

**Determinants of Key Supplier Retention in Electric and Electronics (E&E)  
Industry of Malaysia**

**by**

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## ABBREVIATION

E&E	Electric and Electronics
M&E	Mechanical & Electrical
MNC	Multinational Company
EMS	Electronic Manufacturing Services
CMS	Contract Manufacturing Services
SCM	Supply Chain Management
RBV	Resource Based View (RBV)
SOIM	Switching Over Intention Model
SE	Supplier Engagement
SQ	Supplier Quality
SI	Supplier Infrastructure
SC	Supplier Commitment
CS	Confidential Sharing
BSR	Buyer Supplier Relationship
SR	Key Supplier Retention
MRA	Multiple Regression Analysis

## ABSTRAK

Industri Elektrik dan Elektronik (E&E) di Malaysia adalah salah satu penyumbang besar kepada pergerakan rantaian bekalan di seluruh dunia. Pembekal industri E&E memainkan peranan penting untuk penghantaran barangan tepat pada masa supaya proses pembuatan lancar setiap hari. Pengkekal pembekal industri E&E adalah penting dan strategi pembelian yang wajib bagi pengilang untuk bukan sahaja bekalan konsisten tetapi juga untuk sestabilan pembekal dari segi kos yang berpatutan, kepercayaan dan hospitaliti. Kajian in mengenalpasti penentu penting untuk mengekalkan pembekal utama dalam pembentukan E&E di Malaysia. Daripada penyemakan literature, satu model kajian konseptual telah di bentuk untuk meneliti hubungan antara peramal yang di kenalpasti dan hipotesis berkaitan yang telah diuji untuk pemahaman hubungan korelasi. Satu kajian besar telah dijalankan dengan 112 responden (pengilang) daripada industri E&E di Malaysia. Peramal yang dikenalpasti daripada kajian literatur dan pakar adalah Penglibatan Pembekal, Kualiti Pembekal, Infrastruktur Pembekal, Komitmen Pembekal, Pekongsian Maklumat Sulit. Hubungan pembeli dan pembekal memainkan peranan mediator dan pengekal pembekal di rujuk sebagai pembolehubah bergantung. Daripada 112 responden, 41 (36.6%) telah memberi lebih daripada 4.34 dari kesuluruhan skor purata untuk pengekal pembekal. Selain itu, 72 (64.3%) daripada 112 pengilang telah menyatakan mereka mempunyai hubungan yang baik dengan pembekal utama. Semua peramal telah didapati sebagai peramal tulen kerana kesemuanya positif mempengaruhi pengekal pembekal utama (kesan langsung). Menariknya, kewujudan hubungan pembeli dan pembekal, Penglibatan Pembekal dan Perkongsian Maklumat Sulit masih mempengaruhi pengekal pembekal utama (kesan tidak langsung). Ini jelas menunjukkan bahawa pembekal boleh dipercayai kerana mereka tidak mendedahkan

maklumat sulit sesuatu syarikat kepada syarikat yang lain dan mereka memenuhi diri mereka dengan pengilang yang sesuai.

## ABSTRACT

Electric & Electronics industry (E&E) in Malaysia is one of the major contributors to supply chain movements around the world. The suppliers of E&E industry play a key role for on time delivery of the products so that the production flow will be smooth on a day-to-day basis. The retention of suppliers in E&E industry is an essential and strategic purchasing obligation for manufacturers not only for consistent supply of required products, but also for the stability of the supplier in terms of reasonable costing, trustworthiness and hospitality. The current study identifies the important determinants for retaining key supplier in E&E set up in Malaysia. Based on the assessment of the literatures, a conceptual research model has been developed to scrutinize the relationship of the identified predictors and the relevant hypotheses have been tested for understanding the correlational relationship. A massive survey was performed based on 112 respondents (manufacturers) from E&E industry in Malaysia. The predictors identified from the literature review and from experts were Supplier Engagement, Supplier Quality, Supplier Infrastructure, Supplier Commitment, Confidential Sharing. The buyer supplier relationship plays a mediating role and supplier retention is considered as a dependent variable. Out of 112 respondents, 41 (36.6%) have given more than 4.34 as their overall average score for supplier retention. On the other hand, 72 (64.3%) out of 112 manufacturers remarked that they have a good relationship with the key supplier. All the above stated predictors were found to be pure predictors as they are positively influencing the key supplier retention (direct effects). Interestingly, with the presence of buyer supplier relationship, Supplier Engagement and Confidential Sharing were still influencing key supplier retention (indirect effects). It clearly indicates that the suppliers are trustworthy as they never reveal the confidential information from one company to another and they always preoccupy themselves with the right manufacturers.

