based upon the hypotheses.

According to the standardized direct effect, this study found that vision, innovation, and the preparation of are affected by the decision support system for .477, .595, and .402 and from the use of digital marketing for .295, .285, and .495 respectively. In addition, the vision, innovation, and the preparation of affected human capability for.313, .227 and .289.

In considering the Standardize Indirect Effect of the latent variable, the results found that the decision support system and the use of digital marketing affect the capability of operations abroad for .40 and .30 respectively.

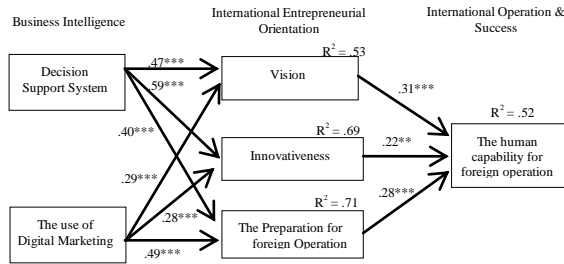


Fig 1. Research Model Results

F. Measurement Model Fit

The results of the measurement model indicated the Normed Chi-Squared fit index derived from Chi-Square/degrees of freedom is 2.21, indicating a good fit model. The value of Goodness of Fit, and The Adjusted Goodness of Fit is .942, and .916 respectively. The Root Means Square Error of Approximation is 0.052. The NFI and Comparative Fit Index value equal .961, and .978. All of the data mentioned above indicates a good fit for this specific model.

TABLE II
REGRESSION WEIGHTS BETWEEN LATENT VARIABLES IN THE MODEL

	Regression Weights
Decision Support System --> Vision	.47***
Decision Support System --> Innovativeness	.59***
Decision Support System --> The preparation for foreign operation	.40***
Integration with the digital --> Vision	.29***
Integration with the digital --> Innovativeness	.28***
Integration with the digital --> The preparation for foreign operation	.49***
Vision --> The capability of operation abroad	.31***
Innovativeness --> The capability of operation abroad	.22**
The preparation for foreign operation --> The capability of operation abroad	.28***

** p-value < .01
*** p-value < .001

TABLE III
STANDARDIZED DIRECT EFFECT

	Decision Support System	Integration with the digital	Vision	Innovativeness	The preparation for foreign operation
Vision	.477		.295		
Innovativeness	.595		.285		
The preparation for foreign operation	.402		.495		
The capability of operation abroad			.313	.227	.289

TABLE IV
STANDARDIZED INDIRECT EFFECT

	Decision Support System	Integration with the digital	Vision	Innovativeness	The preparation for foreign operation
Vision					
Innovativeness					
The preparation for foreign operation					
The capability of operation abroad	.401	.300			

TABLE V
ASSESSING THE MODEL FIT INDICATORS

Chi-square/Degree of freedom (CMIN/df)	2.21
Goodness of Fit Index (GFI)	.942
Adjusted Goodness of Fit Index (AGFI)	.916
The Root Means Square Error of Approximation (RMSEA)	.052
NFI	.961
Comparative Fit Index (CFI)	.978

IV. DISCUSSION AND CONCLUSION

A. Finding and Related Discussion

Currently, the decision makers are aware of the changing of social environment from business intelligence that combines company data with user-generated content. Moreover, other studies indicates that business intelligence has been recognized for achieving performance of firms and is crucial for decision making from its important enterprise information system. The results of this study imply that the business intelligence of the SME's in Thailand is important for supporting the firms' international entrepreneurial orientation, which consequently support the capability of operations abroad. In this study which focuses on Thai SME's, business intelligence is concerned with the decision support system and the use of digital marketing. The findings indicate that the decision support system affects vision of management, innovativeness of firms, and the preparation for ($\beta=.47$, $\beta=.59$, and $\beta=.40$ respectively). This is congruent with some study that focus on utilizing the business intelligence on innovation for marketing management. The decision support system is measured by the availability of a process of a decision support system within their firms that managements apply formal information for managerial decisions, and the availability of an information base for employee decision making. The other factors of business intelligence for this study include the use of digital marketing of the subjects, measured by

using e-commerce for their business and having a benefit from digital marketing. The use of digital marketing affects the vision of management, innovativeness of a firm, and the preparation for abroad (with $\beta=.29$, $\beta=.28$, and $\beta=.49$ respectively). The Mediators as vision, innovativeness, and the preparation for abroad affect the human capability for respectively. In addition, all mediators such as vision, innovativeness, and the preparation for consequently affect the operational performance of the firms (with $\beta=.53$, $\beta=.31$, and $\beta=.22$).

