

**IMPACT OF SUPPLY CHAIN MANAGEMENT PRACTICES ON  
COMPETITIVE ADVANTAGE AND ORGANIZATION PERFORMANCE:  
EVIDENCE FROM THE MANUFACTURING INDUSTRY IN SRI LANKA**

*L.P.S Gamini*

*Faculty of Management Studies*

*The Open University of Sri Lanka, Nawala, Sri Lanka*

*Corresponding author: [lpgam@ou.ac.lk](mailto:lpgam@ou.ac.lk)*

*P. K Rajapaksa*

*Faculty of Management Studies*

*The Open University of Sri Lanka, Nawala, Sri Lanka*

**Abstract**

*This study was carried out to find the impact of supply chain management practices on organizational performance and competitive advantage among manufacturing organizations functioning under Board of Investment in Sri Lanka. Objective of the research was to find to what extent the supply chain management practices are used in these manufacturing organizations and the impact of the same on organization performance and competitive advantage. In addition to that, the influence of competitive advantage on organization performance also analyzed. Data was collected from 63 manufacturing organizations covering all sectors using a questionnaire distributed among most suitable respondents of relevant organization. Multiple regression analysis was used to analyze the impact of supply chain management practices on organization performance. Mediator impact of competitive advantage on organization performance was found using Boot Strap analysis. The study clearly explained that there is a significant relationship between supply chain management practices and organizational performance through five independent variables namely strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing and postponement. In addition to that, results also revealed that competitive advantage partially mediates the relationship between supply chain management practices and organization performance.*

**Keywords:** Strategic Supplier Partnership, Customer Relationship, Postponement, Quality, Market Performance, Financial Performance

**Introduction**

The requirement for effective and efficient Supply Chain Management (SCM) has now become a critical way to improve the organizational performance and competitive advantage to remain competitive in the market. The competition among organizations is affected by supply chain and in early 1990s this competition was

significantly enhanced as the delivery of the product or service at right place at a right time with lowest cost was taken place through global markets. With the rapid development of Sri Lanka, most of the organizations have now realized the importance of improving the efficiency and effectiveness of supply chain to achieve the better performance of the organization. As a result of that, organizations have to implement concepts and practices of Supply Chain Management to achieve higher organizational performances and to increase the profitability. The objective of SCM is to combine the flow of information plus substance to better utilization of supply chain as a productive weapon to stay competitive (Childhouse, 2003). According to Jones (1998) many organizations have started recognizing SCM as an important key to build sustainable competitive edge for their products and services in global market with crowded customer. Strategic Supplier Partnership is one of the key practices in Supply Chain Management and it has significant impact on the product quality and the organization performance and it emphasizes direct, long-term association and encourages mutual planning and problem solving efforts (Gunasekaran , 2001).

Manufacturing Industry in Sri Lanka can be categorized as Apparel, Electronic & Electrical, Food & Beverages, Rubber & Plastic Products, Leather Products, Construction Material, Furniture, Kitchen & Household Equipment, Cosmetic Products and Pharmaceuticals etc. Most of these manufacturing industries are administrated under Board of Investment (BOI) Sri Lanka. Fourteen Export Processing Zones and two industrial Parks operate under BOI at present. Other manufacturing facilities cover the local market requirement in large, medium and small scale. Most of the raw materials required for these manufacturing industries are imported since only few raw materials such as Rubber, Graphite, Limenite and Rutile etc are locally available.

Supply Chain Management has become an important operational activity in modern business scenario and it's an effective tool to improve the performance of an organization. In Sri Lankan, most of the BOI manufacturing companies use supply chain management practices in different capacities and approaches. MAS Holdings, Brandix Lanka Limited, Unilever Sri Lanka, Hemas Holdings PLC, Ceylon Tobacco are some of the key organization use supply chain management practices systematically and effectively. In addition to that there are other companies under BOI utilizing the supply chain management practices in proper manner since those organizations work with International business community. Based on the above understanding, the current study examines how Supply Chain Management Practices impact on competitive advantage and organization performance of Manufacturing Organizations that operate under Board of Investment in Sri Lanka?

### ***Objectives of the Study***

In order to address the above research problem, the study presents its objectives as:

1. To ascertain the extent to which Supply Chain Management Practices are used by the Manufacturing Organizations that operate under Board of Investments in Sri Lanka.
2. To investigate the relationship between supply chain management practices and the Organization Performance.
3. To analyze the mediating role of competitive advantage on the relationship between supply chain management practices and organization performance.