## Chapter 1

### INTRODUCTION

#### 1.0 Introduction

In current network economy, organizations mostly, rely on external suppliers for critical resources and complementary capabilities (Holweg, 2005 & Johnsen, 2008). Suppliers play a vital role in the success of global enterprise. In the early 21<sup>st</sup> century, company's relationships with its suppliers have become gradually essential in the total perspective of the organization. The term 'supplier' comprises a very different range of roles, duties, and skills. Therefore, their responsibilities differ from project to project. The best suppliers represent consistency and efficiency, and hence, they have great relationships with their clients. Organizations in general reduced the number of suppliers they engage from, so that they can improve long-term, mutually beneficial strategic partnerships with their key suppliers. Organizations look for suppliers who offer reliable, relevant, high-quality products and services. The performance of each company is link, when there is interrelationship between buyers and suppliers.

However, according to Lambert & Pohlen (2001), contradictory organizational aims, among and within respectively, of the organization, inadequacies may be formed. Hence, suppliers who are passionate to benefit from the buyer-supplier relationship in terms of teamwork, will be acknowledged by buyers in order for performance enrichment and minimize channel encounters as stated by Simpson, Siguaw and Baker (2001), assets expectation commitment as mentioned by Zaheer, McEvily and Perrone (1998), purchaser placement (Slater 1997), communication according to Simpson, Siguaw and Baker (2001),

approachability (Lambert, Adams & Emmelhainz 1997), and personalized services and products as identified by Lambert and Pohlen (2001).

This chapter will narrate the background and objective of this study. It will begin with background of the study, problem statement, research objectives and research questions.

## **1.1 Background of Study**

In Malaysia, the strong E&E industry is due to Government's initiatives to encourage labor intensive and export oriented industries. In 1972, Malaysia has become a main global manufacturing center for the electrical and electronics industry. Numerous multinational companies (MNCs) which are from Europe, Japan, Korea, Taiwan, Korea and also USA have chosen Malaysia as their foundation since the first semiconductor plant in Penang been constructed. Local companies have been given chances to be a part of top electronic manufacturing service (EMS) companies' supply chain such as Celestica, Electronics, Jabil, Solectron, Plexus and Sanmina-SCI by supplying resources, parts, tool or components, and also enthusiastic services for an example contract proposal, burn-in analysis, failure investigation and rapid prototyping.

Activities such as moulds, tools and dies, metal stamping, surface treatment, plastic injection moulding and M&E (Mechanical & Electrical) are emphases by other local subsidiary industries. Based on Market Watch 2012, Electrical & Electronic Industry in Malaysia, are more than 381 companies currently, manufacturing products like domestic electrical appliances, wire and cables and also equipment for the electrical industries. Moreover, there are almost more than 50 firms operating as EMS companies and also as contract manufacturing services (CMS).

There are four major sub-sectors of the E&E industry, which are electronics components, industrial electronics, consumer electronics and electrical products. Table 1.1 shows the breakdown of E&E Industries.

<b>Sectors</b>	<b>Sub-Sectors</b>	<b>Products</b>
Electronics	Components	Semiconductors, passive components, printed circuit boards, metal stamped parts and precision plastic parts
	Consumer	Audio visual products such as television receivers, portable multimedia players (PMP), speakers, cameras and electronic games
Electrical	Industrial	Multimedia and information technology products such as computers and computer peripherals, telecommunications equipment and office equipment
	Electrical	Boards, panels and consoles, switching apparatus, lamps, air conditioners, vacuum cleaners, ovens, transformers, cables & wires, primary cells & batteries, solar cells and modules

**Table 1.1: Structure of E&E Industries**

*Source: Adopted from Malaysia Investment Development Authority (MIDA), 2014*

Malaysia is constantly competitive in E&E industries and sustained inflows of foreign investments. This continuous investment from foreign companies even among global economic uncertainties is significant and promising. Based on the Malaysian Industry Development Authority's (MIDA) records, today the E&E industry has prolonged to more than 1,695 companies with a total investment of RM108 billion and a workforce of more than 600,000 people compare in 1970 there were a total of just four companies with 577 employees and a total output value of RM25 million

