

# Examining the Most Severe Logistics and Supply Chain Issues Experienced by Malaysian SMEs

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**Abstract**— Literature revealed that both the internal and external factors may result in business failure among Small and Medium Size Enterprise (SME). One of the external factors identified is non-availability or deficiency in logistics and supply chain operations. Thus, this study was conducted with the objective to identify the most severe logistics and supply chain issues faced by SMEs in Malaysia. Quantitative research design was employed, where data were collected through mail survey questionnaire. The frequency of respondents selecting 4 (Severe) and 5 (Very severe) for each survey item were calculated, in order to determine which issues are the most severe among Malaysian SMEs. The items are then ranked based on the highest number of respondents selecting 4 and 5. It provides more meaningful information on the most severe logistics and supply chain issues faced by SMEs, if compared to analysing the mean score of each item as the mean value may be distorted by high standard deviation. Findings indicate that difficulties and inaccuracies in forecasting inventory top the list, followed by inability to fulfil orders due to inventory shortages and keeping wrong mix of inventories. Thus, it can be concluded that inventory related issues are the most critical problems faced by Malaysian SMEs. This study contributes towards logistics and supply chain management literature as it provides an in depth information on the logistics and supply chain related issues faced by SMEs. For practitioners and the relevant government agency, this study sheds light on the most severe issues so that firms and government agency can focus their efforts on rectifying these severe logistics and supply chain issues.

**Keywords**— *Small and Medium Enterprises (SMEs); Logistics, Supply Chain Management; Logistics and Supply Chain Related Issues; Malaysia*

## 1. Introduction

Venturing into new market, whether domestically or across borders, require effective logistics and supply chain strategies. Firms need to have an

efficient logistics and supply chain strategies and network in order to remain competitive in the market. In addition, an effective international logistics and supply chain strategy may help firms penetrate into new foreign markets, and offers significant cost savings if it was executed efficiently. Issues in logistics and supply chain aspects such as transportation, packaging, documentation, warehousing and so on could to hamper these efforts. Previous studies have generally focused on SMEs because of their importance to the economic development of a country. In Malaysia, SMEs are essential as the contribution of SMEs towards Malaysian GDP is 36.3% in 2016 from only just 30% in 2005 and accounted for 65.5% of the total employment in this country. Overall, Malaysian SMES contributes 19% of the export of this country. The goals and aspiration remain the same, as SMEs are mainstreamed and their growth trajectory is accelerated to increase their contribution to GDP to 41% and exports to 23% by 2020 [1].

Even though the sector is an important component, many of these SMEs cannot sustain themselves over the long term and face problems and failures in their survival within the first five years. Some say that these failures arise because they do not practise any form of strategic planning while others come up with an array of reasons as to why small businesses fail [2]. Ref. [3] revealed that both the internal and external factors may result in business failure among Small and Medium Size Enterprise (SME). Among the external factor identified is non-availability or deficiency in logistics and supply chain operations. One of the question that arise is what are the logistics and supply chain issues experienced by Malaysian SMEs and most importantly, which issue is the most severe. Thus, this study was conducted with the objective to identify the most severe logistics

and supply chain issues faced by SMEs in Malaysia.

## 2. Logistics and Supply Chain Issues

As stated earlier, one of the important aspects in business market penetration and sustainability is logistics and supply chain management. Logistics and supply chain management aspects are one of the important considerations for businesses when expanding their business operations either locally or internationally. The ability to initiate an effective and efficient logistics and supply chain strategies and proper management of logistics network are essential for firms in order to compete with local firms and also foreign MNCs. According to the Council of Supply Chain Management Professionals [4], supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Furthermore, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, for both upstream and downstream activities. In essence, supply chain management integrates supply and demand management within and across companies.

Logistics management is defined as that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements. The definition indicates that logistics are part of the supply chain management that move and position inventory to the desired time, place and possession at the lowest total cost. Authors, such as Pollit [5], Gurau et al, [6] and Gunasekaran and Ngai [7], have categorized logistics and supply chain management into a broad range of activities that can be grouped into six key decision areas, which are:

- i. Facilities - Plant, warehouse, and depot location, size and design
- ii. Inventories - Raw material, component, work-in-progress, and finished goods stocks
- iii. Communications - Order processing, data transmission, and data processing
- iv. Unitization - Packaging in its broadest sense including container or cargo handling
- v. Transport - Physical movement of material into, within and out of, the company or port and vessel
- vi. Value-added services - Break-bulk, testing and

repackaging; quality inspection Import/export documentations

Logistics and supply chain issues refer to the barriers associated with any of the logistics and supply chain activities, starting from sourcing of raw materials to customer service. These issues tend to offset a firm's effort to establish an efficient supply chains system and often lead to higher total supply chain and also labour costs [8], and decrease flexibility that will adversely affect the firm's competitive position [9]. Lack of knowledge on logistics and supply chain strategy or in other words high level of logistics and supply chain issues is expected to negatively influence market expansion [10] and reduce the possibility of risk taking behaviour and intention to venture abroad [9]. The complexity of logistics and supply chain management that include different business customs, inadequate logistics infrastructure, restrictive regulatory frameworks and different levels of supply chain services give rise to issues that tend to offset efforts to establish an efficient supply chain and often lead to higher total supply chain costs.

Previous studies have tried to identify the logistics and supply chain issues faced by firms. Among them are time-based competition issues, trade issues, transportation issues, restructuring issues and country specific issues [11]. Another study by Yu [8] has identified regulatory restrictions and local protection regulations as the most critical problems, followed by a rise in logistics costs, local labour costs, and a shortage of human resource. Some studies look at technology, distribution, transportation and telecommunications infrastructure, communication and functional silos (the organizational structure of the firm). Aspects concerning management also dominate the literature. The role of top management, self-fulfilling prophecies, internal management style and problem of control appear to be dominant in the discussion of management issues [12], [13], [14]. Lately, a study by ref. [15] in Tanzania found problems such as the use of outdated technology in the domestic market, lack of trust, documentation problems, procurement of counterfeit products, and lack of integrated computerized systems to link with the overseas suppliers in the global supply chain. Ref. [16] describe major supply chain issues as a five-factor model that includes inventory, customer service, organization, systems and product flow issues. These dimensions address five major "pain points" in the supply chain and is adopted as a basis for this study.

### 3. Research Methodology

A quantitative research design was employed for this study and data were collected through mail and self-administered survey questionnaires. The population of the study are small medium enterprises located in three states within the northern region of Malaysia namely Kedah, Perlis and Penang. The sampling frame used for sampling is the SME Business Directory that is available online at “www.smeinfo.com.my”. The survey questionnaire items were adapted from previous study by ref. [17]. The items for supply chain issues used the 5 point Likert Scale ranging from 1 (Not severe at all), 2 (Low severity), 3 (Medium Severity), 4 (Severe) and 5 (Very Severe). During the data collection stage, a total of 300 survey questionnaires were distributed on a convenience basis through mail or self-administered during SME exposition and training sessions organised by Co-operative and Entrepreneurship Development Institute (CEDI), Universiti Utara Malaysia. Even with all these efforts, only 106 mail survey questionnaires were returned. Thus, the survey response rate is 35.3%. Out of these 106 responses, 36 surveys were gathered through mail, 53 through SME exposition and 17 questionnaires were obtained through CEDI. All these companies are listed in the sampling frame of this study. Data gathered from survey questionnaires were analysed using SPSS.

#### 3.2 Results and Findings

Table 1 summarises the demographic information of the respondents. Both the state of Kedah and Penang has equal numbers of companies, which are 38 companies or 35.8% each. 30 SMEs are located in the state of Perlis. Majority of these SMEs are doing business in the food and beverages industry with a total of 46 companies (43.4%), followed by pharmaceuticals and healthcare product industry with 26 (24.5%), and agriculture industry with 14 SMEs (13.2%). In terms of years of operations, almost half of the SMEs involved in this study have been operating in between 6 to 15 years, with a cumulative total of 52 SMEs and cumulative percentage of 49%. 32 SMEs (30.2%) are relatively new SMEs as they have been in operation for less than 5 years. In contrast, 11 SMEs (10.4%) may be considered as well established SMEs as they have been operating for more than 25 years.

