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FACTORS EFFECTING THE SUCCESS OF SUPPLY CHAIN PARTNERSHIPS –AN EMPIRICAL STUDY ON CHINESE AUTOMOBILE INDUSTRY

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Abstract---*This study goals to develop an empirical model to assess the factors that can affect the supply chain partnerships in the industry of automobile in China. The primary data was composed from both suppliers and automobile manufacturers by employing a specially developed questionnaire. The survey was examined using two statistical tools, which are Regression and T – tests. The results showed that the level related to the supply chain technologies usage is still very low. The further improvement of IT infrastructure of supply chain and interaction partnerships should be considered in order to keep the long – term relationship among partners.*

Keywords---*Automobile Industry, Supply Chain Partnerships, Supplier Relationship*

I. Introduction

The Automobile industry is a major and critical industry in China. By 2010, domestic production may reach 5 million units (not including motorcycles) making China one of the world's largest automobile markets (Gopal & Thakkar, 2016; De Silva et al., 2018a; De Silva et al., 2018b; Nikhashemi et al., 2013). Although supply chain partnerships are still in their infancy for most automakers and suppliers in China, they have realized that the lowing price is not the permanent way to expand the market. The best way is to make the supply chain more effective so that the cost of production and obtain competitive advantages can be obtained.

The specific objectives of the study are as follows:

1. To ascertain the level of supply chain practice in the automobile industry of China and to analyze the main problems that affect the supply chain partnerships.
2. To examine main factors that will influence a success of supply chain partnerships in Automobile industry in China.
3. To create a perceptual causal relationship model that relates the factors that can help managers ensure success in their partnerships efforts.

With the increase in globalization, ironically driven in part by IT, competition has increased at accelerated rates. Increased competition has led to firms focusing more on their core competencies and becoming less concerned about on vertical integration. This focus has led to increased specialization within the firm, which drives the need for firms to outsource more of their non-core functions. The result is that a firm must build more collaborative business relationships with constituencies beyond its formal boundaries. Moreover, tightly integrated sharing of information facilitates these relationships. As competition increases, the range of integration expands and the need to manage information becomes increasingly critical.

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The rise of CRM (Customer Relationship Management), SCM, and ERP are evidence of the need for information sharing and the fact that relationship among partners is becoming more and more important.

Today, supply chain and IT infrastructure in China is still a limitation for local and foreign companies. Compared to other developed countries, China has a fragmented and chaotic distribution system, local protectionism, a lack of third-party capabilities, problems with cash flow and accounts receivable. These conditions mean there are currently few efficient supply chains in China, and that improvement in these areas will take time. However, China's accession to the World Trade Organization in late 2001, and its increasing liberalization of governmental regulations, mean that modern Chinese supply chains are close at hand.

Next, previous research on adoption of supply chain partnerships were all conducted in the United States, Europe and Australia and the literature review indicated that little and perhaps no empirical investigations has been undertaken in China. To develop a model suitable for China, it was necessary to identify some factors which can be useful to understand the issue in the context of China market.

Finally, different industries adopt different kind of supply chains. Since this study only concentrates on the automobile industry, it is necessary to introduce and classify the supply chain which is suitable for the automobile industry and find out the factors and variables within this area (Zhang, Ma, & Qu, 2018; Dewi et al., 2019; Pambreni et al., 2019; Tarofder et al., 2017).

II. Literature Review

The automobile industry highlights the import of high quality, fuel efficient, and competitively priced automobiles. It forced automobile manufacturers to become more competitive or go out of business. Subsequently, one critical success factor in the industry has proven to be effective supplier partnering. Given this elements, the automobile industry served as an excellent source of research study.

China in particular has been recently a new age for automakers and parts suppliers, with unprecedented growth rates during the last 2-3 years. Nearly every global carmaker has already or is in the process of setting-up new production facilities there, representing large amounts of Capital Expenditures. Between the late 1970s and 2001, Chinas overall fleet of motor vehicles other than two-wheelers increased 10-fold, according to an article in the 3 December 2003 issue of Energy far Sustainable Development. Almost every global automaker has announced its intention to intention to increase its production in China. FOURIN estimates that there are approximately 616 foreign – funded automotive parts production projects established in China between 1983 and the first half of 2003, primarily by Japanese, US and European suppliers. The majority of the projects are joint ventures. In 2004, there are 1,114 corporations have expanded the auto export business and it increase 58 percent compared with 2003. In the first quarter of 2005, the corporations which deal auto export business is 1,954 and increase 110 percent compared with the same period of 2004. Many suppliers have been encouraged to locate in China by the vehicle manufacturers; especially since the majority of China's traditional domestic suppliers are not competitive. Foreign suppliers continue to announce plans to open or expand their Chinese operations to meet the anticipated demand of the growing Chinese automotive market.

Foreign investment in the car dealership market is still restricted because of the market access provisions and restrictions applying to all trading and distribution in China, irrespective of the product. If a foreign entity wants to establish a wholesale or retail business it needs to be one that is permitted to not only import vehicles, but also to distribute the cars to its customers. The latter still requires central level approval.