### **Literature review**

The concept of Supply Chain Management is based on two core ideas. The first is that practically every product that reaches an end user represents the cumulative effort of multiple organizations. These organizations are referred to collectively as the supply chain. The second idea is that while supply chains have existed for a long time, most organizations have only paid attention to what was happening within their “four walls.” Few businesses understood, much less managed, the entire chain of activities that ultimately delivered products to the final customer. This resulted in disjointed and often ineffective supply chains (Field, 2011). Thus, the Supply Chain Management is managing the supply chain activities to maximize customer value and achieve a sustainable competitive advantage. Supply chain management covers all activities like sourcing, production, logistic, product development and also the information system. Supply Chain is linked together with physical flow and information flow. Physical flow allows goods or material to be in or out while information flow allows various supply chain partners to coordinate their long term plans with respect to the physical flow.

Supply chain management practices have been defined as a set of activities undertaken in an organization to promote effective management of its supply chain. According to Donlon (1996), latest evolution of SCM practices is included supplier partnership, outsourcing, cycle time compression, continuous process flow, and information technology sharing. Tan (1998) uses purchasing, quality, and customer relations to represent SCM practices in their empirical study. Lyman (2002) identified supply chain integration, information sharing, supply chain characteristics, customer service management, geographical proximity and JIT capability as supply chain management practices. According to Chen (2004), supplier base reduction, long-term relationship, communication, cross-functional teams and supplier involvement to measure buyer–supplier relationships are identified as key elements. Min (2004) has identified the concept of SCM as agreed vision and goals, information sharing, risk and award sharing, cooperation, process integration, long-term relationship and agreed

supply chain leadership. Suhong (2004) conceptualized supply chain management practice as a five-dimensional construct. The five dimensions are strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and postponement. Thus, the literature portrays SCM practices from a variety of different perspectives with a common goal of ultimately improving organizational performance. However, there are a few practices that many of the authors have identified as SCM practices.

### ***Strategic Supplier Partnership***

Strategic Supplier Partnership is defined as the long-term relationship between the organization and its suppliers. It is signed to leverage the strategic and operational capabilities of individuals participating in organizations to help them to bring about significant benefits (Monczka, 1998). A strategic partnership emphasizes direct, long-term association and encourages mutual planning and problem solving efforts (Gunasekara, 2001). Such strategic partnerships are entered into to promote shared benefits among the parties and ongoing participation in one or more key strategic areas such as technology, products, and markets (Yoshino, 1995). Strategic partnerships with suppliers enable organizations to work more effectively with a few important suppliers willing to share responsibility for the success of the products. Suppliers participating early in the product-design process can offer more cost-effective design choices, help select the best components and technologies, and help in design assessment (Lyman, 2002). Strategically aligned organizations can work closely together and eliminate wasteful time and effort (Balsmeier, 1996). An effective supplier partnership can be a critical component of a leading edge supply chain (Noble, 1997).

### ***Customer Relationship***

Customer relationship comprises the entire array of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction (Tan, 1998). According to Noble (1997) and Tan (1998) customer relationship management has been considered as an important component of SCM practices. The growth of mass customization and personalized service is leading to an era in which relationship management with customers is becoming crucial for corporate survival (Wines, 1996). Good relationships with supply chain members, including customers, are needed for successful implementation of SCM programs.

### ***Level of Information Sharing***

Information sharing has two aspects: quantity and quality. Both aspects are important for the practices of SCM and have been treated as independent constructs in the past SCM studies. Level (quantity aspect) of information sharing refers to the extent to which critical and proprietary information is communicated to one's supply chain partner (Monczka, 1998). Shared information can vary from strategic to tactical in nature and from information about logistics activities to general market and customer information (Min, 2004). Many researchers have suggested that the key to the seamless supply chain is making available undistorted and up-to-date marketing data at every node within the supply chain (Childhouse & Towal, 2003). By taking the data available and sharing it with other parties within the supply chain, information can be used as a source of competitive advantage (Jones, 1998). According to Stein, (1998) supply chain partners who exchange information regularly are able to work as a single entity. Together, they can understand the needs of the end customer better and hence can respond to market change quicker. The empirical findings of Childhouse & Towal (2003) reveal that simplified material flow, including streamlining and making highly visible all information flow throughout the chain, is the key to an integrated and effective supply chain.

### ***Quality of Information Sharing***

Quality of Information Sharing includes such aspects as the accuracy, timeliness, adequacy, and credibility of information exchanged (Monczka, 1998). While information sharing is important, the significance of its impact on SCM depends on what information is shared, when and how it is shared, and with whom (Chizzo, 1998). Divergent interests and opportunistic behavior of supply chain partners, and informational asymmetries across supply chain affect the quality of information (Feldmann & Muller, 2003). It has been suggested that organizations will deliberately distort information that can potentially reach not only their competitors, but also their own suppliers and customers (Mason Jones, 1997). It appears that there is a built in reluctance within organizations to give away more than minimal information since information disclosure is perceived as a loss of power. Given these predispositions, ensuring the quality of the shared information becomes a critical aspect of effective SCM (Feldmann & Muller, 2003). Organizations need to view their information as a strategic asset and ensure that it flows with minimum delay and distortion.