Investment Projects Approved by E&E Sectors			
	Domestic Investment	Foreign Investment	Total Proposed Capital Investment
	(US\$) in million	(US\$) in million	(US\$) in million
Jan-Oct 2011	419.4	2,450.7	2,870.0
2010	471.2	3,844.9	4,316.1

**Table 1.2: Investment-Project approved in the E&E sector**

*Source: Adopted from Malaysia Investment Development Authority (MIDA), 2011*

The evolution of these electric and electronics industries, mostly the increase of the Multinational Corporation, investment in Malaysia had formed and progression of many local companies. The local companies supply printed circuit assembly (PCA), labels, tools, equipment, packaging, plastic parts and sheet metal to these Electric and Electronics companies. Some of these local companies had become collaborative or alliance supplier rather than the conventional transaction supplier. Most of electric and electronics companies have dedicated supplier management team to manage these suppliers. For an example, test and measurement equipment giant, Keysight Technologies (M) Sdn. Bhd. (Formerly known as Hewlett Packard and Agilent Technologies) has dedicated Strategic Supplier Management (SSM) team in their Malaysia plant.

The achievement of these electric and electronics organizations relies on various stakeholders who are employees, suppliers, customers, creditors, government, investors and community. There are constantly concerned factors, such as quality, delivery, time, miscommunication in this industry. The number of potential issues is countless. If the supplier is at accountability, helping them resolve it in the most cost-effective way possible is a good example of the buyer - supplier relationship. Realizing this, many electric and electronics organizations in Malaysia had helped, develop and retain some of their key

suppliers. It is very important to identify factors that the organizations looking at in selecting suppliers as their key supplier.

Therefore, this study emphasizes the importance of suppliers to electric and electronics organization in Malaysia and how do these organizations manage and maintain their key suppliers as supplier relationships are critically important to the success of business.

## **1.2 Research Gap**

Even though, there have been quite extensive studies on buyer-supplier relationship and supplier sustainability, there's very limited studies about key suppliers retention. Most of the studies that can be found is on supplier performance, how to measure supplier performance and when there's a research regarding buyer-supplier relationship, commonly this variable is studied to see its relationship with firm performance or customer sustainability. Apart from that, there are also several studies on supplier selection, but very limited studies on key supplier's retention. Therefore, this research will focus on determinants that influence key supplier retention and whether the buyer-supplier relationship mediates the relationship the determinants and key supplier retention.

## **1.3 Problem Statement**

Supplier selection and retention are crucial and major tasks accomplished by the purchasing function. Companies should choose what competencies they are buying, the conditions used to buy them, and the costs they are prepared to acquire, when selecting suppliers. According to Kraus (2001), retention proposes a constant practice of evaluating suppliers to determine if the designated supplier is performing as to further the objectives of

the buying organization over time. Nevertheless, there are further areas of importance to the purchasing function that may need to be considered in the processes to develop their validity.

Organizations are beginning to recognize that suppliers are a necessary part of organizational success, in today's present conditions. Every organization is formed by various parties and each of these parties must not breakdown – as a consequence triggering the whole organization to fail. Each element in an organization beginning with its employees, suppliers, customers, the environment and also the government play a significant part in creating or breaking an organization. Manufacturing plant can eventually come to a complete halt, if the right materials are not being supplied in a timely manner, which is a very awful consequence when the organization is a customer centric organization.

If there is lost in production for every minute, the organization tends to lose money instead of making money. A downtime can cause thousands of dollars, which translates to losses in revenue. Besides, there will be none of the completed goods can reach their customers on time and in good condition, without reliable shipping agents. As more organizations are identifying the importance of suppliers' contribute to their success, more approaches are required to implement to help them deal with suppliers in the ways where relationships mutually favorable. These approaches are known cooperatively as supplier relationship management.

As stated by Wilson (1994), U.S. firms struggle to develop effectiveness even though, for decades the measures used for selecting and retaining suppliers have been scrutinized, Asides that, there are numerous literatures well documented about variations condition which have been practiced in the last ten years for selection and retention, and customer satisfaction growths, according to Pearson and Ellram (1995) in the aspect of the progressively global rivalry determined.

Pearson and Ellram (1995), also mention in their study that, it is imperative for considering enthusiasm of the conditions which were used and the broadly create the perception of supplier selection and ongoing evaluation are known as the most crucial factor for the organization's purchasing function. Furthermore, purchasing function usually will be under anxiety to appraise the potential and present business relations significance substantially due to the worth of the buyer and supplier trades and relationships have been pursued to maximize where extensive value could be supplied by the acquiring firms by supplying firms through cost savings or profits enrichment.