Another restriction is on the equity interest of a foreign investor: if the aggregate number of stores or sales outlets in China exceeds 30 and the products to be sold are cars, the proportion of the capital contribution of the foreign investor, at least until 11 December 2006, shall not exceed 49 per cent. Apart from this exception, car distribution projects permit a higher equity percentage for foreign investors than car manufacturing projects, where the limit of 50 per cent foreign participation still applies. Again, in implementing China's WTO commitments, foreign enterprises are also now authorized, with no equity restrictions, to set up franchise arrangements with Chinese dealers but this is, so far, a little-tested area. In the past, the Chinese government did not allow car dealerships to sell both domestically made vehicles and imported models. New provisions dealing with car trading, brand sales and used car sales do not address this issue, leaving room for administrative interpretation and practice (Gunasekaran, Subramanian, & Rahman, 2017; Doa et al., 2019; Maghfuriyah et al., 2019; Nguyen et al., 2019).

Since being admitted to the WTO China agreed to reduce tariffs and to abolish non-tariff barriers. Tariff reduction made imports already an alternative and forced price adjustments for domestically produced cars. As of 1 January 2005, in compliance with its WTO commitments, China abolished special licenses and quotas required for the import of cars. It is also no longer required or permitted to import cars only through designated warehouses in free trade bonded zones. At the same time, China has significantly liberalized its general foreign trade regime by introducing registration requirements for enterprises engaged in foreign trade, replacing earlier approval procedures. Table 1 shows the major changes after China entry into WTO.

Table 1: The major changes of Auto Industry after China entry into WTO

	Before entry into WTO	**After entry into WTO**
Tariffs	200% in 1980s; 80-100% in 1990s	25% by 2006
Import Quotas	30'000 vehicles a year allowed from foreign carmakers	Quota increased20% a year, phased out by 2006
Local content	40% in first year of production, increasing to 60%, 80% in second and third years, respectively	No local-content ratio requirement
Foreign participation in sales, distribution	Limited to wholesaling through joint ventures; prohibited from consolidating sales organizations of imports, joint ventures	Will be allowed to own vehicle wholesale, retail organizations; integrated sales organizations permitted by 2006
Auto financing for Chinese domestic customers	Foreign, non-bank financial institutions prohibited from providing financing	Foreign, non-bank financing permitted in selected cities prior to gradual

Supply chain management is defined as the systemic, strategic co-ordination of the traditional business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance

of the individual companies and the supply chain as a whole. Within this definition of supply chain management, the executives defined collaboration as a means by which all companies in the supply chain are actively working together towards common objectives, and is characterized by sharing information, knowledge, risk and profits. Sharing entails understanding how other companies operate and make decisions, and goes much deeper than co-operation. Collaboration is mutual goal-setting that goes far beyond a written contract (Han, Huang, & Macbeth, 2018; Pathiratne et al., 2018; Rachmawati et al., 2019; Seneviratne et al., 2019; Sudari). Supply industry economist provides the following simple definition: "supply chain management lets an organization get the right goods and services to the place they're needed at the right time, in the proper quantity, and at an acceptable cost". According to James B. Ayers, the supply chain is life cycle processes supporting physical, information, financial, and knowledge flows for moving products and service from suppliers to end – users. Supply chain management consists of firms collaborating to leverage strategic positioning and to improve operating efficiency. For each firm involved, the supply chain relationship reflects strategic choice (Hong, Zhang, & Ding, 2018). A supply chain is the collection of functional activities through which raw materials are converted into finished products for sale to a customer (Hussain, Mosa, & Omran, 2017; Nikhashemi et al., 2017; Tarofder et al., 2019; Ulfah et al., 2019; Tarofder et al., 2016; Udriyah et). The term supply chain management is therefore synonymous with business logistics management, expect that the latter is commonly misconstrued to have a narrower connotation focused mainly on transportation of goods. They use the term integrated business logistics management to reflect the need to coordinate the management of both the product supply (materials management) and subsequent product delivery (distribution) activities; however, the term supply chain management has proven more popular. Similarly, some authors have felt that the term supply chain has a connotation that is limited to supplier processes and does not emphasize the customer or distribution processes involved (Hussain, Mosa, & Omran, 2018). Particular industry and company will use different supply chain for the purpose of improving the long – term partnership and performance. According to literatures, there are some kinds of supply chain as follow:-

- horizontal integration and vertical integration

The horizontal integration of the supply chains is achieved through the physical amalgamation of complementary product flows. The vertical integration of the supply chains is achieved through the logical treatment of individual supply chains as independent processes.

- Traditional Customer-Supplier Relationship

The 'traditional' customer–supplier relationship is defined by the law of supply and demand. Suppliers are chosen on the basis of low prices. Cost reductions are achieved as suppliers play off against each other. Customer–supplier relationships of this type show low intensity in terms of entrepreneurial cooperation.

- Corporation suppliers relationship

A traditional way of coping with the uncertainties of quality variation, the supplier unreliability and the customer unpredictability has been to build inventory. This is now regarded as costly and inflexible – many companies had both high stock and frequent stock outs, i.e. the wrong stock was accumulated and no benefits accrued to the customer. The corporation suppliers' relationship is the coordination of strategic and long-term cooperation among co-producers in the total logistics network for the development and elaboration of products, both in production and procurement as well as in product and process innovation. Each co-producer is active within its own area of core competence. The choice of co-producer is made with chief importance according to its potential towards realization of short lead times (Zaid, Jaaron, & Bon, 2018).

