

Barriers of Supply Chain Intelligence Practices in SMEs: Case of Malaysia

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Abstract: Frequent changes that occur in the contemporary global environment might pose a threat to Small and Medium Enterprises (SMEs) survival. SMEs are more fragile and facing higher competitiveness effect than large companies. They need Supply Chain Intelligence (SCI) which provides an analysis of the implications of marketplace change by detecting, anticipating and understanding the competitive environment and supply chain relationship that aids corporate leadership in strategic decisions. This study analyses the intensity of environmental competitiveness and barriers of intelligence activities by SMEs in the economy of Malaysia. The paper also analyses the internal and external dimensions challenges encountered by SMEs to ensure successful SCI implementation. The result is great significance because majority of business establishments are Small Medium Enterprises (SMEs) which directly affect the country in economic growth.

Key words: Supply Chain Intelligence (SCI), Small and Medium Enterprises (SMEs), strategic decision making, marketplace change, supply chain relationship

INTRODUCTION

Small and Medium size Enterprises (SMEs) are the main developing force of developed marketing economies. They are usually representing the majority of all the enterprises and accordingly they are main driving force of entrepreneurship development and economy as whole. In most of developed countries, percentage of SMEs in total number of enterprises is around 90% while 60% of available workforce is employed in those firms. If observing this issue through the scope presented in this paper, it is obvious that SMEs have large influence on development of modern economies of any country. In spite of the increasing interest in intelligence research many previous studies have been intended for larger firms (Guimaraes, 2000; Nitse *et al.*, 2003; Hodges, 2005; Gilad, 2011). This is why it is necessary to examine the key problems facing by SMEs in intelligence implementation.

This study aims to understand the important of SCI as a strategic tool to create, accumulate and disseminate intelligence which is deemed essential for SMEs performance and economic growth. The focus of the study is related to SCI activities in the context of SMEs and examines potential barriers of businesses in facilitating it. Consequently, conducting SCI is not as straightforward and as prevalent in the West. There are many differences due to the nature of country such as cultures, religious, governments, technology and etc. between West and Asia that hinder SCI effectiveness

implementation. There is lack of study that examine on these potential barriers which might be unique to a particular country. Gaining these insights shows the critical need of SCI to businesses in Malaysia especially SMEs in order to stay ahead of competition and its support of the country drive to achieve higher economic status. Therefore this study is guided by the research objective:

- To examine competitive environment of SMEs
- To analyze SCI activities of SMEs
- To examine the barriers to implementation facing by SMEs

Literature review: There are numerous definitions for intelligence in contemporary practice and scholarship and no single definition is likely to be precise and universally accepted (Fleisher and Wright 2009; Brody, 2008). Thus, Supply Chain Intelligence (SCI) can be defined as “a set of systematic intelligence processes concerning opportunities or developments that have the potential to affect individual firms and their supply chain networks as a whole towards improving long-term performance” (Jaharuddin *et al.*, 2015, 2016). Intelligence is an amalgam of disciplines. It evolved from economics, marketing, military theory, information science and strategic management (Calof and Wright, 2008). While intelligence is a relatively new management tool, it enhances firms and their supply chain competitive advantage through a better understanding of the internal and external

Table 1: Internal barriers of SCI

Past literatures	Definitions
Budget constraints (Calof and Wright, 2008)	Limited financial ability than larger organizations Lack of special intelligence unit because most of the budget will be allocated for the strategic Muller (2005) operations Lack of advanced intelligence technology equipment and essential materials to perform SCI adequately
Personnel issues (Sawka, 1998; Abor and Quartey, 2010)	Have a flat structure due to the small number of employees Insufficient numbers of staff (often overworked and under-trained) High turnover and retaining the right skills set in SCI Lack of intelligence experts and hiring full-time personnel
Training and education (Muller, 2005; Olawale and Garwe, 2010)	Lack of extensive training given to personnel on intelligence Lack of intelligence awareness to expose and educate staff their Most of intelligence activities are unstructured and unsystematic
Organizational culture (Kahaner, 1997; Bernhardt, 1999; Calof and Wright, 2008; Toit, 2003)	Lack of employee participation Lack of top management support Unwillingness to share intelligence information among departments Negative perception on unethical intelligence activity
Return on intelligence investment (Wee and Leow, 1994; Kahaner, 1997)	Difficult in showing SCI benefits/returns in short run