Accordingly, the effective research findings indicated that: First, those factors have an impact on vision of the management which include the firms' strategy concerning to management mind set of long term plans, organizational goals, and objectives, particularly in creating company competitive advantages. Second, business intelligence also affects innovativeness measured by the employees engaged in acquiring new knowledge, having a system of technology updates, and a budget available for acquiring the new innovation. Finally, preparation for measured by having a strategic plans to compete internationally, preparing for an international operational management system, and confidence of employee in terms of becoming a multi-national corporation. These can be derived from managements and staffs can utilize the information provided for them in making decision. Furthermore, that information may encourage them to have a broader vision, and awareness of the necessity in preparing for international business that they cannot avoid. Moreover, all those firms have been aware of digital marketing and receiving benefits from using e-commerce. They have a plan for e-commerce and have their staff follow up marketing technology. The utilization of e commerce and digital marketing can support management in their vision concerning operating abroad and having innovation as competitive advantage. Both decision support systems and the use of digital marketing affect innovation in sending their employees to attend seminars in order to acquire new knowledge, having a system to

follow up technological updates, and allocate financial resources to acquire new innovation. This is supported by the study that concentrates on knowledge transfer affecting performance of subsidiaries in emerging markets. It can be determined that to succeed in an emerging market, firms have to concentrate on knowledge and innovation domestically before transferring it to their subsidiaries in emerging countries.

In summary, business intelligence supports the preparation for that was determined from firms' strategic plans to compete internationally. Consequently, the international entrepreneurial orientation supports the capability of their operations abroad, which is determined in terms of capability of their human resources as their employees show loyalty and confidence within their organization that supports their international operations. The small or medium firms that want to show their capability in operating abroad have to be sure that their human capital is loyal. This will work continuously with firms when expanding their business to other countries. International tasks require employees to work as expatriates that are responsible for all international functions. The firms' human resources perspective is crucial to the activities of any process within their organizations, particularly regarding human resource functions. Finally, the Coefficient of Determinant (R^2) of the research result, the decision support system and the use of digital marketing had an effect on vision, innovativeness, and the preparation for with accuracy of 53%, 69%, and 71%. Vision, innovativeness and capability in operations abroad consequently had effects on the foreign operation performance with an accuracy of 52%.

B. Limitation and Future Study

The limitation of this study is in measuring the capability of international operations in term of employee loyalty and confidence. However, there are other factors that may have an impact on the capability of the firms in an international operation that should be investigated for further study. Other scholars

can proceed to the next stage of human capability in term of how management and staffs can apply a strategic plan in operating abroad by using business intelligence. Not only the management area, but also international marketing area should be conducted. Since business intelligence is crucial for supporting international marketing of SME's with low cost and making those firms' capable to compete with multinational enterprises. Moreover, all areas of human resources are crucial for small and medium sized firms in the development of their organization so as to become multinational corporations which should be conducted by other studies to provide information and strategies to those firms.

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REFERENCES

(Arranged in the order of citation in the same fashion as the case of Footnotes.)