- Virtual companies

The concept of virtual supply chain aims at utilizing the advantages of supply chain management as soon as the customer defines its individual needs. In order to fulfill those needs, several co-producers – or departments of a company – must join. To the customer, they stand as a single company, but later they will separate again. These same departments may then join other companies to form new virtual organizations. The virtual company is cooperation for a limited period between numerous independent firms for performing certain services or manufacturing products, that is to say, they cooperate temporarily in order to achieve their common business goals. Similarly to a big firm, it can overcome the complete lifecycle of a service or product, then after the accomplishment of the order it will disintegrate (Zaid et al., 2018).

A Virtual organization is a short-term form of cooperation among legally independent co-producers in a logistics network of potential business partners for the development and manufacturing of a product. This is true for procurement and production, as well as for product and process innovation. Co-producers fulfil the service on the basis of mutual values and act towards the third party as a single organization. Each co-producer is active within the area of its core competence. The choice of co-producer depends upon the co-producer's innovative power and its flexibility to act as a partner in the logistics network (Zaid et al., 2018).

- Selection and Development

A related binary model of buyer supplier relations is used in another large-scale research project carried out in North America, by the University of Michigan and the consulting firm AT Kearney (Hussain, Musa, & Omran, 2019). They suggested two ways manufacturers relate to their suppliers, the "selection model" and the "development model". The selection model calls for switching suppliers to meet shifting pricing, innovation or quality targets, and market opportunities. It relies on its suppliers to manage their own productivity and cost improvements. The selection model exploits the momentary advantages of the current market transaction. Suppliers working with manufacturers that utilize the selection model experience constant pressure for cost reductions and productivity improvements, along with the specter of potential "de-sourcing."

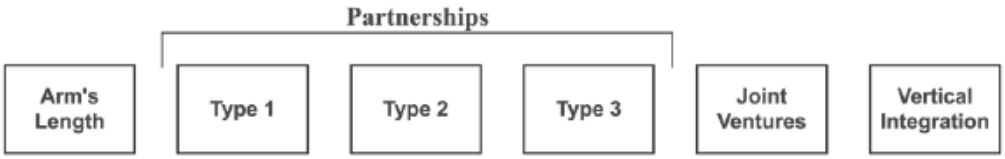
The development model demands evolutionary change by requiring that suppliers continually take part in processes that lead to both cost reduction and productivity improvements. Manufacturers employing the development model see the relationship with the supplier as one of mutual reliance where both work together toward the same goals. As in the selection model, suppliers in the development model are measured by strict performance metrics. However, manufacturers that employ the development model tend to intervene internally with underperforming suppliers to correct their deficiencies instead of de-sourcing them (Hussain, Musa, & Omran, 2018).

- Short – term and long – term

Lambert et al. (1996) propose that there are three kinds, depending on their character (see Figure 1):

- "short – term" (type 1)
- "long – term" (type 2); and
- "long – term, with no end" (type 3).

Figure 1 short – term and long – term partnerships



Source: Lambert *et al*. (1996, p. 2)

Substantial resources are required to successfully manage long – term relationships. Although it is helpful to use the time dimension to differentiate between partnership types (as Lambert et al., 1996, have), in practice, it cannot be assumed that a manufacturer and a supplier in a long – term relationship see themselves in partnership. It could be that the manufacturer has purchased the product from the supplier over several years due to a consistently low price, their relationship may not go anywhere beyond the placing of an order and its delivery. Partnerships are a special form of supplier – manufacturer relationship; they are much closer than other forms and a deeper analysis than that of simply the time dimension.

Yu, Chavez, and Feng (2017), in their partnering conceptual framework, made an attempt to define the dimensions and characteristics of partnering. The dimensions considered within this framework are: trust, win-win outcomes where the benefits from waste reductions and market success are shared between the parties, long-term orientation, co-ordination, problem solving and flexibility. The characteristics of partnering, related to those dimensions, are: an inherent trust, sharing of risks and rewards, increase in joint competitiveness, expectation of continuity, continuous improvement focus, supplier development, joint strategy setting, joint planning, joint R&D, two-way communication, willingness to help one another, conflict resolution, flexibility in delivery and flexibility in agreements (Khan & Qianli, 2017).

Supply chain partnerships play an important role in automobile industry. Effective SCM involves building trust and relationships with long-standing suppliers, who are intimately included in the development and production of components. Improving partnerships along the supply chain seems to have significantly helped the growth of automakers. Yu, Jacobs, Salisbury, and Enns (2013) stated, "Inventory reduction and partnership improvement are the major benefits of implementing supply chain management" The supply chain network is increasing its complexity on a daily basis. The integration of the supply chain is the key to relieving the problems caused by variations and complexities in the system. Yu et al. (2013) indicated that managers understand that SCM is providing a competitive edge for their enterprises. They also know that SCM can reduce internal supply, storage, labor, and delivery costs—savings that can then be passed on to the customer.

According to Yu et al. (2017), it is one thing to have a well – designed supplier development program; it is another thing to assure that the program is well communicated and understood by the suppliers. Proactive collaboration in establishing the priorities, motives, and methods underlying the administration of the supplier development program requires the highest levels of communication. Basically, this is saying to increase communication among the different nodes in the supply chain. This will enable automobile companies to better understand what is going on throughout the supply chain. By increasing visibility, it will improve overall operations of the company (Kim & Chai, 2017).

