

## **Supplier Satisfaction in Buyer-Supplier Relationships: Assessment from Supplier Perspective**

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### **Abstract**

The purpose of this study is to explore the factors that affect the supplier satisfaction in buyer-supplier relationships and to find out their causal relationships. This is done by identifying the related factors and their order in terms of its contribution to the overall supplier's satisfaction level. The paper develops a conceptual framework tested through a survey. Partial Least Squares path modelling (PLS) was the technique chosen to evaluate the proposed model. The results show that the important positive effects on supplier satisfaction in buyer-supplier relationships are the ones linked to Cooperation, Coordination, Payment policy, purchasing policy by this order. Surprisingly, the factor related to technology and digitization does not affect supplier satisfaction according to the study. Because of the survey approach, the research results are limited to the data collected. Further, the study is limited by relatively small sample size. This study shows practical guidance to the buying firms to measure level of supplier's satisfaction on its various activities and shows the areas for further improvement. Our findings might help managers from buying organization to better evaluate their relationships with suppliers and align their strategies accordingly. This research replicates and extends the previous research on supplier satisfaction in buyer-supplier relationship. This paper investigates why supplier's satisfaction is relevant for buyer-supplier relationships and what are the relevant factors associated. The findings expand the current understanding of these concepts by building upon practitioner input and survey data.

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**1. Introduction**

Purchasing is a very critical component of any supply chain function and contributes significantly to the costs of the running and maintaining the supply chain. Any savings in purchasing cost, benefits the organization's bottom line (Ganguly, 2013). According to Hesping et al. (2015), procurement acts as a strategic interface where trust and transparency act as major factor for long-term success in buyer-supplier relationship.

A long-lasting buyer-supplier relationship is vital for any business organization to be successful (Patruco et.al, 2018). To ensure responsiveness, most of the buying firms depend upon the suppliers (Benton *et.al*, 2005). Satisfaction with each other is an important element to establish better relationships (Wong, 2000). The role of buyer-supplier relationship becomes more important with influence of digitization. The challenges and opportunities of digitisation in context with strategic procurement initiatives are redefined (Bienhauss and Haddud, 2017). In this buyer-supplier relationship, a predominant body of literature remains asymmetric. It is the buyer's perspective that dominates in this sphere, probing issues such as supplier evaluation, supplier selection and so forth (Meena et.al. 2012). The work reported in the present paper looks at the issue of buyer-supplier relationship from the supplier's perspective. According to Lawrence (2004), buying organisation should not treat suppliers as outsiders; rather they should treat them as their customers. The buyer's need to start getting suppliers feedback on how well buying organization is performing. A long-term relationship need that both parties are equally confident and satisfied with each other.

According to Essig et al. (2009) supplier satisfaction can be defined as: a supplier's feeling of fairness with regard to buyer's incentives and supplier's contributions. Pulles et al. (2016) defined supplier satisfaction as the perceived value of a relationship in terms of meeting or exceeding supplier's expectations. In existing research on the subject of supplier satisfaction, it has been argued by many researchers that buyers should view the supplier as a key source of competitive advantage and try to achieve preferred customer status (Schiele, Veldman, & Hüttinger, 2011). However, suppliers do have the choice to assign preferred status to the buyers

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(Schiele et al., 2012). Thus one of the important challenges for the buyer is to become a preferred customer for its suppliers. For achieving the preferred customer status, the necessary condition is supplier's satisfaction (Hüttinger, Schiele, & Veldman, 2012). Supplier's satisfaction is directly linked to the quality of the relationship and value creation which should lead to the buyer receiving best resources and a preferred status (Christiansen and Maltz, 2002). Still, research on the field of suppliers satisfaction is limited (Vos et. al. 2016). Research on the topic of supplier's satisfaction has happened mainly in last decade focusing on specific relational factors (Hüttinger et al., 2012). Hüttinger et al. (2014) mentioned that it is important to test the influence of buyer's operational performance on supplier satisfaction. Suppliers will always see buying companies that score high on operational performance, as attractive. A buying company should continuously improve their effort to become attractive so that supplier satisfaction can develop. A better supplier resource allocation, such as physical resources and innovation resources can happen through a high level of trust between buyer and supplier (Vos et.al. 2016). Through the process of building trust with the supplier, buying company can ensure that they get the best cooperation from the suppliers.