(competitive) environment, leading to improved strategic management and competitive advantage (Muller, 2005; Heppes and Toit, 2009). By analysing the capabilities, vulnerabilities, intentions and moves of external competitiveness and their supply chains, SCI allows firm to anticipate market developments proactively-rather than merely react to them. This in turn enables the enterprise to compete more effectively by improving its strategic decisions and performing better than its competitors (Bose, 2008; Johns and van Doren, 2010).

Competitiveness can influence intelligence practice diffusion. Organizations operating in a highly competitive environment influence its propensity to manage intelligence effectively to meet environmental changes (Gilad, 2011). In this case, the capacity to identify, recognize and use intelligence is directly tied to organizational survival. However, this high competitive environment can also become a barrier thus, hinder the relationship between the implementation of effective intelligence activities and improved organizational performance. This ambiguity can lead the organization to transfer ineffective practices and fail to identify and transfer the “intelligence” at the right time and to the right people. Organizations operating in a highly stable environment, however, may not see the necessity to managing their intelligence effectively until it’s too late to do so.

Table 2: External barriers of SCI

Past literatures	Definitions
Training and education (Muller, 2005; Nenzhelele and Pellissier, 2014)	Difficult in finding intelligence training and education offered inside one’s country Expensive fees on SCI training by international intelligence consultancy firm
Culture/religion (Fleisher and Wright, 2009; Nanzhelele and Pellissier, 2014)	High concern on illegal or unethical intelligence gathering against one’s culture or religion Feel pressured to appease, even when their own ethical standards are compromised
Government/political (Calof and Wright, 2008; Fleisher and Wright (2009) Nanzhelele and Pellissier (2014)	Lack of legal forces on intelligence forces conducts Difficulties in accessing intelligence from government agencies due decentralized and unstructured systems Most intelligence gathered and stored by government are outdated, incomplete and hardly available to businesses used
Cost/economic uncertainty (Calof and Wright, 2008; Fleisher and Wright, 2009; Nenzhelele and Pellissier, 2014)	Expensive intelligence equipment and technology Expensive subscription fees in acquiring information outside the country Competitive economic pressures in term of job mobility and turnover in the intelligence industry (reinvest resources, replace and train new staff)
Exchanging information between supply chain partners (Jaharuddin <i>et al.</i> 2015, 2016)	Many businesses still act independently and isolated from each other Lack of trust in sharing information and cooperation between supply chain partners Unable to utilize full benefits of supply chain partnership

While intelligence offers an enterprise a lot of benefits, it also presents some barriers or challenges in implementing it successfully by SMEs. Despite the potential role of SMEs to accelerated growth and job creation in developing countries, a number of bottlenecks affect their ability to realise their full potential (Abor and Quartey, 2010; Olawale and Garwe, 2010). Businesses have to find ways of dealing with some of these challenges. All of these barriers that hinder the progress of SMEs are gathered, collated, compiled from past literatures and further divided into two categories; internal and external barriers (Table 1 and 2).

MATERIALS AND METHODS

A quantitative research method is used for collecting detailed information in accordance with the requirements of the study. The microenterprise and SME classification criterion used by SME Corp. (2015) was applied in order to classify firms according to the size variable whereby microenterprises are deemed to be those that have <5 employees and SMEs between 5 and 200 employees. As for the sector, firms are categorized to activities deemed to be manufacturing, services or others. The respondents were retrieved from the SMEs participants from various states of Malaysia which attending few sessions of a full day seminar by Majlis Amanah Rakyat

(MARA), a government agency to aid small businesses. Since, the attendants to this seminar is a partial requirement by MARA for those SMEs that are looking opportunity for government financing in expanding their business, a total of 850 respondents agreed to participate with a response rate of 95%. Questionnaires were distributed during the session with brief explanations and collected at the end of seminar.