The greater stability that the automobile suppliers find on the contractual duration and on the confidence in their customers, the more able they are to reduce lot production sizes and to increase the delivery frequency which at the end increase their market share (Kumar & Rahman, 2016). Some automotive manufacturers have established programs so that the suppliers may contribute with their ideas to reduce costs or improve the quality. The supplier may share the savings or the profits that the automaker obtains from the idea, or it can receive some equivalent "points" instead that will improve its assessment and

thus assure it a greater chance of gaining future business. The automobile manufacturers can therefore achieve economies thanks to the innovation inputs from their suppliers (Liu, Blome, Sanderson, & Paulraj, 2018).

According to Yu et al. (2013), commitment exists when an exchange partner believes that "an ongoing relationship with another is so important as to warrant maximum efforts at maintaining it; that is, the committed party believes the relationship is worth working on to ensure that it endures indefinitely". Commitment in buyer-seller relationships involves "stability and sacrifice" and allows the coordination advantages of vertical relationships and the entrepreneurial advantages of separate ownership (Luthra, Garg, & Haleem, 2016). Asymmetry in commitment exists in relationships where one partner shows more commitment than the other. Commitment is demonstrated by a willingness to dedicate specialized assets for a particular relationship, thus demonstrating that the buyer and seller can be relied upon for future support. Commitments involve pledges, credible commitments, idiosyncratic investments, and the dedicated allocation of resources, which become specific to a relationship (Nawaz, Afzal, & Shehzadi, 2013). Commitment is demonstrated in three ways: idiosyncratic or customized effort, attitude, and the long-term intention of the parties to remain in the relationship (Nawaz, Azam, & Bhatti, 2019). Sustained communication between parties is useful in shaping positively viewed commitment in terms of investments, attitude, and long-term orientation. In other words, commitment will facilitate two-way communication based on interactions (Savic, Djordjevic, Milosevic, Mihajlovic, & Zivkovic, 2017).

Hypothesis I:

H_0: There is no relationship between the long – term relationship and the factors of influencing supply chain partnerships.

H_1: There is a relationship between the long – term relationship and the factors of influencing supply chain partnerships.

Hypothesis II:

H_0 : There is no relationship between meeting clients' needs and the factors of influencing supply chain partnerships.

H_1 : There is relationship between meeting clients' needs and the factors of influencing supply chain partnerships.

Hypothesis III:

H_0: There is no relationship between advance technology & software and the factors of influencing supply chain partnerships.

H_1: There is relationship between advance technology & software and the factors of influencing supply chain partnerships.

Hypothesis IV:

H_0 : There is no relationship between accessories design and the factors of influencing supply chain partnerships.

H_1: There is a relationship between accessories design and the factors of influencing supply chain partnerships.

Hypothesis V:

H_0 : There is no relationship between performance targets and the factors of influencing supply chain partnerships.

H_1 : There is a relationship between performance targets and the factors of influencing supply chain partnerships.

III. Research Methods

This study is based on both primary data and secondary data. Primary data refer to information obtained firsthand on the variables of interest for the purpose of the study. For this study, the primary data is collected from four kind of automobile companies, which are Automobile Manufacture, Original Equipment Supplier, Automobile Dealer and Automobile Accessory Wholesaler. The secondary data is used to support the study and to give background information of the study. There are two major types of sampling designs: probability and non - probability sampling. For this study, the probability sampling was chosen, because every element in the population has a known and equal chance of being selected as a subject and offered the most generalizability. 1,325 questionnaires were sent out to auto-components supplier firms located all over China and 128 valid questionnaires were returned. The return rate is 9.67 percent. The sample size of 128 was collected from 12 provinces and 46 cities which are considered to be a fairly good representation of firm in terms of their geographical location.

IV. Findings

The findings includes the hypotheses testing that was developed in the preceding chapter of the study.

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.957	.915	.902	.30465

Table 2 depicts that the R square value is 0.915, which indicates that 91.5 percent of the variability of technology and software can be explained by this research model. This R square indicates a strong positive linear relationship between the factor of advance technology & software and independent variables and only less than 4 percent of the variability in dependent variable can be explained by other factors.

Table 3. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	110.533	17	6.502	70.055	.000
	Residual	10.209	110	.093		
	Total	120.742	127			

Based on the analysis in Table 3 analysis, the regression row shows that the sum of squares is 110.53, which implies that the variation of advanced technology and software can be explained by this research model. If the significance of 0.05 is chosen, it is found that the critical value of the F distribution is 1.72. As F statistic is 70.06, which is greater than 1.72, it can

be concluded that there is a significant quadratic relationship between the dependent and independent variables. The P – value of the F statistic is less than 0.05. It also proves that the 17 factors have significant relationship with advance technology and software.