The bottom line of supplier's channel partners, which most likely affect by them, has been recognized lately. However, experimental research has supported the crucial of the value that suppliers will provide to the firm that acquire them with their further conservative assessments of supplier's enactment on specific benchmarks must be evaluated up front as mention by Anderson and Narus, (1998) and also by Cox (2001). By evolving quality, delivery, enactment, consistency, consciousness, and also at sustaining a low cost at the same time and continuously exceeding expectation with cost reduction efforts, competitive forces are putting organizations under pressure. Due to these conditions, organizations are considering into establishment all areas of procurement. The importance of a well-placed supply chain can provide the organization control over their competitors.

Therefore, organizations are gradually discovering methods to improve their supply chain by thoroughly evaluating the roles or their suppliers' activities in the organization. Several organizations required to outsource their supply chains. Nevertheless, by doing so, they lose the control of the cost and the quality of goods and services that they attain. These circumstances, has urged many organizations to make additional efforts in preserving their own supply chain. There are various benefits that can be achieved in sustaining a good supply

chain which is documented and discussed as to whether it is a worthy business revolution or just a trap of the information age.

It is a common strategy for organization work with a reduced and dependable number of suppliers that save more time and money against launching tenders, selecting and testing new suppliers. On the other hand, for manufacturers to reply on only one or a few suppliers somewhat may strongly lead them to focus on one niche of the market and will also prevent them from taking new opportunities of development. At the same time, if the suppliers know they have an agreement with certain clients for a long-time, this will eventually make them feel complacent and may perhaps they might not have intention for a long-term preparation to keep their partners on for longer duration.

The benefits of dealing with fewer suppliers are documented well in the literature of purchasing and supply chain management, according to Chen and Paulraj (2004); Hahn, Kim, and Kim (1986); Kekre, Murthi, and Srinivasan (1995). Placing a greater importance on fewer suppliers from a cost perception, will eventually allow customers to be more focus on the volumes of orders and also at the same time will further achieve the influence upon their vendors. Attention on the selected suppliers would let a firm to decrease the total cost of their tenure apart from the price concerns. For an example, through a better managing and interchange of the information, order handling and management of the inventories can be intensely upgraded. Likewise, key suppliers can support customers in taking further costs out of production practices, by accepting flexible manufacturing approaches and design-to-cost methods. Based on a quality perception, a limited supply base allows customers to finance in supplier improvement. By improving quality of current products may allow customers to encourage vendors to participate in efforts of joint product development.

With the rising awareness in buyer-supplier relationships and relationship satisfaction have developed a vital aspect in relationship marketing and channel theory (Abdul-Muhmin, 2005; Ramaseshan, 2006; Rodriguez, 2006). Relationship satisfaction is seen as a crucial factor in the growth and preservation of long term buyer-supplier relationships, in business relationship context as it is getting crucial in business relationships and that effective business relationship has contributed in dropping transaction costs and foster greater economic value for both marketers and their customers has been recognized (Geyskens and Steenkamp, 2000; Ping, 2003).

The existing problem in this roller coaster environment and economic state is, how key suppliers are retained for long term collaborative and alliance partnership. According to Krause (2001), following research efforts should re-examine whether “supplier selection and retention” fully tap the scopes of purchasing’s competitive priorities. As organization now days are now trying to persist competitive by bettering their products, decreasing production costs, and financing in new manufacturing technologies, but without a successful buyer-supplier relationship, there will be no improvement seen.

Thus, this study proposes a new conceptual framework where the key goal is to support decision makers understand how various vendor selection criteria will bring about the success of or failures of buyer-supplier relationship which will directly affect the relation continuity with key supplier.

## **1.4 Research Objectives**

The objectives of this research are:

- i. To identify the determinants of key suppliers retention in Electric and Electronic (E&E) companies of Malaysia.
- ii. To study the relationship between the determinants of supplier capacity (supplier engagement, supplier quality, supplier infrastructure and supplier commitment) on key suppliers retention in E&E companies.
- iii. To determine the mediating effects of buyer-supplier relationship on the relationship between supplier capacity capacity (supplier engagement, supplier quality, supplier infrastructure and supplier commitment) and key suppliers retention in E&E companies.