### ***Postponement***

Postponement is defined as the practice of moving forward one or more operations or activities (making, sourcing and delivering) to a much later point in the supply chain (Beamon, 1998). Two primary considerations in developing a

postponement strategy are: (1) determining how many steps to be postponed, and (2) determining which steps to be postponed (Beamon, 1998). Postponement allows an organization to be flexible in developing different versions of the product in order to meet changing customer needs, and to differentiate a product or to modify a demand function (Wallere et. al., 2000). Keeping materials undifferentiated as long as possible will increase flexibility of an organization in responding to changes in customer demand. In addition, an organization can reduce supply chain cost by keeping undifferentiated inventories (Van Hoek et. al., 1999).

***Competitive Advantage***

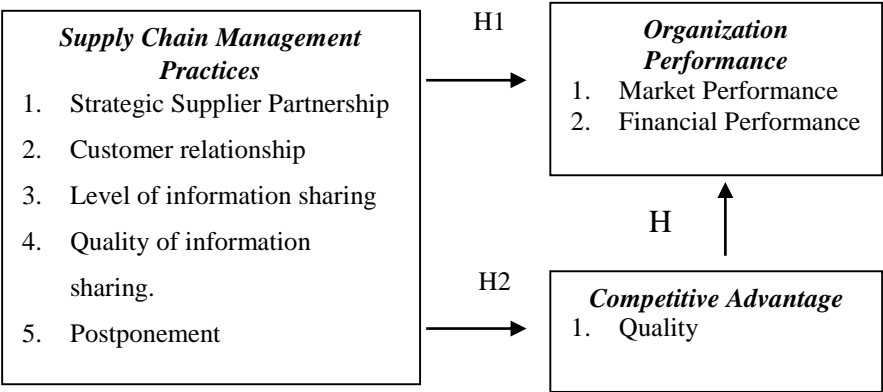
Competitive advantage is the extent to which an organization is able to create a defensible position over its competitors (McGennis et al., 1999). It comprises capabilities that allow an organization to differentiate itself from its competitors and it is an outcome of critical management decisions (Tracey, 1999).

***Organization Performance***

Organizational performance refers to how well an organization achieves its market-oriented goals as well as its financial goals (Yamins, 1999). The short-term objectives of SCM are primarily to increase productivity and reduce inventory and cycle time, while long- term objectives are to increase market share and profits for all members of the supply chain (Tan et al., 1998).

***Conceptual Framework***

According to Shuhong (2004) Supply Chain Management practice is conceptualized as a five-dimensional construct. The five dimensions are strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and postponement.



Based on the conceptual framework above, the following hypotheses have been formulated for the present study.

H<sub>1</sub>. Supply chain management practices have a positive impact on market performance and financial performance of the organization.

H<sub>2</sub>. Supply chain management practices have a positive impact on Competitive Advantage.

H<sub>3</sub>: Competitive Advantage significantly mediate the relationship between supply chain management practices and market performance and financial performance of the organization.

## **Methodology**

This study was carried out to investigate the Impact of Supply Chain Management Practices on Competitive Advantage and Organization Performance in Manufacturing Organizations under Board of Investment in Sri Lanka. Data was collected from respondents having extensive knowledge about Supply Chain, Production, Finance, Sales and Marketing in selected organization. They were asked to refer their major suppliers and customers when answering the question. Questionnaires were distributed through email and most of the respondents are contacted personally and some were taken from web. Questionnaires to group of companies were distributed through single contact which was initiated personally, and the same person was asked to collect the responses of all of them and submit. Web contacts were found by searching GOOGLE for companies and through mobile call for responsible persons. Several reminders were sent for almost all the respondents to get the questionnaire completed.

The sample size used for this study is sixty three (63) respondents covering the different manufacturing industries such as Apparel, Electronic & Electrical, Steel Fabrication, Mold Making & Machining, Aeronautical, Nautical, Packaging and others affiliated industries operating under Board of Investment Sri Lanka. The sample size is narrowed down since the time frame is limited.

**Table 1:** Sample Composition

<b>Industry</b>	<b>Distributed</b>	<b>Percentage</b>
Apparel	21	33.33
Electronic & Electrical	9	14.28
Steel Fabrication	7	11.11
Mould Making & Machining	5	7.94
Aeronautical	2	3.17
Nautical	1	1.59
Packaging	3	4.76
Other	15	23.81
<b>Total</b>	<b>63</b>	<b>100.00</b>

The questionnaire used for the study was adapted from the previous studies as embedded in the literature review (Suhong ,2004) with certain adjustments align with Sri Lankan context. A pilot study was done to recognize any ambiguity of potential source of errors in the format of working of the questions. The result of the pilot study refined the questionnaire with some minor adjustment and changes which help respondents to understand the content easily. The reliability analysis is used to establish both the consistency and stability of the research instrument. Cronbach's Alpha value is calculated to test the internal consistency and reliability of the instrument. A rule of thumb suggests that the acceptance Cronbach's Alpha value should exceed 0.7. The following table shows the summary of scores of Supply Chain Management Practices, Competitive Advantage and Organizations Performance for validation purpose.