Table 4. Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.133	.027		153.479	.000
Trust	3.467E-02	.120	.036	.288	.774
Effective communication	-.245	.137	-.251	-1.791	.076
Same expectation	-8.510E-02	.116	-.087	-.737	.463
Commitment	-3.533E-02	.129	-.036	-.275	.784
Guan Xi	-.406	.079	-.417	-5.141	.000
Product design	-.142	.145	-.146	-.985	.327
Culture	.509	.116	.522	4.379	.000
Reward and motivation system	-.108	.123	-.111	-.880	.381
Human involvement	.269	.093	.276	2.898	.005
Training and education	.319	.129	.327	2.467	.015
Stability of demand	.223	.087	.229	2.573	.011
Problem specific capability	.104	.120	.107	.867	.388
Information system integration	-.161	.115	-.165	-1.398	.165
Adopt software	.202	.109	.207	1.850	.067
IT infrastructure	-8.547E-02	.120	-.088	-.710	.479
IT investment and sourcing decision	.121	.166	.124	.729	.468
Measurement	.405	.151	.415	2.671	.009

Based on Table 4, the multiple regression equation of the dependent variable and independent variables can be presented as follow:

$$y = 4.133 + 0.003x_1 - 0.245x_2 - 0.009x_3 - 0.003x_4 - 0.406x_5 - 0.142x_6 + 0.509x_7 - 0.108x_8$$
$$+ 0.269x_9 + 0.319x_{10} + 0.223x_{11} + 0.104x_{12} - 0.161x_{13} + 0.202x_{14} - 0.009x_{15} + 0.121x_{16} + 0.405x_{17}$$

Referring to the T – test column, the highest T value is culture which is 4.379. It is greater than the 0.05 level of significance of 1.979. Therefore, H_0 is rejected. This supported the findings of McIvor and McHugh (2000) who maintained that organizational will have considerable difficulties in partnering with external entities if they cannot develop a partnering culture internally. Next, the T value of human involvement is 2.898. Since this number is greater than the critical T value of 1.979, H_0 is rejected. It indicates that human involvement has a linear relationship with the dependent variable of advance technology & software. The analysis determined that the T value of training and education is 2.467, which is above the

critical T value. This shows that most respondents agreed that to achieve successful supply chain partnerships, proper training and education of the partners are necessary. The T value of the other two factors which are stability of demand and measurement are also greater than the critical T value. Therefore, H_0 is rejected. Except these five factors, the T value of other independent variables is less than 1.979. Therefore, H_0 is accepted. It indicates that these factors do not have a significant relationship with the dependent variable. From this analysis, it can be concluded that the five factors (culture, human involvement, training and education, stability of demand and measurement) have a significant relationship with the dependent variable of advance technology and software.

Table 5. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.976	.952	.945	.28758

Table 5 presents that the coefficient of determination, namely, R square value as 0.952, which indicated that 95.2 percent of the variability in the accessories design can be explained by this research model. It implies a strong positive linear relationship between the factor of accessories design and the independent variables and only 5 percent of the sample variability in the dependent variable can be explained by other factors other than what is accounted for by the linear regression model that uses only square footage.

Table 6. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	181.778	17	10.693	129.292	.000
	Residual	9.097	110	.083		
	Total	190.875	127			

Table 6 highlighted that the regression sum of squares is equal to 181.778. This amount is subdivided into the sum of squares that is explained by the regression. The residual sum of squares is 9.097, which is the sum of squares that is unexplained by the regression. If the significance of 0.05 is chosen, it is found that the critical value of the F distribution is 1.72. Since F statistic is 129.292, which is well above 1.72, it can be concluded that there is a significant quadratic relationship between the dependent and independent variables. The P – value of the F statistic is less than 0.05. It also proves that the 17 factors have significant relationship with accessories design.

Table 7. Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.906	.025		153.676	.000
Trust	.754	.114	.615	6.631	.000
Effective communication	9.042E-02	.129	.074	.701	.485

Same expectation	-6.527E-02	.109	-.053	-.599	.551
commitment	-.182	.121	-.148	-1.498	.137
Guan xi	5.916E-02	.075	.048	.793	.430
Product design	-.492	.137	-.402	-3.605	.000
Culture	-7.774E-02	.110	-.063	-.709	.480
Reward and motivation system	.114	.116	.093	.979	.330
Human involvement	5.251E-02	.088	.043	.599	.550
Training and education	-.146	.122	-.119	-1.195	.235
Stability of demand	.374	.082	.305	4.567	.000
Problem specific capability	.311	.114	.254	2.739	.007
Information system integration	-.189	.109	-.154	-1.732	.086
Adopt software	1.819E-02	.103	.015	.177	.860
IT infrastructure	.171	.114	.139	1.501	.136
IT investment and sourcing decision	9.336E-02	.157	.076	.594	.553
Measurement	.344	.143	.281	2.406	.018

As Table 7 shows, the multiple regression equation of the dependent variable and independent variables can be presented as follow:

$$y = 3.096 + 0.754x_1 + 0.009x_2 - 0.007x_3 - 0.182x_4 + 0.006x_5 - 0.492x_6 - 0.008x_7 + 0.114x_8$$
$$+ 0.005x_9 - 0.146x_{10} + 0.374x_{11} + 0.311x_{12} - 0.189x_{13} - 0.002x_{14} + 0.171x_{15} + 0.009x_{16} + 0.344x_{17}$$

Based on the analysis of the T – test column, the T value of trust is 6.631 at the 5 percent level. Since the critical T - value is 1.979. Therefore, H_0 is rejected. The result of the other factor having high T value is stability of demand. As 4.567 is greater than 1.979, H_0 is rejected as well. It supports the literature review discussed in the earlier chapter that all of these product developments have been associated with drastic changes in consumer demand (Savic et al., 2017). Additionally, the T - values of problem specific capability and measurement are also greater than the critical T - value. Hence, H_0 is rejected. It proves the discussion in the literature review that the measurement of IT infrastructure is an ongoing process because IT infrastructure "must be continually exploited, otherwise the investment (in the infrastructure) will have failed. However, the T - value of the other 13 factors are less than the critical T - value, therefore H_1 was rejected, which means these factors have no significant relationship with accessories design. Based on the analysis above, it can be concluded that there are four factors (trust, stability of demand, problem specific capability and measurement) that have significant relationship with the dependent variable of accessories design.