An attempt was made to obtain information about company profiles such as business sectors, size and years of business operated. Second section on SCI practices amongst SMEs, a four-point scale labelled as disagree, somewhat disagree, somewhat agree and agree was used. Respondents have to identify the unit responsible for intelligence gathering activities and the intensity of their environmental competitiveness. They also have to indicate whether intelligence information is regularly used and required in the decision making, the frequency of the gathering activities and reasons in carrying out SCI. Finally, the last section tried to ascertain the barriers of intelligence-based activities carried out in which the respondents had to indicate their barriers in implementing SCI activities based on 2 Dimensions given. The survey instrument is adapted from past related studies; SCI practices (Calof and wright, 2008; Peyrot *et al.*, 2002) and competitive advantage and barriers (Nenzhelele and Pellissier, 2014). Some of the questions are of rating scale format, while some open questions are included to obtain further insight of the topic.

RESULTS AND DISCUSSION

A total of 813 of SMEs owners and managers from various business sectors or subsectors took part in this survey, generating a response rate of 96%. Based on classification of sectors (according to SMEs Corp in 2015) majority of surveyed companies (65%) are from services 24% from others sector and the remaining 11% from manufacturing. In terms of firm size measured by total number of employees according to classification of sectors, about 41% are small enterprise, 40% are microenterprise and only 20% of participating companies are medium-sized enterprise. Majority of companies (53%) has been established for 6 or more years, 22% operated for 3-5 years, 18% operated for 1-2 years and the remaining 7% operated for less than a year.

Environment competitiveness of SMEs: In discovering the intensity of competitiveness in the industry, the average mean of 3.37 indicates that majority the respondents agreed competition was high in their business sectors and they have to keep up with new technology (Table 3). The

Table 3: Competitive environment

Definitions	Mean	SD
Has aggressive key competitors	3.4667	0.6555
Keep-up with new technology in industry	3.4424	0.5821
Spent time/effort in analysing key competitors strategies and actions	3.2145	0.6523

Table 4: Intelligence culture

Definitions	Mean	SD
Encourages sharing of information and knowledge between employees	3.1646	0.74267
Recognizes intelligence for competitiveness strategy and decision making	3.1529	0.68407
Emphasized legal and ethical practices on intelligence activities	3.1498	0.72217
Recognizes intelligence as a necessary activity to all employees	3.0841	0.72635

Table 5: Frequency of reasons in carrying-out SCI

Definitions	Frequency	Percent
Strengthen supply chain relationship	709	87.3
Lend support to the strategic planning process	628	77.3
Keep up with trends in the industrial sector	593	73.0
Lend support to the tactics implemented	565	69.7
Obtain feedback about the strategies implemented	550	67.7
Develop new products	545	67.1
Develop new marketing strategies and tactics	480	59.1
Develop new technologies	478	58.9
Identify new consumer needs	321	39.5

average standard deviation of 0.63 reveals that there was less spread of responses. Thus, it is worth noting that the respondents collected and analyzed information about their competitors considerably.

Intelligence practices: In measuring whether the respondent's managers supported SCI practices, the highest mean and standard deviation for this question were 3.165 and 0.743 respectively. The standard deviation indicates that there was less spread of responses to this question. Since most of the respondents concurred with the mean, the result shows that most of SMEs had a supportive culture for SCI practice (Table 4).

Reasons in carrying-out SCI activities: In ranking the reasons on why SMEs carrying out SCI activities Table 5 shows that >70% of respondents stress the fact that the main reason for carrying out SCI activities is to strengthen supply chain relationship, followed by being able to support strategic planning process, enable them to keep up with trends in the industrial sector and lend support to the tactics implemented. While about 60% of the respondents stated on the need to obtain feedback on the strategies implemented, develop new products marketing strategies and new technologies.