According to Transaction Cost Theory, the factors of the exchange transaction determine how the exchange relationship is handled (Williamson, 1975; 1985). The dimensions are: the frequency of the exchange, the amount of uncertainty and the degree of asset specificity and the assumptions are bounded rationality and opportunism. The pure transaction cost theory shows that when repeat purchases happen, there is a tendency to move toward internalizing the transaction to reduce aggregate transactions costs (Williamson, 1985). This signifies the importance of the buyer supplier relationship and thus becomes imperative for the buyer to increase its attractiveness toward its supplier's.

Building on the existing research, the aim of this paper are to answer the following research question: To explore the factors that have significant influence on the supplier's satisfaction in buyer-supplier relationships and to find out their causal relationships.

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**2. Literature Review**

Supplier satisfaction in buyer supplier relationship is defined as a supplier's feeling of fairness with regard to buyer's incentives and supplier's contributions within an industrial buyer–seller relationship (Essig et al 2009). A systematic literature review was done by Huttinger et al. (2012), in which he reviewed a total of 24 qualified papers in the search window from 1975-2011. This suggests that not much work was done in the area until 2011. Huttinger et al. (2012), addresses the issue of supplier's evaluation of its customers and how the buyers can influence this evaluation. The study covers three research fields that are considered crucial to the issue which are customer attractiveness, supplier satisfaction and preferred customer status. Post 2012, the field has witnessed steady attention from the researchers. However, in terms of study in buyer supplier relationship, inclination has been always towards study of buyer's satisfaction for its suppliers. Roger Baxter (2012) empirically inquires and confirms about preferred customer treatment from suppliers in the research based on the perspective of attractiveness of the buyer to the seller. He tries to answer the question of what is that the buyer needs to do in order to create attractiveness for the buyer. Nollet et al. (2012) present a stepwise procedure of how to gain and maintain the status of a preferred buyer. The paper takes the perspective of a buyer willing to obtain the preferential status among its suppliers. The focus of the paper is on identifying and evaluating the factors that could influence the supplier's decision of granting preferred status to its buyer. The issue of supplier satisfaction in buyer seller relationship with asymmetric dependence was addressed by Caniëls, et al. (2017) where they investigate if asymmetric relationship can also lead to supplier satisfaction. The research found that mutual dependence is positively related to supplier satisfaction. Essig et al. (2009), in their research provide conceptual introduction of supplier's satisfaction. They focused on incorporation of supplier's satisfaction in the management of a buyer supplier relationship. It was an empirical survey in which the supplier satisfaction construct was recorded using a multi-item measurement.

In the light of increased inclination towards collaboration with suppliers in a buyer-supplier relationship, Meena et al., (2012) carried out the developmental work of index for the supplier

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satisfaction by exploring the factors that influence supplier's satisfaction. Schiele et al. (2012) highlighted how firms strive to become a preferred customer from their key supplier in order to benefit from privileged resource allocation. They presented key terms (customer attractiveness, supplier satisfaction and preferred customer) and proposed a model of preferred customer that uses a social exchange perspective to link customer attractiveness, supplier satisfaction and preferred customer status. They argued that although each of these stages has its own logical considerations and empirical manifestations, but a sequential link among these stages can be clearly established. Customer attractiveness was examined in the work of Ellis et al. (2012) from a different perspective of supplier's willingness to share new technology with its buyers. They draw from social exchange theory to define sequential relationships among buyer behaviours, preferred customer status, and supplier's willingness to share technological innovations. They find that preferred customer status is positively associated with supplier's willingness to share new technology with the buyer. Pulles et al. (2016) further examined customer attractiveness and supplier satisfaction as distinct conceptual variables and tested how these constructs relate to each other and to preferred customer status.