**Table 1.** Demographic information

Variables (N = 106)	Categories	Frequency	Percentage
<b>Location</b>	Perlis	30	28.3
	Kedah	38	35.8
	Penang	38	35.8
<b>Industry</b>	Metal & Construction	9	8.5
	Food & Beverages	46	43.4
	Pharmaceuticals/Health	26	24.5
	Chemical/Petro-Chemical	2	1.9
	Textiles, apparel, leather	5	4.7
	Rubber & Plastics	3	2.8
	Palm oil based	1	0.9
	Agriculture	14	13.2
<b>Years of operations</b>	< 5 years	32	30.2
	6 - 10 years	26	24.5
	11 - 15 years	26	24.5
	16 - 20 years	6	5.7
	21 - 25 years	5	4.7
	> 25 years	11	10.4
<b>Number of employees</b>	< 5	44	41.5
	6 - 75	38	35.8
	76 - 100	19	17.9
	> 200	5	4.7
<b>Annual turnover</b>	< 300k	54	50.9
	301k - 15 million	28	26.4
	15.1 - 30 million	15	14.2
	30.1 - 45 million	6	5.7
	> 50 million	3	2.8
<b>Designation</b>	CEO/Director/Senior Manager	52	49.1
	Manager/Assistant Manager	32	30.2
	Senior Executive/Executive	22	20.8

For the number of employees, 44 SMEs employ less than 5 employees (41.5%), followed by 38 (35.8%) that employs in between 6 to 75 employees. 5 firms (4.7%) have more than 200 employees. Analysis on SMEs' annual turnover showed that more than half of these SMEs earned less than RM 300,000.00 annually, which is 54 SMEs (50.9%). Another 28 SMEs (26.4%) earned between RM 301,000.00 to RM 15 Million, while 15 (14.2%) earned between RM 15.1 million to RM 30 million yearly. Only 3 SMEs earned more than RM 50 million or 2.8%.

In order to answer the research questions, the frequency of respondents selecting 4 (Severe) and 5 (Very severe) for each survey item were calculated, in order to determine which issues are the most serious logistics and supply chain issues experienced by Malaysian SMEs. The items are then ranked based on the highest number of

respondents selecting 4 and 5. It is expected to provide more meaningful information on the most severe logistics and supply chain issues faced by SMEs, if compared to analysing the mean score of each item. The argument is that the mean value may be distorted by high scores of standard deviation. The frequency of respondents selecting 4 and 5 for all survey items together with its percentage were shown in appendix 1, while appendix 2 list out only ten most severe logistics and supply chain issues experienced as indicated by the SMEs that involved in this study. The result shows that difficulties and inaccuracies in forecasting inventory top the list of most severe issues with 66 respondents (62.3%), followed by inability to fulfil orders due to inventory shortages with 59 respondents (55.7%) and keeping wrong mix of inventories with 48 respondents (45.3%). Miscommunication with customers and late delivery complaint by customers' share the fourth spot with 40 respondents (37.7%) are experiencing either severe or very severe situation for these issues. High logistics and supply chain activities cost occupied the fifth spot with 35 respondents (33%). It is also clear from the result that two major category of issues are among the top four namely inventory issues and customer service issues.

#### 4. Discussions and Conclusions

Data analysis results indicate that the most severe logistics and supply chain issues experienced by SMEs involved in this study is difficulties and inaccuracies in forecasting inventory. Undoubtedly, demand volatility has become a major focus area for supply chain managers over the past few years. The economic uncertainty experienced by this country has led to unreliable purchasing patterns among consumers of finished goods, particularly in developed economies. These factors do indeed make inventory forecasting becoming more difficult for managers and may result in forecasting inaccuracies. Although there are forecasting software and techniques available for SME managers, the cost of these software and volatility in customer demand will still have an effect on the forecast. Accurate forecasts help to achieve better customer service and lower inventory levels [18]. However, SMEs need to pick the software that provides the best solutions for its business. In addition, firms need to properly determined the minimum number of safety stock as an insurance policy against supply chain problems either from manufacturing glitches or distribution uncertainties

so that customers get what they ordered.

The results also indicate that customer service issues are the second most severe issues faced by these SMEs. Specifically, inability to fulfil customer orders due to inventory shortages may result in loss of sales and worst; the customer might purchase from competitors and never returned. This problem is very much related to the first most severe issues before, as difficulties and inaccuracies in forecasting inventory will lead to stock out and inability to supply the product when the customer needs it. In addition, two issues related to customer service which is miscommunication with customers and late delivery complaint by customers' are also among the most severe issues experienced by the SMEs. Many companies think that their only contact with the customer is through the sales and marketing staff, but this is no longer the case. The customer interacts with other departments such as shipping, quality control, accounts receivable, or a repairs service. Each of these departments must offer the same high level of customer service in order to maintain excellent customer satisfaction [19]. Customer satisfaction is central to every business aspects these days. Thus, inefficiencies in delivery and miscommunication are unacceptable by the customers these days. In order to overcome these problems, SMEs need to listen to the customer and make necessary changes to please them. The requirements and feedback from the customer is essential in providing the customers with the best in class service quality. This process is all about being proactive and constantly innovative to capture the changing requirements of the customers with time. This findings support the result of previous study by ref. [16] who describe inventory and customer service are among the major supply chain issues faced by businesses.