Table 8. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	.971	.943	.934	.22279

According to Table 8, the value of R square is 0.943. Therefore, 94.3 percent of the variability in the performance targets can be explained by this research model. The other 6 percent of the sample variability in the dependent variable can be explained by other factors. It indicates that the dependent variable of performance targets has a strong positive linear relationship with the independent variables.

Table 9. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	89.509	17	5.265	106.081	.000
	Residual	5.460	110	.050		
	Total	94.969	127			

As displayed in Table 9 the regression sum of squares is 89.509 and the residual sum of square is 5.460. This indicates that 89.509 of the sum of squares can be explained by the regression and 5.460 of the sum of squares are unexplained by the regression. Using the 0.05 level of significance, the critical value of F distribution is 1.72, which is less than the F value of 106.081. Hence, it can be identified that there is a significant quadratic relationship between performance targets and the 17 factors of the independent variables. The p – value of F statistic is 0.000, which also proves that there is a linear relationship between the dependent and independent variables.

Table 10. Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.266	.020		216.620	.000
Trust	.578	.088	.668	6.558	.000
Effective communication	3.748E-02	.100	.043	.375	.709
Same expectation	-9.620E-02	.084	-.111	-1.139	.257
commitment	-4.700E-02	.094	-.054	-.500	.618
Guan Xi	-.242	.058	-.280	-4.186	.000
Product design	2.631E-02	.106	.030	.249	.804
Culture	-1.539E-02	.085	-.018	-.181	.857
Reward and motivation system	-.229	.090	-.265	-2.544	.012
Human involvement	.131	.068	.152	1.935	.056
Training and education	-7.865E-02	.095	-.091	-.832	.407
Stability of demand	.252	.063	.292	3.980	.000
Problem specific capability	.133	.088	.154	1.514	.133
Information system integration	-.157	.084	-.182	-1.865	.065

Adopt software	.132	.080	.153	1.659	.100
IT infrastructure	-.124	.088	-.143	-1.405	.163
IT investment and sourcing decision	5.007E-02	.122	.058	.412	.681
Measurement	.486	.111	.562	4.390	.000

Based on the analysis in Table 5.21, the multiple regression equation can be presented as follow:

$$y = 4.266 + 0.578x_1 + 0.004x_2 - 0.01_3 - 0.005x_4 - 0.242x_5 + 0.003x_6 - 0.002x_7 - 0.229x_8$$
$$+ 0.131x_9 - 0.008x_{10} + 0.252x_{11} + 0.133x_{12} - 0.157x_{13} + 0.132x_{14} - 0.124x_{15} + 0.005x_{16} + 0.486x_{17}$$

The highest T value of this analysis is trust which is 6.558. Using the critical T value of 1.979, it can be determined that the T value of trust is greater than the critical T value. Therefore, H_0 is rejected. This supports the findings that some supply chain partnerships fail due to a lack of the trust among the trading partners (Nawaz & Hassan, 2016). The T - value of measurement is also higher than the value of other independent variables, which is achieved: 4.390. It implies that, besides trust, adequate measurement of IT infrastructure is an important factor that affects auto companies target performances. The T - value of stability of demand is equal to 3.980, which is greater than the critical T - value of 1.979. Hence, H_0 is rejected. Apart from these three independent variables, the T - value of other factors were less than the critical T value of 1.979. Therefore, H_1 is rejected. To concluded, there are three independent variables (trust, stability and measurement) that affect the performance targets of supply chain companies. Other independent variables do not have a linear relationship with performance targets.

V. Discussions

Automobiles will be exported or sold domestically, auto companies require a robust local sourcing platform. The need is driven by the market's rapid growth, increasing margin pressures, global pressure on low-cost country sourcing, and the Chinese government itself. Government regulations will require specific components to be produced in China. The new regulations are expected to require 40 percent of cars sold in China to have been developed in China. China's existing crop of 9,000 local suppliers comprises of an immature market—not all of them have the right skills and not all are in solid financial position. In order to establish high performance, which creates a challenge, finding and nurturing the right mix of reliable partners to both support local production and fuel the company's global business is essential. Only when they find and develop cost competitive, skilled suppliers, will the OEMs be poised to fully leverage their investment in China, to serve a growing market and also to build a base for the exporting of automobiles and parts.

Although many initiatives are in play, China has seen little or no implementation of online systems for customs documentation, e - Payment or third-party management, or the management of supplier risk. Reliable data for due diligence is also not as publicly available as it is in the US and Europe. The result of these shortcomings is that more participants are needed to manage these largely manual supply chain operations. Additionally, low IT involvement has made it more difficult to track cargo, communicate with supply chain participants, and obtain and leverage data on customer needs and preferences.