- [1] Liu, X., Shu, C., and Sinclair, P. (2009). "Trade, foreign direct investment and economic growth in Asian economies". *Applied Economics*, Vol. 41, pp. 1603-1612.
- [2] Wang, M. (2009). "Manufacturing FDI and economic growth: Evidence from Asian economies". *Applied Economics*, Vol. 41, pp. 991-1002.
- [3] Cavusgil, T., Knight, G., and Riesenberger, J. (2008). "International business: Strategy management and new realities". New Jersey: Prentice Hall.
- [4] Yao, S. (2006). "On economic growth, FDI and exports in China". *Applied Economics*, Vol. 38, pp. 339-351.
- [5] Tang, S., Selvanathan, E., and Selvanathan, S. (2008). "Foreign direct investment, domestic investment and economic growth in China: A time series analysis". *The World Economy*, Vol. 31, pp. 1292-1309.
- [6] Thangavelu, S.M., Wei Yong, Y., and Chongvilaivan, A. (2009). "FDI, growth and the Asian financial crisis: the experience of selected Asian countries". *The World Economy*, Vol. 32, pp. 1461-1477.
- [7] Doern, R. (2009). "Investigating barriers to SME growth and development in transition environments a critique and suggestions for developing the methodology". *International Small Business Journal*, Vol. 27, pp. 275-305.
- [8] Chetty, S., Eriksson, K., and Lindbergh, J. (2006). "The effect of specificity of experience on a firm's perceived importance of institutional knowledge in an ongoing business". *Journal of international business studies*, Vol. 37, pp. 699-712.
- [9] Oviatt, B.M. and McDougall, P.P. (1994). "Toward a theory of international new ventures". *Journal of international business studies*, pp. 45-64.
- [10] Subramani, M.R. and Venkatraman, N. (2003). "Safeguarding investments in asymmetric interorganizational relationships: Theory and evidence". *Academy of Management Journal*, Vol. 46, pp. 46-62.
- [11] Curran, J. and Blackburn, R. (2000). "Researching the small enterprise: Sage".
- [12] Gupta, U. (1989). "Small firms aren't waiting to grow up to go global". *The Wall Street Journal*, Vol. 214, pp. B2.
- [13] Doytch, N. (2015). "Sectoral FDI cycles in South and East Asia". *Journal of Asian Economics*, Vol. 36, pp. 24-33.
- [14] Tiwari, A.K. and Mutascu, M. (2011). "Economic Growth and FDI in Asia: A Panel-Data Approach". *Economic Analysis and Policy*, Vol. 41, pp. 173-187.
- [15] Abe, M., Troilo, M., Juneja, J.S., and Narain, S. (2012). "Policy Guidebook for SME Development in Asian and the Pacific". United Nations Publication.
- [16] Audretsch, D., Van der Horst, R., Kwaak, T., and Thurik, R. (2009). "First section of the annual report on EU small