**Table 2:** Reliability

<b>Variable Type</b>	<b>Variable Description</b>	<b>Conbrach's Alpha</b>	<b>No of Items</b>
Independent	Strategic supplier Partnership	0.739	5
	Customer Relationship	0.794	3
	Level of Information Sharing	0.701	6
	Quality of Information Sharing	0.644	4
	Postponement	0.599	2
Mediator	Quality	0.709	2
Dependent	Market Performance	0.922	3
	Financial Performance	0.885	3

All factors except two among independent, dependent and mediator variable exhibit the Conbrach's Alpha values greater than 0.7. Hence the reliability level of the questionnaire is sound and all independent variables, mediator and dependent variables are retained. Conbrach's Alpha value of Postponement is considerably low compared to all other factors and Market Performance and Financial Performance had greater Conbrach Alpha Value. Data was analyzed using descriptive and inferential statistical techniques. The responses to each question as well as the overall responses to each main statement are analyzed using descriptive statistics. The relationship between the dependent variable and each independent variable was analyzed using the Multiple Regression Analysis. All statistical analysis was done using SPSS (Statistical Package for Social Science) Computer Software.

## Findings and Discussion

The results of descriptive analysis shown in tables 3 to 7 revealed that the extent to which the Supply Chain Management Practices are used in Manufacturing Organizations operating under Board of Investment in Sri Lanka. In the Sri Lankan context almost all factories operating under BOI import raw materials or parts for the manufacturing process and export finished products to end customers in Europe, USA and Western Countries. Hence the employment of supply chain management practices is very important for industries of this nature.

### *Strategic Supplier Partnership*

Strategic Supplier Partnership is defined as the long term relationship between the organization and its suppliers. There are several practices that maintain the long term relationship with suppliers and following measurements show to what extent these organization use the same practices.

**Table 3 : Strategic Supplier Partnership**

	SD %	DA%	N %	A %	SA%
We consider quality as our number one criterion in selecting suppliers.	0.00	13.33	46.67	13.33	26.67
We regularly solve problems jointly with our suppliers.	0.00	16.67	30.00	46.67	6.67

---

We have helped our suppliers to improve their product quality.	3.33	23.33	50.00	16.67	6.67
We have continuous improvement programs that include our key suppliers.	3.33	30.00	36.67	30.00	0.00
We actively involve our key suppliers in new product development processes.	6.67	23.33	26.67	33.33	10.00

---

The results show that 40% of the respondents considered the quality as number one criterion selecting suppliers while 13.33% do not consider the same as the prime factor. In Sri Lankan context almost all the fabrics are imported for Garment Industry, steels and components are imported for Mechanical related Manufacturing Industries, Thermoplastics are imported for Plastic Injection Molding Industry and Electronic components, Copper, PVC are imported for Electrical and Electronic Industry. Hence the quality is considered as the number one criteria selecting suppliers which could reduce the down time cost and cost of rejection due to low quality supplies. If there are quality issues of supplies, it seems that these organizations regularly solve problems jointly with suppliers and the same is indicated since the 53.37% respondents use it as a practice. 23.34% of organizations help their suppliers to improve the product quality and it seems to be that they should improve this practice further. These organizations may have faced difficulties in organizing continuous improvement programs including their key suppliers since most of the suppliers are operating in overseas countries. But they may do it through sample approval process and it indicates since 30% of respondents agree on that. These organizations get involved with their suppliers in new product development process since 43.33% of respondents have agreed on the same. As an example, Garments Industry always get strongly involved with their fabric suppliers in new product development process. These figures indicate that Strategic Supplier Partnership is moderately high among these organizations.

### ***Customer Relationship***

Customer relationship comprises the entire array of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction which lead these organizations to improve their performance. Therefore, it is important to study the level of customer relationship that exist among these organizations.

**Table 4:** Customer Relationship

<b>Dimensions</b>	<b>SD%</b>	<b>D%</b>	<b>N %</b>	<b>A%</b>	<b>SA%</b>
We frequently measure and evaluate customer satisfaction.	0.00	6.67	43.33	16.67	33.33
We frequently determine future customer expectations.	0.00	10.00	36.67	33.33	20.00
We periodically evaluate the importance of our relationship with our customers.	6.67	30.00	33.33	26.67	3.33

The results show that 50% of the respondents frequently measure and evaluate customer satisfaction and 53.33% of the respondents frequently determine the future customer expectations. This exhibit that these organizations are aware about the importance of customer relationship to improve their supply chain. In addition to that they generally evaluate the importance of their relationship with their customers and this was indicated by 30% of respondents. These figures reflect that the customer relationship is practiced at moderate level among these organizations.