## **1.5 Research Questions**

The research questions for this study are:

- i. Does the factors considered are the pure predictors of key supplier retention in Electric and Electronics companies (E&E) in Malaysia?
- ii. How is the relationship between the determinants of supplier capacity (supplier engagement, supplier quality, supplier infrastructure, supplier commitment) and key supplier retention Electric and Electronics companies (E&E) in Malaysia?
- iii. Does the buyer-supplier relationship mediates the relationship between supplier capacity (supplier engagement, supplier quality, supplier infrastructure, supplier commitment) and key supplier retention in E&E companies?

## **1.6 Definitions of Key Terms**

Below is the definition of some of the important key terms used in this study:-

### **a) Supplier Engagement**

According to the Department of Housing and Public Works of the Queensland Government, Supplier engagement relates to collaborating necessities with possible suppliers and creating an arrangement for the supply of goods or services with the most suitable supplier. Supplier engagement is described as supplier state of supports to requirements and expectations. To ensure getting good supplier engagement, there is need proper communication between buyer-supplier. For this, there needs to be an operating model where the buyer requirement and expected outcome is clearly documented.

### **b) Supplier Quality**

Quality aspect was measured in terms of suppliers' capability to deliver inputs that are reliable, durable which follow as per buying firm's terms (Vyas & Woodside, 1984; Spekman, 1988; Curkovic & Handfield, 1996; Forker, 1996). Supplier quality has been recognized as a crucial in the supplier selection procedure for eras (Dickson, 1966; Wilson, 1994; Vonderembse & Tracey, 1999).

### **c) Supplier Commitment**

Dwyer Schurr & Oh, 1987; Morgan & Hunt 1994; Garbarino & Johnson 1999, classify commitment as an essential element of effective market relationships since it gives growth to co-operative success. A relationship that is categorized by co-operation among two parties is more probable to be long-term, participative and concentrated on attaining service quality.

#### **d) Supplier Selection**

Supplier selection is the process by which firms identify, evaluate, and contract with suppliers. The supplier selection process deploys a tremendous amount of a firm's financial resources. In return, firms expect significant benefits from contracting with suppliers offering high value (Damian Beil & Stephen M. Ross, 2009).

#### **e) Supply Chain Management (SCM)**

Is a key strategic aspect for organizational efficiency increase and enhanced consciousness of organizational goals such as enriched competitiveness, better customer care and increased of profitability (Gunasekaran, 2001). According Steward (1995), this the main objectives of SCM are to reduce non-value-added actions and linked investment cost and operating cost, increase customer awareness and flexibility in the supply chain, and enrich bottom-line performance and cost competitiveness.

#### **f) Supplier Relationship Management (SRM)**

According to Christopher, (1998) and Rinehart, (2004), SRM contains upstream and downstream relationships of the management to create enriched value in the marketplace. The essential of external relations between downstream customers, and upstream suppliers by retailers is emphasized by Barrett (2011), who found that if business practices are united and managed efficiently across the supply chain, retailers will accrue benefits such as enhanced awareness, developed planning and renewal of capabilities and enriched decision-making.

### **g) Relationship Continuity**

Relationship continuity is the enthusiasm of parties to extend their agreement to collaborate during a period of time, indefinite or not, in the future (Aurus Kevic Iene & Palaima, 2007).

### **h) Supplier Retention**

Day and Wensley (1988), define supplier retention as relational exchanges which can contribute to product variation and form barriers to changing for suppliers and buyers.

## **1.7 Significance of Study**

This study is to understand the factors that determine the key supplier's retention in the Electric and Electronics companies (E&E) in Malaysia for long term collaboration. This study contributes to supply chain management research by offering and empirically testing a combined research model that identifies the relationships between supplier engagement, supplier quality, supplier infrastructure and supplier commitment on key supplier retention using a survey approach.

Even though, there are several studies capture a few of these concerns in segregation, but none has explored them all together in a single study as in this research. The results are also applicable to practitioners by providing information concerning these relationships that can be used to increase suppliers' performance.

This study is predictable to benefit suppliers, to understand the organization's expectation for a long term relationship and collaboration. The finding of this study can be leveraged by other industries' organizations to select and retain key suppliers for their business efficiency.

## **1.8 Organization of the Remaining Chapters**

This study is structured into five chapters. Chapter 1 described the introduction of the research, background of study, problem statement, research objectives, and research questions, definition of key terms and the significance of the study.

Next, chapter 2 is about reviews of the literature related to the topics from academic journals in former studies. Theoretical framework and relevant hypothesis are created subsequent from previous studies.

Chapter 3 demonstrates the methodology used in this study comprising research design, data collection, measurement of the variables and method of data analysis,

Chapter 4 discuss about the results of the findings. The results covered of profiles of respondents, descriptive analysis, factor analysis, convergent validity and discriminant, correlation analysis, validity, measurement model and structural model.