SCI barriers: In determining the challenges or barriers in practicing SCI, most of the respondents reveal that in term of internal barriers, lack of cooperation and trust by

Table 6: SCI internal barriers

Internal barriers	Mean	SD	Variance
Lack of cooperation and trust by supply chain partners in exchanging information	1.8522	0.3551	0.126
Negative perception by employee as spying activities	1.8401	0.3667	0.134
Difficult in showing return on intelligence activities/investment	1.8007	0.3997	0.160
Lack of management participation and visibility	1.6863	0.4643	0.216
Limited budget or financial constraints by firm	1.4969	0.5003	0.250
Lack of staff	1.4465	0.4974	0.247
Lack of employee participation and awareness on intelligence activities	1.4379	0.4964	0.246

Table 7: SCI external barriers

Internal barriers	Mean	SD	Variance
Expensive fees in acquiring information outside country	1.8905	0.49047	0.240
Lack of updated industry/market information	1.7651	0.42420	0.180
Lack of intelligence training and education offered outside	1.7522	1.08370	1.174
Expensive intelligence equipment and technology	1.7085	0.45470	0.207
Lack of rules and regulations on intelligence conducts	1.6863	0.46430	0.216
Difficulty in accessing intelligence information from government agencies	1.6814	0.46620	0.217
Difficulty in finding expert intelligence workforce	1.5695	0.49550	0.245

supply chain partners in exchanging information was their greatest challenge. This is followed by lack of updated industry/market information and difficulties in showing return on intelligence activities/investment. As of external barriers, most respondents agreed that expensive fees to acquired SCI and lack of updated market info and intelligence training offered outside were their main challenges. Table 6 and 7 shows the challenges the respondents experienced with regard to SCI.

In practicing intelligence, the SMEs have greater advantages in terms of business sizes. Although, large firms typically have more resources for intelligence activities and advanced equipment, they rely heavily on routinized processes and often fail to react quickly to environmental changes. SMEs have more competitive advantage due to simple and flat structure and more transparent intelligence sharing to win the market. They are leaner and “closer to the ground” often headed by a motivated entrepreneur accustomed to personally knowing as much as possible about competitors. The findings show a consistency with the findings of earlier research that competitive environment prompt the needs of SCI amongst SMEs to ensure survival (Wright and Calof, 2006; Gilad, 2011).

To ensure effective implementation, the practice of SCI should be on everyone's mind in an organization and

every employee's job description. Proper awareness and attitudes by employees that favor both intelligence and information sharing, will contribute to the firm's business decisions. Hence, intelligence should be a recognized by top management as part of the organization's core strategy and considered an essential part of the decision-making process. Intelligence must be “close enough to policy, plans and operations to have the greatest amount of objectivity, integrity and judgement”. There are many issues reported on barriers to SCI implementation such as lack of employee and top management participation. Although, intelligence is widely practiced in developed countries, its adoption has been slow in developing countries. Most enterprises in developing countries do not have the resources to setup an independent or formalized intelligence section (Heppes and Toit, 2009). However, enterprises that are adopting intelligence are growing.

CONCLUSION

This study is able to gather the latest information related to the SCI activities and barriers in SMEs in oppose to larger firms. This study can help provide useful information to SMEs practitioners and academicians who ponder the need and importance of SCI in gaining competitive advantage and strategic decisions. In practicing intelligence the SMEs have greater advantages due to its small size which can create an open structure of communication and close sharing of intelligence among employees to devote to the effective implementation of SCI. Hence, gaining the insights of the barriers to SCI implementation will shed some lights on the differences between East and West practices.

Since small business growth and viability is an integral part of overall economic health in Malaysia and abroad, the findings of this study could ultimately improve SMEs competitiveness and business performance as well as local, state and national economies. It is hoped that this study as a platform for businesses and government towards streamlining systematic SCI database of firms in one particular country to ensure full information is available and easily accessible in Malaysia. Consequently, Malaysian government through its new economic transformation program has invested a large amount of time and resources to assist the SMEs to become competitive with the developed nations establishments. Competitiveness is about speed, an ongoing process, a long-term orientation and very dynamic. Supply chain intelligence is an alternative tool that Malaysian government could invest in to assist the SMEs.

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