Low technology adoption rates are also reflected in the fact that many state-owned enterprises and local companies have just started to implement enterprise resource planning (ERP) systems (Robert 2003). Yet, without a central repository of reliable transactional data and standardized business processes, it is difficult to achieve even basic levels of operational

excellence. It is also impossible to introduce more advanced supply chain initiatives, for which standardized and readily available data and reengineered processes are a prerequisite. However, among the handful of Chinese companies that have successfully and strategically implemented ERP solutions, most agree that the benefits outweigh the costs. As third-party providers develop sophisticated information technology solutions, Chinese companies will look to source ready-made solutions from them.

VI. Conclusion

The development of China's supply chains has long been constrained by local protectionism, unfair competition, and numerous government regulations at the national and provincial levels. By law, foreign trade corporations are required to sell goods through a distributor, and are forbidden to own distribution channels and logistics infrastructure. State distributors are not required to be commercially minded nor innovative; they simply are required to transport goods from producers to local distribution points.

China's multiple structure also results in a lack of control over both logistics service levels and point-of-sale activities because a number of sub - contractors are used by distributors. In reality, many manufacturers cannot control delivery times or condition, and control at the point of sale poses significant challenges for sales and marketing. A company that pays for shelf space, for example, will not know if their goods are stocked in the shelf space unless additional staffs are assigned to confirm it. Plus, wholesalers often are unable to provide information about customer demand or preferences, and they are not in a position—or are unwilling— to solicit feedback from customers.

VII. Limitations and Future Directions

Researchers could develop frameworks and methodologies to relate the role supply chain partnerships play to a firm's ultimate performance. Clearly, success in cooperation is often not a firm's final destination. The effect of this cooperation on the overall performance of the company is the next logical question to consider. We believe researchers will become interested in a comprehensive understanding of the factors related to overall organizational performance.

REFERENCES

[1] Gopal, P., & Thakkar, J. (2016). Sustainable supply chain practices: an empirical investigation on Indian automobile industry. *Production Planning & Control, 27*(1), 49-64.
[2] Gunasekaran, A., Subramanian, N., & Rahman, S. (2017). Improving supply chain performance through management capabilities: Taylor & Francis.
[3] Han, W., Huang, Y., & Macbeth, D. (2018). Performance measurement of cross-culture supply chain partnership: a case study in the Chinese automotive industry. *International Journal of Production Research, 56*(7), 2437-2451.
[4] Hong, J., Zhang, Y., & Ding, M. (2018). Sustainable supply chain management practices, supply chain dynamic capabilities, and enterprise performance. *Journal of cleaner production, 172*, 3508-3519.
[5] Hussain, M. S., Mosa, M. M., & Omran, A. (2017). The Mediating Impact of Profitability on Capital Requirement and Risk Taking by Pakistani Banks. *Journal of Academic Research in Economics, 9*(3), 433-443.
[6] Hussain, M. S., Mosa, M. M., & Omran, A. (2018). The impact of owners behaviour towards risk taking by Pakistani Banks: Mediating role of profitability *Journal of Academic Research in Economics, 10*(3), 455-465.
[7] Hussain, M. S., Musa, M. M., & Omran, A. (2019). The Impact of Regulatory Capital on Risk Taking By Pakistani Banks. *SEISENSE Journal of Management, 2*(2), 94-103.
[8] Hussain, M. S., Musa, M. M. B., & Omran, A. A. (2018). The Impact of Private Ownership Structure on Risk Taking by Pakistani Banks: An Empirical Study. *Pakistan Journal of Humanities and Social Sciences, 6*(3), 325-337.

[9] Khan, S. A. R., & Qianli, D. (2017). Impact of green supply chain management practices on firms' performance: an empirical study from the perspective of Pakistan. *Environmental Science and Pollution Research, 24*(20), 16829-16844.

[10] Kim, M., & Chai, S. (2017). The impact of supplier innovativeness, information sharing and strategic sourcing on improving supply chain agility: Global supply chain perspective. *International Journal of Production Economics, 187*, 42-52.

[11] Kumar, D., & Rahman, Z. (2016). Buyer supplier relationship and supply chain sustainability: empirical study of Indian automobile industry. *Journal of cleaner production, 131*, 836-848.

[12] Liu, Y., Blome, C., Sanderson, J., & Paulraj, A. (2018). Supply chain integration capabilities, green design strategy and performance: a comparative study in the auto industry. *Supply chain management: an international journal, 10*(1), 25-45.

[13] Luthra, S., Garg, D., & Haleem, A. (2016). The impacts of critical success factors for implementing green supply chain management towards sustainability: an empirical investigation of Indian automobile industry. *Journal of cleaner production, 121*, 142-158.

[14] Nawaz, M. A., Afzal, N., & Shehzadi, K. (2013). Problems of formally employed women: A case study of Bahawalnagar, Pakistan. *Asian Journal of Empirical Research, 3*(10), 1291-1299.

[15] Nawaz, M. A., Azam, M. A., & Bhatti, M. A. (2019). Are Natural Resources, Mineral and Energy Depletions Damaging Economic Growth? Evidence from ASEAN Countries. *Pakistan Journal of Economic Studies, 2*(2), 15-28.