Finally, in chapter 5, overall finding, implication of the study, limitation of the study, suggesting for future research and conclusions will be presented.

## **Chapter 2**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter is about previous literatures that have been undertaken by past researches. Citations of assessment of the printed and unpublished study from secondary source of data in the specific area of researcher's interest are known as the literature review. It is an imperative component and required to establish and explain the research. Furthermore, it allows to create theoretical framework and methodological focus.

Therefore, this chapter defines an overview of the variables that will form the theoretical framework which will be presented at the end of this chapter and the objective of this chapter is to illustrate on what the past researches have to say about this topic. The hypothesis development will also be presented towards the end of this chapter. The literature review for independent variables, mediator and dependent variables will be further explained towards the end of the chapter.

#### **2.1 Supplier's Role in Supply Chain Management (SCM)**

For over the previous two eras, supply chain management (SCM) has developed gradually essential in the efforts of companies' to persist competitive. Companies are increasingly identifying the importance of cooperation between the numerous links in the supply chain, at the present competitive environment. Rather than a single business element, Firms are considering at the business in terms of supply chain, (Simchi & Levi, 2003). Effective SCM is used to sustenance various manufacturing objectives such as flexibility, cost, quality, and delivery (Wisner, 2009). Effective supplier management practices are vital

inadequate customers' varying requirements. Due to the effect of globalization, the supply chain has to be approachable in offering rapid and consistent delivery of high-quality products and services at the minimum cost. This is a necessary foundation for the companies to improve a supportable competitive benefit and to endure at the forefront of superiority in a level playing market field.

The role of the supplier in the supply chain is being concentrated. As businesses progressively subcontract their non-core activities, suppliers have been acknowledged as an important role in the firm's supply chain, from product progress to finished goods inventory management. Integrating the supplier's actions with its specific has become critical for companies, particularly the necessity to reduce inventories and able to distribute the orders to customers on time. The relationship between buyer and suppliers has become gradually imperative in the total perspective of the organization in the early 21st century. In order to improve long-term, mutually valuable strategic partnerships with key suppliers, buyers mostly reduced the number of suppliers they purchase from.

A supplier relationship is one in which buyer acquires from a supplier for the purpose of reselling and creating profit. According to Wathne (2000) and Heide (2004), efficiently achieved strategic supplier relationships comprise the selection and improvement of suppliers with comparable goals and with the enthusiasm of the supplier to familiarize to the needs of the buyer. Companies improve strategic relationships with suppliers to decrease costs, advance quality and to improve competitive advantage (Petersen, 2008).

## 2.2 Independent Variables

### 2.2.1 Supplier Engagement

A strategic condition of an effective and good supplier engagement system will be competent to support in discovering and engaging with suppliers by ensuring staff are linked to the best supplier agreements and contracts which reduce overhead of handling suppliers. Organizations will be proactive in engaging with suppliers and attaining their preferred outcomes, balanced against defined resources and priorities when they are united. Companies should improve a supplier engagement approach which constructs on a precise assessment of the strengths of their supplier relationships in order to become a customer of choice. According to John H. Fleming and Leslie Rowlands (2014), the research fact, in the Gallup Business Journal, emphasize that when companies that implement a proactive methodology for evaluating and managing the emotional connections that drive supplier engagement can gain extensive economic gains, including greater quality, enhanced planning, enriched product development, greater supplier support and value, and lower costs. In addition, it decreases risk of supplier failure, quality under-performance and cost aversion.



**Figure 2.1: The Benefits of Engaging Suppliers**

Source: Adapted from *The Strategic Advantage of Supplier Engagement*, Gallup Business Journal (2014)

Nowadays, organizations are gradually more conscious about the impotency of supplier's role in their organization. They are aware that the necessity of supplier sustainability is essential for enhanced managing of risks and opportunities. According to LRS Consultancy (2007), a consistent approach to supplier engagement and development may not be practical due to the variation of organizations' desires and supply bases such as size, volume, capability and service provided. This is, perhaps due to the circumstance where today's supply chains are challenged by both risk and business opportunities. Apart from that, LRS Consultancy also indicates that organization recognized about the unknown chargers for functioning a standard manufacture model of supply extraction, assembly and dissemination, and also cost for end-of-life clearance. Furthermore, in order to achieve benefits of new market prospects, manufacturers now days are involved more in sustainable principles and set it as their major business strategies and procedures by looking to develop long-term stakeholder value and their own endurance