### ***Level of Information Sharing***

Level of information sharing refers to the extent to which critical and proprietary information is communicated to supply chain partner. This is an important practice with respect to both supplier and customer and the extent which the organization uses these practices are also important factor to be discussed.

**Table 5:** Level of Information Sharing

<b>Dimensions</b>	<b>SD%</b>	<b>D%</b>	<b>N %</b>	<b>A%</b>	<b>SA%</b>
We inform trading partners in advance of changing needs.	0.00	6.67	26.67	50.00	16.67
Our trading partners share proprietary information with us.	6.67	13.33	60.00	16.67	3.33
Our trading partners keep us fully informed about issues that affect our business.	0.00	20.00	70.00	6.67	3.33
Our trading partners share business knowledge of core business processes with us.	10.00	43.33	36.67	3.33	6.67
We and our trading partners exchange information that helps establishment of business planning.	0.00	26.67	40.00	33.33	0.00
We and our trading partners keep each other informed about events or changes that may affect the other partners.	6.67	23.33	30.00	33.33	6.67

The result show that 66.67% of respondents inform trading partners in advance of changing needs. The practicing level is high in this scenario and the same can reduce the delays and financial losses of both suppliers and customers. The result shows that 53.33% of respondents does not share business knowledge of core business processes with trading partners. Other practices constructed as sharing property information, issues that affect to the business, exchange information that helps establishment of business planning and events or changes that may affect the other partners are mostly neutral or are not practiced by all respondents. It seems that these organizations have not properly identified the importance of sharing information between suppliers and customers.

### ***Quality of Information Sharing***

Quality of Information Sharing includes such aspects as the accuracy, timeliness, adequacy, and credibility of information exchanged between the trading partners. These practices are critical and in line with personal efficiency and effectiveness. Hence measuring to what extent these practices are used among the selected organizations is necessary.

**Table 6:** Quality of Information Sharing

<b>Dimensions</b>	<b>SD%</b>	<b>D%</b>	<b>N %</b>	<b>A%</b>	<b>SA%</b>
Information exchange between our trading partners and us is timely.	0.00	6.67	36.67	33.33	23.33
Information exchange between our trading partners and us is accurate.	3.33	3.33	46.67	23.33	23.33
Information exchange between our trading partners and us is complete.	0.00	16.67	43.33	23.33	16.67
Information exchange between our trading partners and us is reliable.	0.00	13.33	36.67	30.00	20.00

The result shows that all sub practices under quality of information sharing is practiced by these organizations at higher level since more than 50% of respondents confirmed that they practice the same at higher scale. Since most of the manufacturing organizations under BOI imports raw materials then produce finished items through value addition and export to Europe, USA and other westerns countries, the quality information should be exchanged between their trading partners. These practices can expand the business trust among trading partners (both suppliers and customers). Timely, accurate, complete, adequate and reliable information is exchanged between their trading partners. At present, information is exchanged internationally using modern technology such as emails, phone call, Viber, WhatsApp, Imo, Skype, fax so

on. Hence information can be exchanged timely, accurately and completely if the same is compiled adequately and reliably. Less quality information can lead to misunderstanding and miscommunication which could downgrade the entire business process. Organization should ensure that the information flows with minimum delay and distortion.

### ***Postponement***

Postponement is defined as the practice of moving forward one or more operations or activities (making, sourcing and delivering) to a much later point in the supply chain. This is a very sensitive practice and by studying to what extent postponement practices take place the Sri Lankan scenario can be explained correctly.

**Table 7:** Postponement

<b>Dimensions</b>	<b>SD%</b>	<b>D%</b>	<b>N %</b>	<b>A%</b>	<b>SA%</b>
We delay assembly activities of final product until customer orders have actually been received.	26.67	36.67	10.00	23.33	3.33
We delay assembly activities of final product until the last possible position.	10.00	33.33	36.67	10.00	10.00

The results indicate that most of the respondents are not in agreement in delaying the final product assemblies until the customer order have been received or do not delay the production until the last possible position. This result reflects the present situation in Sri Lanka for exports and imports. The logistic is the main issue in Sri Lanka in both Imports and Exports. Organization cannot wait until the last possible position to produce their goods since the logistic is uncertain. This happens due to changes in government policy and actions of employee unions that take place time to time in places like Sea Port, Airport, Custom, Ceylon Electricity Board, Ceylon Petroleum, Container Owners, Clearing Agents etc. Sometimes bad weather and electricity discontinuity can have an impact on delays of both imports and exports. In addition to that, trade union actions of internal employees can have a negative impact on the production process and make the organizations suddenly stop the production. So many organizations try to keep a buffer stock for fast moving products rather than going for last possible option or postponement.

### ***Result of Regression Analysis***

To examine the effect of Supply Chain Management Practices on Competitive Advantage and Organization Performance in BOI Manufacturing Industries in Sri Lanka, multiple regression analysis has been performed using SPSS software. Before presenting the econometric results, several tests were carried out to test the multicollinearity among independent variables.