[16] Nawaz, M. A., & Hassan, S. (2016). Investment and Tourism: Insights from the Literature. *International Journal of Economics Perspectives, 10*(4), 581-590.

[17] Savic, M., Djordjevic, P., Milosevic, I., Mihajlovic, I., & Zivkovic, Z. (2017). Assessment of the ISO 9001 functioning on an example of relations with suppliers development: empirical study for transitional economy conditions. *Total Quality Management & Business Excellence, 28*(11-12), 1285-1306.

[18] Yu, W., Chavez, R., & Feng, M. (2017). Green supply management and performance: a resource-based view. *Production Planning & Control, 28*(6-8), 659-670.

[19] Yu, W., Jacobs, M. A., Salisbury, W. D., & Enns, H. (2013). The effects of supply chain integration on customer satisfaction and financial performance: An organizational learning perspective. *International Journal of Production Economics, 146*(1), 346-358.

[20] Zaid, A. A., Jaaron, A. A., & Bon, A. T. (2018). The impact of green human resource management and green supply chain management practices on sustainable performance: An empirical study. *Journal of cleaner production, 204*, 965-979.

[21] Zhang, Y., Ma, E., & Qu, H. (2018). Transaction cost and resources based views on hotels' outsourcing mechanism: an empirical study in China. *Journal of Hospitality Marketing & Management, 27*(5), 583-600.

[22] De Silva A.D.A., Khatibi A., Azam S.M.F. (2018a). Can parental involvement mitigate swing away from science? Sri Lankan perspectives, Cogent Education

[23] De Silva A.D.A., Khatibi A., Azam, S. M. F. (2018b). Do the Demographic Differences Manifest in Motivation to Learn Science and Impact on Science Performance? Evidence from Sri Lanka, International Journal of Science and Mathematics Education

[24] Delafrooz N., Paim L.H., Khatibi A. (2009). Developing an instrument for measurement of attitude toward online shopping, European Journal of Social Sciences

[25] Dewi N.F., Azam, S. M. F., Yusoff S.K.M. (2019). Factors influencing the information quality of local government financial statement and financial accountability, Management Science Letters

[26] Doa N.H., Tham J., Khatibi A.A., Azam S.M.F. (2019). An empirical analysis of Cambodian behavior intention towards mobile payment. Management Science Letters

[27] Maghfuriyah A., Azam, S. M. F., Shukri S. (2019). Market structure and Islamic banking performance in Indonesia: An error correction model, Management Science Letters

[28] Nguyen H.N., Tham J., Khatibi A., Azam S.M.F. (2019). Enhancing the capacity of tax authorities and its impact on transfer pricing activities of FDI enterprises in Ha Noi, Ho Chi Minh, Dong Nai, and Binh Duong province of Vietnam , Management Science Letters

[29] Nikhashemi S.R., Paim L., Haque A., Khatibi A., Tarofder A. K. (2013). Internet technology, Crm and customer loyalty: Customer retention and satisfaction perspective , Middle East Journal of Scientific Research

[30] Nikhashemi S.R., Valaei N., Tarofder A. K. (2017). Does Brand Personality and Perceived Product Quality Play a Major Role in Mobile Phone Consumers' Switching Behaviour? Global Business Review

[31] Pambreni Y., Khatibi A., Azam, S. M. F., Tham J. (2019). The influence of total quality management toward organization performance, Management Science Letters

[32] Pathiratne S.U., Khatibi A., Md Johar M.G. (2018). CSFs for Six Sigma in service and manufacturing companies: an insight on literature, International Journal of Lean Six Sigma

[33] Rachmawati D., Shukri S., Azam, S. M. F., Khatibi A. (2019). Factors influencing customers' purchase decision of residential property in Selangor, Malaysia , Management Science Letters

[34] Seneviratne K., Hamid J.A., Khatibi A., Azam F., Sudasinghe S. (2019). Multi-faceted professional development designs for science teachers' self-efficacy for inquiry-based teaching: A critical review, Universal Journal of Educational Research
[35] Sudari S.A., Tarofder A.K., Khatibi A., Tham J. (2019). Measuring the critical effect of marketing mix on customer loyalty through customer satisfaction in food and beverage products, Management Science Letters
[36] Tarofder A.K., Azam S.M.F., Jalal A. N. (2017). Operational or strategic benefits: Empirical investigation of internet adoption in supply chain management, Management Research Review
[37] Tarofder A.K., Haque A., Hashim N., Azam, S. M. F., Sherief S. R. (2019). Impact of ecological factors on nationwide supply chain performance, Ekoloji
[38] Tarofder A.K., Jawabri A., Haque A., Azam S.M.F., Sherief S.R. (2019). Competitive advantages through it-enabled supply chain management (SCM) context, Polish Journal of Management Studies
[39] Tarofder A.K., Nikhashemi S.R., Azam S. M. F., Selvantharan P., Haque A. (2016). The mediating influence of service failure explanation on customer repurchase intention through customers' satisfaction, International Journal of Quality and Service Sciences
[40] Udriyah, Tham J., Azam, S. M. F. (2019). The effects of market orientation and innovation on competitive advantage and business performance of textile SMEs, Management Science Letters
[41] Ulfah R., Amril Jaharadak A., Khatibi A.A. (2019). Motivational factors influencing MSU accounting students to become a certified public accountant (CPA), Management Science Letters