According to Ellie Moss (2012) on the Harvard Business Blog Network, businesses need a supplier engagement program and suppliers must have a worthy purpose to engage. She explains further that suppliers are frequently anxious about sharing information that exposes their cost structure with the people with whom they are conveying price with. Most vitally, to be successful, the supplier engagement program should create business wisdom for both customer and supplier beyond fulfilling with regulation or stakeholder forces. A well-construct of the supplier engagement program will not only neutralize these anxieties, but also open up the fundamental opportunity. Previously merchants approached the test by using "Supplier Scorecards" but a scorecard without a proper supplier engagement program to support will bound to fail in the end (Moss, 2012). This happens due to these retailers are concentrating on gathering this difficult, hard-to-collect data for the scorecards rather than understanding the meaning of the data or what are they able to study from it.

The significant for both customer and supplier should be perceived, where a two way relationship is created. Compare to just a pull and pull relationship, push and pull relationship is more optimal where a win win situation can be created. If there is only pull and pull relationship, supplier fails to see it as a chance to cooperate for mutual advantage. According to Moss (2012), the supplier will just remain to feel insufficient and stressed hence severing the relationship between the buyer and suppliers if the scorecard is just known as a method to condemn and criticize instead of a technique to support suppliers advance their services.

An effective supplier engagement program is about data gathering so that recognize places where needed for optimization can be recognized and this can be done by either the supplier or the customer independently creating a sub-optimal overall outcome. Engaged supplier will acknowledge what the customer need from them and feel interested to cooperate. Suppliers will prioritize the customer's request by putting their brand name at the top of their to-do lists. They also will focus on quality and act as brand ambassadors. The perceived trustworthiness is an important originator of trust (Lee & Turban, 2001). Therefore, trust and trustworthiness are probable to be accomplished in the relationship between the buyer and supplier, which most possibly it can only be achieved through an effective supplier engagement program.

### 2.2.2 Supplier Quality

Supplier selection is the procedure by which the buyer finds, evaluates, and deals with suppliers. Supplier need to be evaluated before an organization start dealing with them. They will be evaluated in the mode of pre-qualified which comprises understanding well the supplier's business which includes financial, quality assurance and performance based on the top present customers and the significance of these dealings with the top customers. This will aid the procurement team to have a better understanding about this supplier's capabilities. Identify appropriate suppliers always a challenging task for the buyer, due to each supplier may have various strengths and weaknesses which involve very cautious valuation by the buyers before engaging them the job or before even acquiring from them. As after sales support is very vital for buyers nowadays, tough competition forces suppliers to have serious responsiveness after sales and made them as part of their marketing tool. This is why supplier selection plays a very essential role in every purchasing management.

Dickson (1966), was the first to execute an intensive study to define, recognize and analyze what were the criteria that was used by a firm to select a supplier. His study was based on a questionnaire that was sent to 273 purchasing agents and managers which was selected from the National Association of Purchasing Manager membership list. About 170 of them were from the United States and Canada. The respondents were requested to evaluate the importance of each criterion that were listed in the questionnaire by using a five point scale measurement: "*extreme*", "*considerable*", "*average*", "*slight*" and "*of no importance*". Dickson's study listed out 24 criteria for supplier selection and maximum of the respondents considers "*quality*" as the most vital criterion.

Holjevac (2008), defined quality as follows: (i) quality refers to the capability of a product or service to steadily meet or exceed customer's expectations; (ii) quality means receiving what you have paid for; (iii) quality is not somewhat that is accepted as a special feature, instead it is an essential part of a product or service. From the corporation's point of view, if the supplier has poor quality, it's a direct reflection on them, not the supplier. If a supplier lets them down, they will let their customer down. If their supplier delivers them with a low-quality component, it can undesirably distress their delivery and cost.

Customers, will always require products and services distributed to them as per their decided quality or be obtainable as per the agreed time, and also be reflect value which is worth for money. Purchasing firm, will only persist their supplier if their supplier, supplies products which can gain satisfaction of manufacturers, and this can be achieved when supplier producing products or services that fulfill customer's requirements and also their expectations.

While price is known as the function of cost, profit margin, market forces, and delivery are a function of the organization's competence and efficiency, quality is determined by the level to which a product or service effectively assists the purpose of the user during actual usage time and not just at the point of sales. Price and delivery are identified as features that is temporary, whereas, the quality of materials or services have a great impact in order for suppliers to sustain long after the acceptance of attractive price and delivery. Therefore, ones should not be surprised, if quality criteria has been recognized as the top of the list of critical success factors for selecting suppliers.