- and medium-sized enterprises”. EIM Business & Policy Research, pp. 12.
- [17] Harvie, C. (2008). “Economic Growth, Development and Integration in East Asia: the Role and Contribution of SMEs”.
- [18] Asian Association of Management Organizations (AAMO). (2007). “SMEs in the Asian Region – Harnessing the Growth Potential”. New Delhi: AAMO.
- [19] Knight, G.A. (2001). “Entrepreneurship and strategy in the international SME”. Journal of International Management, Vol. 7, pp. 155-171.
- [20] OSMEP. (2009). “The White Paper on Small and Medium Enterprises of Thailand in 2014”. Bangkok: Office of Small and Medium Enterprises Promotion.
- [21] OSMEP. (2014). “Situation and Economic Indicator of SMES in 2014”. The White Paper: Bangkok: Office of Small and Medium Enterprises Promotion.
- [22] Charoenrat, T. and Harvie, C. (2014). “The efficiency of SMEs in Thai manufacturing: A stochastic frontier analysis”. Economic Modelling, Vol. 43, pp. 372-393.
- [23] Camp and M.S. (2002). “Entrepreneurship and regional economic development: issues and opportunities, paper presented at the presented at the annual conference of ACCRA”. Charleston, SC, United States.
- [24] Dadfar, H., Dahlgaard, J.J., Brege, S., and Alamirhoor, A. (2013). “Linkage between organisational innovation capability, product platform development and performance: The case of pharmaceutical small and medium enterprises in Iran”. Total Quality Management & Business Excellence, Vol. 24, pp. 819-834.
- [25] Bayarçelik, E.B., Taşel, F., and Apak, S. (2014). “A Research on Determining Innovation Factors for SMEs”. Procedia - Social and Behavioral Sciences, Vol. 150, pp. 202-211.
- [26] Laforet, S. (2011). “A framework of organisational innovation and outcomes in SMEs”. International Journal of Entrepreneurial Behavior & Research, Vol. 17, pp. 380-408.
- [27] Klewitz, J. and Hansen, E.G. (2014). “Sustainability-oriented innovation of SMEs: a systematic review”. Journal of Cleaner Production, Vol. 65, pp. 57-75.
- [28] Schaltegger, S. and Wagner, M. (2011). “Sustainable entrepreneurship and sustainability innovation: categories and interactions”. Business Strategy and the Environment, Vol. 20, pp. 222-237.
- [29] Raposo, M.L., Ferreira, J.J.M., and Fernandes, C.I. (2014). “Local and cross-border SME cooperation: Effects on innovation and performance”. Revista Europea de Dirección y Economía de la Empresa, Vol. 23, pp. 157-165.
- [30] Radas, S. and Božić, L. (2009). “The antecedents of SME innovativeness in an emerging transition economy”. Technovation, Vol. 29, pp. 438-450.
- [31] Dai, L., Maksimov, V., Gilbert, B.A., and Fernhaber, S.A. (2014). “Entrepreneurial orientation and international scope: The differential roles of innovativeness, proactiveness, and risk-taking”. Journal of Business Venturing, Vol. 29, pp. 511-524.
- [32] Sok, P., O’Cass, A., and Sok, K.M. (2013). “Achieving superior SME performance: Overarching role of marketing, innovation, and learning capabilities”. Australasian Marketing Journal (AMJ), Vol. 21, pp. 161-167.
- [33] Doh, S. and Kim, B. (2014). “Government Support for SME innovations in the regional industries: The case of government financial support program in South Korea”. Research Policy, Vol. 43, pp. 1557-1569.
- [34] Jun, S.-P., Seo, J.H., and Son, J.-K. (2013). “A study of the SME Technology Roadmapping Program to strengthen the R&D planning capability of Korean SMEs”. Technological Forecasting and Social Change, Vol. 80, pp. 1002-1014.
- [35] Marcati, A., Guido, G., and Peluso, A.M. (2008). “The role of SME entrepreneurs’