This study contributes towards literature as it provides an in depth information on logistics and supply chain related issues faced by SMEs. For practitioners and the relevant government agency, this study sheds light on the most severe issues and therefore, firms themselves and government agency can focus their efforts on rectifying these severe logistics and supply chain issues especially from the aspect of inventory management. As a conclusion, it is clear from this study that SMEs need to find a proper solution in order to improve their inventory management approach, and to increase their level of customer service as these two issues are the most severe logistics and supply chain issues currently experienced by them. Efficient inventory management practices are

expected to help reduce investment in standing inventory, plant rental, shipping costs, reverse logistics while maintaining or improving customer service levels. At the same time, other issues that make up the list of ten most severe logistics and supply chain related issues experienced by Malaysian SMEs must also be taken care of, so that SMEs may remain competitive in the marketplace.

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**Appendix 1.** Data analysis result

Issues	Frequency	Percentage	Rank
<b>Inventory Issues</b>			
Too little or too much inventory due to:			
1. Supplier's long delivery times	24	22.6	9
2. Long transit times or delay caused by transportation	23	21.7	10
3. Inventory forecasting difficulties or inaccuracies	66	62.3	1
4. Keep wrong mix of inventories	48	45.3	3
<b>Customer Service Issues</b>			
1. Miscommunication with customers	40	37.7	4
2. Late delivery complaint by customers	40	37.7	4
3. Incomplete or wrong shipments complaints by customers	25	23.6	8
4. Poor shipment packaging quality	22	20.8	11
5. Inventory shortages - unable to fulfil orders	59	55.7	2
<b>Organization Issues</b>			
1. High logistics and supply chain activities cost	35	33.0	5
2. Poor inter-firm communications	6	5.7	18
3. Finger-pointing and blaming each other's for problems	6	5.7	18
4. Stressed internal relationships between departments	16	15.1	14
5. Lack of logistics/supply chain experts	15	14.2	15
6. High labour turnover	27	25.5	7
<b>Information Systems Issues</b>			
1. No logistics/supply chain information systems used at all	6	5.7	18
2. Poor information or data flows	3	2.8	20
3. No information systems linkages with supply chain members	4	3.8	19
4. Lack or no information systems expert/personnel	15	14.2	15
5. Manual work processes	18	17.0	13
6. Lack/No latest and real-time data	16	15.1	14
7. Poor data capture and database	16	15.1	14
8. Systems do not match business processes	34	32.1	6
9. Systems too cumbersome (not user friendly)	16	15.1	14
<b>Product or Supply Flow Issues</b>			
1. Wrong mode of transportation used	6	5.7	18
2. Lack of logistics/supply chain providers availability and capability	7	6.6	17
3. Lack of knowledge on import/export procedures	13	12.3	16
4. Lack of expertise in international shipment	23	21.7	10
5. Poor logistics/supply chain contract enforcement	16	15.1	14
6. Lack of understanding on International Trade Terms (INCOTERMS)	20	18.9	12

**Appendix 2.** Ten most severe issues experienced by SMEs

Rank	Items	Category	Frequency	Percentage
1	Inventory forecasting difficulties or inaccuracies	Inv	66	62.3
2	Inventory shortages - unable to fulfil orders	CS	59	55.7
3	Keep wrong mix of inventories	Inv	48	45.3
4	Miscommunication with customers	CS	40	37.7
4	Late delivery complaint by customers	CS	40	37.7
5	High logistics and supply chain activities cost	OI	35	33.0
6	Systems do not match business processes	IS	34	32.1
7	High labour turnover	OI	27	25.5
8	Incomplete or wrong shipments complaints by customers	CS	25	23.6
9	Rank Supplier's long delivery times	Inv	24	22.6
10	Long transit times or delay caused by transportation	Inv	23	21.7
10	Lack of expertise in international shipment	PSF	23	21.7

Note: Inv = Inventory Issues, CS = Customer Service Issues, OI = Organisational Issues, IS = Information System Issues, PSF = Product Flow Issues