Following abbreviation used to refer to the variables used.

<i>SSP</i>	: <i>Strategic Supplier Partnership</i>
<i>CR</i>	: <i>Customer Relationship</i>
<i>LIS</i>	: <i>Level of Information Sharing</i>
<i>QIS</i>	: <i>Quality of Information Sharing</i>
<i>P</i>	: <i>Postponement</i>
<i>Q</i>	: <i>Quality</i>
<i>MP</i>	: <i>Market Performance</i>
<i>FP</i>	: <i>Financial Performance</i>

**Table 8 :** Collinearity Statistics

	Collinearity Statistics	
	Tolerance	VIF
SSP	0.613	1.630
CR	0.589	1.697
LIS	0.697	1.434
QIS	0.645	1.549
P	0.896	1.116

Test of multicollinearity gives statistic values for the Variance Inflation Factor (VIF) and the tolerance of all the variables. According to standard, all VIF values should be below 5 or all Tolerance values should be higher than 0.1 to be considered as no multicollinearity data. As it can be seen from this table, VIF values of all independent variables are much less than five and all tolerance values are much higher than 0.1. Hence there is no multicollinearity within this data set.

***The effect of Supply Chain Management Practices on Market Performance*****Table 9:** Model Summary (MP)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.866 <sup>a</sup>	.750	.698	.47308
a. Predictors: (Constant), P, CR, LIS, QIS, SSP				

The R Square value for the model of Market Performance with Supply Chain Management Practices is 0.75 which indicates that the Supply Chain Management Practices explained 75% of the variation in Market Performance.

**Table 10:** ANOVAa (MP)

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	16.139	5	3.228	14.422	.000 <sup>b</sup>
Residual	5.371	24	.224		
Total	21.510	29			

a. Dependent Variable: MP

b. Predictors: (Constant), P, CR, LIS, QIS, SSP

The calculated F ratio is 14.42 which is significant at 1% level of significance ( $p < 0.001$ ) and supports the reliability of the explanatory power of the model.

**Table 11:** Regression Result (MP)

Variable	Co-efficient	t-statistics	Sig.
(Constant)	-.756	-1.103	.281
SSP	.260	1.566	.130
CR	.309	2.221	.036
LIS	.312	1.623	.118
QIS	.547	3.351	.003
P	-.153	-1.626	.117

a. Dependent Variable: MP

The results of the regression analysis reveal that the Quality of Information Sharing has shown the highest regression coefficient of 0.547 with the 0.003 level of significance. Hence Quality of Information Sharing can be considered as the best predictor in determining the Market Performance. This means timely, accurate, complete and reliable information sharing among trading partners can improve the market performance. Similarly, Customer Relationship ( $B=0.309$ ,  $p < .05$ ) also have a

significant effect on market performance. This is obvious and further justified by this study. Further, the regression result shows that there is no significant impact of Strategic Supplier Partnership, Level of Information Sharing and Postponement on the Market Performance.

### *The impact of Supply Chain Management Practices on Financial Performance*

**Table 12:** Model Summary (FP)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.874 <sup>a</sup>	.765	.716	.40542
a. Predictors: (Constant), P, CR, LIS, QIS, SSP				

The R Square value for the model of Financial Performance with Supply Chain Management Practices is 0.765 which indicates that the Supply Chain Management Practices explained 76.5% of the variation in Financial Performance.

**Table 13:** ANOVAa (FP)

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	12.810	5	2.562	15.587	.000 <sup>b</sup>
Residual	3.945	24	.164		
Total	16.754	29			

a. Dependent Variable: FP

b. Predictors: (Constant), P, CR, LIS, QIS, SSP

The calculated F ratio is 15.587 which is significant at 1% level of significance ( $p < 0.001$ ) and supports the reliability of the explanatory power of the model.

**Table 14:** Regression Result (FP)

	Co-efficient	t-statistics	Sig.
(Constant)	-.519	-.884	.385
SSP	.336	2.360	.027
CR	.312	2.611	.015
LIS	.133	.806	.428
QIS	.459	3.282	.003
P	-.087	-1.071	.295

a. Dependent Variable: FP

The results of the regression analysis reveal that the Quality of Information Sharing has shown the highest regression coefficient of 0.459 with the 0.003 level of significance. Hence Quality of Information Sharing can be considered as the best predictor in determining the Market Performance. This means timely, accurate, complete and reliable information sharing among trading partners can improve the Financial Performance. Similarly, Customer Relationship (significant value 0.015 and regression coefficient 0.312) and Strategic Supplier Partnership (significant value 0.027 and regression coefficient 0.336) are found to have a significant effect on financial performance. Further the regression result shows that there is no significant impact of Level of Information Sharing and Postponement on the Financial Performance since the significant values of these three variables are greater than 0.05. This finding indicates that manufacturing organizations under BOI have not taken enough initiatives in this regard.