- innovativeness and personality in the adoption of innovations". *Research Policy*, Vol. 37, pp. 1579-1590.
- [36] Tutunea, M.F. and Rus, R.V. (2012). "Business Intelligence Solutions for SME's". *Procedia Economics and Finance*, Vol. 3, pp. 865-870.
- [37] Wang, H., Wei, Q., and Chen, G. (2013). "From clicking to consideration: A business intelligence approach to estimating consumers' consideration probabilities". *Decision Support Systems*, Vol. 56, pp. 397-405.
- [38] Brooks, P., El-Gayar, O., and Sarnikar, S. (2015). "A framework for developing a domain specific business intelligence maturity model: Application to healthcare". *International Journal of Information Management*, Vol. 35, pp. 337-345.
- [39] Côrte-Real, N., Ruivo, P., and Oliveira, T. (2014). "The Diffusion Stages of Business Intelligence & Analytics (BI&A): A Systematic Mapping Study". *Procedia Technology*, Vol. 16, pp. 172-179.
- [40] Rebón, F., Ocariz, G., Gerrikagoitia, J.K., and Alzua-Sorzabal, A. (2015). "Discovering Insights within a Blue Ocean Based on Business Intelligence". *Procedia - Social and Behavioral Sciences*, Vol. 175, pp. 66-74.
- [41] Popovič, A., Hackney, R., Coelho, P.S., and Jaklič, J. (2014). "How information-sharing values influence the use of information systems: An investigation in the business intelligence systems context". *The Journal of Strategic Information Systems*, Vol. 23, pp. 270-283.
- [42] Azma, F. and Mostafapour, M.A. (2012). "Business intelligence as a key strategy for development organizations". *Procedia Technology*, Vol. 1, pp. 102-106.
- [43] Elbashir, M.Z., Collier, P.A., and Davern, M.J. (2008). "Measuring the effects of business intelligence systems: The relationship between business process and organizational performance". *International Journal of Accounting Information Systems*, Vol. 9, pp. 135-153.
- [44] Bahrami, M., Arabzad, S.M., and Ghorbani, M. (2012). "Innovation In Market Management By Utilizing Business Intelligence: Introducing Proposed Framework". *Procedia - Social and Behavioral Sciences*, Vol. 41, pp. 160-167.
- [45] Cheung, C.F. and Li, F.L. (2012). "A quantitative correlation coefficient mining method for business intelligence in small and medium enterprises of trading business". *Expert Systems with Applications*, Vol. 39, pp. 6279-6291.
- [46] Rouibah, K. and Ould-ali, S. (2002). "PUZZLE: a concept and prototype for linking business intelligence to business strategy". *The Journal of Strategic Information Systems*, Vol. 11, pp. 133-152.
- [47] Petrini, M. and Pozzebon, M. (2009). "Managing sustainability with the support of business intelligence: Integrating socio-environmental indicators and organisational context". *The Journal of Strategic Information Systems*, Vol. 18, pp. 178-191.
- [48] Luminița, Ș. and Magdalena, R. (2012). "Optimizing Time in Business with Business Intelligence Solution". *Procedia - Social and Behavioral Sciences*, Vol. 62, pp. 638-648.
- [49] Côrte-Real, N., Ruivo, P., and Oliveira, T. (2014). "The Diffusion Stages of Business Intelligence & Analytics (BI&A): A Systematic Mapping Study". *Procedia Technology*, Vol. 16, pp. 172-179.
- [50] Antoniadis, I., Tsiakiris, T., and Tsopegloy, S. (2015). "Business Intelligence During Times of Crisis: Adoption and Usage of ERP Systems by SMEs". *Procedia - Social and Behavioral Sciences*, Vol. 175, pp. 299-307.
- [51] Nofal, M.I. and Yusof, Z.M. (2013). "Integration of Business Intelligence and Enterprise Resource Planning within Organizations". *Procedia Technology*, Vol. 11, pp. 658-665.

- [52] Singh, H. and Samalia, H.V. (2014). "A Business Intelligence Perspective for Churn Management". *Procedia - Social and Behavioral Sciences*, Vol. 109, pp. 51-56.
- [53] Muntean, M., Cabău, L.G., and Rînciog, V. (2014). "Social Business Intelligence: A New Perspective for Decision Makers". *Procedia - Social and Behavioral Sciences*, Vol. 124, pp. 562-567.
- [54] Lasi, H. (2013). "Industrial Intelligence - A Business Intelligence-based Approach to Enhance Manufacturing Engineering in Industrial Companies". *Procedia CIRP*, Vol. 12, pp. 384-389.
- [55] Wu, D.D., Chen, S.-H., and Olson, D.L. (2014). "Business intelligence in risk management: Some recent progresses". *Information Sciences*, Vol. 256, pp. 1-7.
- [56] Drew, S. (2003). "Strategic Uses of E-Commerce by SMEs in the East of England". *European Management Journal*, Vol. 21, pp. 79-88.
- [57] Savrul, M., Incekara, A., and Sener, S. (2014). "The Potential of E-commerce for SMEs in a Globalizing Business Environment". *Procedia - Social and Behavioral Sciences*, Vol. 150, pp. 35-45.
- [58] Moertini, V.S. (2012). "Small Medium Enterprises: On Utilizing Business-to-Business e-Commerce to Go Global". *Procedia Economics and Finance*, Vol. 4, pp. 13-22.
- [59] Yu, X., Yan, J., and Assimakopoulos, D. "Case analysis of imitative innovation in Chinese manufacturing SMEs: Products, features, barriers and competences for transition". *International Journal of Information Management*.
- [60] Popescu, N.E. (2014). "Entrepreneurship and SMEs Innovation in Romania". *Procedia Economics and Finance*, Vol. 16, pp. 512-520.
- [61] Laforet, S. (2013). "Organizational innovation outcomes in SMEs: Effects of age, size, and sector". *Journal of World Business*, Vol. 48, pp. 490-502.