When appraising possible suppliers, it is important to determine whether their culture is centered on quality or not. This aspect is vital as the supplier's ability to provide products and services of good quality, on time and in full is important to sustain the satisfaction of

customer's necessity and at the same time retain of competitive advantage in the long term (Whickeret, 2009).

This is also supported based on the study of Stanley and Wisner (2001), where they mentioned that the supplier's quality of internal services and their capability to offer quality products or services to their customers will determine the relationship of cooperative purchasing and supplier relationships. On the other hand, their study also indicates that the association among buyer and their supplier may develop the ability of the organization to produce or deliver products with quality. Their recommendation is, to overcome complications, and surge common awareness of quality of products and also internal and external services, purchasing firms must consider buyer–supplier interactions and where there is a required of communication increases, proper action should be taken.

Based on the above viewpoint, the implication of quality in the context of the supply chain can be well-defined as requests of the partner firms with their suppliers who mutually agreed upon performance improvement of the businesses which take place in the chain.

It inclusive of on term agreements which clearly stated that information exchanges, instruction and resistor among the buyer's and supplier's firm at the level of inter-organizational which could perhaps will affect the supplied of products or services required quality, and also will have an impact upon the capability to achieve quality in the supply chain. According to Idris (1996), quality holds the key to effectiveness in today's global market, nevertheless of the size of the company. Total quality management (TQM) programmers and practices are mainly incorporated in large multinational organizations. It is often said that quality is an indication in the electronics industry.

According to the above statement, it means that quality has been recognized as superior level where, buyers from the electronics manufacturer should not have to be anxious regarding the quality of the materials that supplied by their suppliers such as , passives, semiconductors and also connectors. Even though this circumstance occurs, most of OEMs and manufacturers of electronics services (EMS) providers still will rate their suppliers for the quality of products that they offer either on monthly or quarterly basis and will issue scorecards to them accordingly.

According to Jim Carbone, (2012) who is a freelance writer and editor for Electronics Purchasing and Purchasing magazine, suppliers will be offered with new business if they obtained higher scores. If they are not offered to new business, at least the purchasing function may continue to engage in business with the current suppliers. Besides that, if they identified suppliers whose scores keep on dropping for over a time period and there is not further development, this category of suppliers might not be identified for further business opportunity and also may not be selected for upcoming business.

For suppliers to anticipate fruitful in their business dealing with key electronics manufacturers, robust quality improvement is required in the first place. So that, they able to yield resources with high quality regularly and apart from that it is more vital, for them to show enhancement of quality. This is due to, most of the electronics manufacturers usually will reorganize the targets of product quality, based on the defect rates for parts per million (ppm), where the defect rate did not exceed the assign limit. An example for this statement, Erick Prause, who is the senior director of supplier quality for Jabil Circuit EMS provider in St. Petersburg, Fla., recently expressed recently to Jim Carbone that the ordinary parts per million (ppm) flaw level of semiconductors that Jabil obtains from suppliers is less than 20 parts per million but if compared to the volume ten years ago, it would have been either two

or three times much higher. In addition, Jabil's resource base has defect with parts for only about 20, but if we compared to ten years ago, it was in the sort of 40% to 50%.

Most of the key electronics Original Equipment Manufacturers (OEMs) will judge their suppliers, according to technology, distribution and the total cost of proprietorship. Some of the companies will also consider a few factors into the quality scorecards which are social responsibility codes of conduct and ecological compliances and also governmental protocols. If the expertise is convincing, innovative and also being useful, this will cause some of the OEMs will work through a startup in order to progress their supplier's manufacturing and quality processes. For many OEMs, this is similarly vibrant as the supplier not only will advanced parts based on the new technologies, but they are also capable to yield the parts with higher revenues, higher quality and higher reliability doesn't matter if it is combined an application-specific circuit or high-density low-power memory chip.

Jantan, Ndubisi and Loo (2006), did a study to evaluate the relationship between technology, quality, cost and delivery performance-based, supplier selection approaches, and manufacturing flexibilities, product flexibility, launch flexibility, and volume flexibility by doing a postal survey of 120 manufacturers which in reverts 92 usable replies. Their findings discovered that the selection of suppliers based on technological and quality performance, which positively affects all the three dimensions of manufacturing flexibility, with balancing effects of good technology and quality roadmaps.