***The impact of Supply Chain Management practices to Competitive Advantage***

**Table 15:** Model Summary (CA)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.753 <sup>a</sup>	.568	.478	.54849

a. Predictors: (Constant), P, CR, LIS, QIS, SSP

The R Square value for the model of Competitive Advantage with Supply Chain Management Practices is 0.568 which indicates that the Supply Chain Management Practices explained 56.8% of the variation in Competitive Advantage.

**Table 16:** ANOVA<sup>a</sup> (CA)

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	9.480	5	1.896	6.302	.001 <sup>b</sup>
Residual	7.220	24	.301		
Total	16.700	29			

a. Dependent Variable: Q

b. Predictors: (Constant), P, CR, LIS, QIS, SSP

The calculated F ratio is 6.302 which is significant at 1% level of significance ( $p < 0.001$ ) and supports the reliability of the explanatory power of the model.

**Table 17: Regression Analysis (CA)**

	Co-efficient	t-statistics	Sig.
(Constant)	.709	.892	.381
SSP	.352	1.826	.080
CR	.153	.949	.352
LIS	-.269	-1.207	.239
QIS	.648	3.423	.002
P	.016	.144	.887
a. Dependent Variable: Q			

The economical result of the regression analysis reveals that the Quality of Information Sharing has shown the highest regression coefficient of 0.648 with the 0.002 level of significance. Hence Quality of Information Sharing can be considered as the best predictor in determining the Competitive Advantage. This means timely, accurate, complete and reliable information sharing among trading partners can improve the Quality of Product. Further the regression result shows that there is no significant impact of Strategic Supplier Partnership, Customer Relationship, Level of Information Sharing and Postponement on Competitive Advantage since the significant value of these four variable is greater than 0.05.

***The Mediator Effect on the Indirect Impact of Supply Chain Management Practices on Organization Performance***

The Competitive Advantage is considered as mediator variable to measure the indirect impact of Supply Chain Management practices on Organizations Performance. The analysis was done using SPSS Process Version 3.0 written by Andrew F. Hayes 2018.

Following abbreviation used to refer the relevant variables.

Y	: DV1	: Market Performance
Y	: DV2	: Financial Performance
X	: IV1	: Strategic Supplier Partnership
X	: IV2	: Customer Relationship
X	: IV3	: Level of Information Sharing
X	: IV4	: Quality of Information Sharing
X	: IV5	: Postponement
M	: Mediate	: Competitive Advantage

**Note:** Full result sheet of Boot Strap Analysis is given in appendix ii

***The Indirect Impact of Supply Chain Management Practices on Market Performance***

**Table 18:** Boot Strap Result Summary (MP)

Independent Variable (X)	Mediated	Dependent Variable (Y)	Effects	BootSE	BootLICI	BootULCI
IV1	Quality	DV1	0.3046	0.1071	0.0839	0.5081
IV2	Quality	DV1	0.2579	0.0983	0.0768	0.4678
IV3	Quality	DV1	0.1717	0.1936	-0.2272	0.5376
IV4	Quality	DV1	0.2887	0.1407	0.007	0.5777
IV5	Quality	DV1	0.0782	0.1222	-0.381	0.1099

The Boot Strap analysis result reveals that the Strategic supplier Partnership, Customer Relationship and Quality of Information Sharing have indirect impact on Market Performance and the same is influenced by competitive advantage. Level of Information Sharing and Postponement has no indirect impact on Market Performance.

***The Indirect Impact of Supply Chain Management Practices on Financial Performance***

**Table 19:** Boot Strap Result Summary (FP)

Independent Variable (X)	Mediate	Dependent Variable (Y)	Effects	BootSE	BootLICI	BootULCI
IV1	Quality	DV2	0.3154	0.1098	0.0926	0.5391
IV2	Quality	DV2	0.2791	0.0836	0.1292	0.4607
IV3	Quality	DV2	0.1807	0.2171	-0.2143	0.6233
IV4	Quality	DV2	0.4088	0.1386	0.1999	0.7592
IV5	Quality	DV2	-0.0809	0.117	-0.3432	0.1159

The Boot Strap analysis result reveals that the Strategic supplier Partnership, Customer Relationship and Quality of Information Sharing have indirect impact on Financial Performance and the same is influenced by competitive advantage. Level of Information Sharing and Postponement has no indirect impact on Financial Performance.

## **5. Conclusion and Recommendation**

Findings of this research shows that there is a significant impact of Supply Chain Management Practices both directly and indirectly on Organization Performance. The most BOI companies have adopted the various Supply Chain

Management Practices and there are rooms for improvement as well. This study provided empirical evidence that the Quality of Information sharing has great influence on Organization Performance as well the Competitive Advantage. The indirect impact of Quality of Information sharing on Organization Performance depends on the Product Quality. If the products that are manufactured in BOI companies in Sri Lanka are not durable and not good in quality, the Organization Performances cannot be increased only by sharing quality information with their trading partners. Hence these organizations should focus on both product quality and information quality to improve the Market Performance and Financial Performance.

According to the study, Customer Relationship has positive impact on Market Performance. In addition to that, the Strategic Supplier Partnership combined with Customer Relationship have a positive impact on Financial Performance. Both these practices cannot be energized alone and the product quality has a significant influence on these practices in order to improve the Organization Performance. Competitive advantage (The product quality) mediates the supply chain management practices thus improving the organization performance. This research is based on manufacturing organizations operating under BOI Sri Lanka and this area can be further researched in relation to other manufacturing organizations functioning not under BOI to justify and validate the findings of the study.

## References

- Balsmeier, P. W., & Vosin, W. J. (1996). Supply Chain Management: a timebased strategy. *Industrial Management*, 38(5), 24-27.
- Beamon, B. M. (1998). Supplychain design and analysis models and methods. *International Journal of Production Economics*, 55(3), 281-294.
- Chen, I. J. & Anton, P. (2004). Toward a Theory of Supply Chain Management; The Constructs and Measurement. *Journal of Operations Management*, 22(2), 119-150.
- Childhouse, P. T. & Towal, D. D. (2003). Simplified Material Flow Holds the key to Supply Chain Integration. *Omega*, 3(1), 17-27.
- Chizzo, S. A. (1998). Supplychain strategies:for the customer-driven enterprise. *Software Magazing, supply Chain Decisions supplyment*, 1(1), 4-9.
- Donlon, T. P. (1996). Maximizing Value in the supply Chain. *Chief Executives*, 117, 54-63.
- Feldmann, M. & Muller, S. (2003). An Incentive Scheme for Trur Infomation Providing in Supply Chain. *Omega*, 31(1), 63-73.

- Field, R. H. (2011). What is Supply Chain Management. *SCRC* .
- Gunasekaran A, P. C. (2001). Performance Measure and Metrics in Supply Chain Environment. *International Journal of Operation and Production Management* , 21(1),71-87.
- Jones, C. (1998). Moving Beyond ERP: Making the Missing Links. *Logistics Focus* , 6(7), 2-7.
- Lenny Koh, M. D. (2007). The Impact of Supply Chain Management Practices of Performance of SMES. *Industrial Management & Data Systems* , 107(1), 103-124.
- Lyman, S. B. & Wisner, T. K. (2002). Supply Chain Management : A Strategic Perspective. *International Journal of Operations and Production Management*, 22, 614-631.
- Mason-Jones R, T. (1997). Information enrichment: designing the supplychain for competitive advantage. *Supply Chain Management*, 2(4), 137-148.
- McGinnis, M. A. & Vallopra, R.M. (1999). Purchasing and Supplier Involvement in Process Improvement; a source of competitive advantage. *Journal of Supply Chain Management*, 35(3), 42-50.
- Min, S. & Mentzer, J. T. (2004). Developing and measuring supply chain Concepts. *Journal of Business Logistic*, 5(5), 63-99.
- Monczka, R.M. & Petersan, K. J., Handifild, R.D. & Ragatz, G. L. (1998). Success factors in strategic supplier alliances: the buying company perspective. *Decision Science* , 29(3): 5553-77.
- Noble, D. (1997). Purchasing and supplier management as a future competitive adge. *Logostic Focus*, 5(5), 23-27.
- Stein T, S. J. (1998). Killer Supply Chian. *Information Week* .
- Suhong Li, & Bhanu, R. N. (2004). The Impact of Supply Chain Management Practices of Competitive Advantage and Organizational Perfromance. *Omega*, 34, 107-124.
- Tan, K. C., Kanan, V. R. & Handifield, R.B. (1998). Supplier Performance and Firm Performance. *International Journal of Purchasing Material Management* , 34(3), 2-9.
- Tracey, M. V. M. (1999). Manufacturng technology and strategy formulation; keys to enhancing competitiveness and improving performance. *Journal of Operations Management* , 17(4),411-428.
- Van-Hoek, R.I., Harrison, A. Christoper, M. (1999). Commandeur HR. Restructuring European supplychain byimplementing postponement strategies. *Long Range Planning*, 32(5), 505-518.

Waller, A. M, & Dabholkar, P. A. (2000). Postponement, product customization and market-oriented supply chain management. *Journal of Business Logistics*, 21(2), 133-159.

Wines, L. (1996). High order strategy for manufacturing. *The Journal of Business Strategy*, 17(4), 32-33.

Yamin S, G. A. (1999). Relationship between Generic Strategy, Competitive Advantage and Firm Performance: An empirical analysis. *Technovation* , 507-18.

Yoshino M, R. S. (1995). Strategic alliances: an entrepreneurial approach to globalization. *Boston, MA: Harvard Business School*.