The middle view relates to a dyadic relationship and of buyer-supplier collaboration (Pernot and Roohoof, 2014; Liu et al. 2013; Cai et al., 2013; Ylimaki, 2014). The study carried out by Praxmarer-Carus et al. (2013) based on a sample of 38 suppliers examines the effects of a supplier's perceived share of costs and earnings in supplier development programs on supplier satisfaction. They observe that the supplier's perceived share of earnings affects supplier satisfaction positively and that distributive fairness mediates this effect. Interestingly, the perceived share of costs has no effect on supplier satisfaction. Yang (2013) investigated how knowledge acquisition and dissemination processes affect the manufacturers' performance in collaborative economic exchanges with their suppliers. Yang proposed that knowledge-management processes are positively related to the performance of the manufacturers in a collaborative buyer-supplier relationship and observed that the link is stronger when the levels of supply-chain integration and relational stability are higher rather than lower. Jones et al. (2014) probed whether small and medium-sized firms can leverage supply chain relationships for competitive advantage. They observed that small and medium-sized firms can gain

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performance benefits when they (1) make the conscious choice to pursue trust-based collaboration and (2) strategically demonstrate trustworthiness. Bemelmans et al. (2015) have investigated a total of four dyadic matched-pair inter-organizational relationships. The authors observe that it is beneficial for buying companies to obtain preferred customer status at their suppliers, since this would have a positive impact on the buying company's satisfaction with the collaboration. Further, if buying companies aim to obtain preferred customer status at their suppliers it is important that they are perceived as mature in managing supplier relationships. Ghijsen et al. (2010) have investigated first-tier suppliers in the German automotive industry on influence strategies and supplier development and have observed supplier commitment is affected by the use of promises and both human- and capital-specific supplier development, while supplier satisfaction is affected by indirect, other direct influence strategies and capital-specific supplier development. Jean et al.'s (2014) study, based on a survey of 170 multinational automobile suppliers in China investigates the influence of supplier involvement and other factors on supplier innovation and performance. Drawing on the knowledge based view and transaction cost economics. They found knowledge protection, trust, and technological uncertainty are all found to drive greater product innovation. In her Ph.D. dissertation, Maunu (2003) captures supplier satisfaction in terms of the following dimensions: profitability, agreements, early supplier involvement, business continuity, forecasting/planning, roles and responsibilities, openness and trust, feedback, and 'the company' values. Lucker (2017) argues that supplier satisfaction is important to achieve customer satisfaction and gain competitive advantage. The author concludes that relational factors, namely reliability and relational behavior seemed to be the most influential ones regarding supplier satisfaction, but also operative excellence and profitability are important economic factors that lead to supplier satisfaction. Schiele (2012) propose a model of preferred customer ship that uses a social exchange perspective to link customer attractiveness, supplier satisfaction and preferred customer status.

It can be observed from the literature that an efficient implementation of preferred customer oriented supply strategies does not only benefit the buyer-supplier relationship. It could also make the whole supply chain more competitive. It might be also relevant for a supplier to

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become the preferred customer of its sub-suppliers. If every member of a supply chain tries to become the preferred customer of its suppliers, a competitive advantage for the whole chain can be created. Vos. et al. (2016) further confirm that supplier satisfaction has a positive impact on awarding the buyer preferred status and ultimately leads to preferential treatment. On the premise that supplier satisfaction leads to preferential treatment by the supplier, this study tried to investigate the ways in which a buyer can become a preferred customer for the supplier. It's important to measure buying organization's expectations from the suppliers to define the relationship or partnership but at the same time it is imperative to measure the supplier's perceptions of the buying organization's performance (Wong, 2000). There are significant gaps exist between buyer and supplier expectations about how relationship should evolve (Doran and Thomas, 2005). According to Maunu (2003), supplier's satisfaction is one of the key tools to improve the competitiveness of the companies. Essig and Amann (2009) have mentioned that it is very difficult to achieve a long lasting buyer-supplier relationship without taking the suppliers satisfaction into account. According to Leenders *et al.*, (2006), the effects of supplier's satisfaction on the outcomes of the buyer-supplier relationship have not been given due justice in the literature.

Till now very few studies have been made to measure supplier's satisfaction in buyer-supplier relationships and therefore it is crucial to study the factors that influence the supplier's satisfaction. It is important to note that these factors may differ from industry to industry. Further it is also important to identify the relationship of influencing factors with supplier's satisfaction. We also found from our search that not much literature exists which integrates supplier's satisfaction with digitalization, e-procurement, Internet of Things (IoT) and Industry 4.0. So it is imperative to study the role of technology to understand supplier's satisfaction in the buyer-supplier relationships. In order to address the key issues discussed above, this paper makes an attempt to study the case where buyers can use supplier's satisfaction surveys to correct the imbalance and remove the perception gap obstructing the development of effective buyer-supplier partnership. Moreover, one common limitation in many articles published till date is that the study has been conducted on the suppliers of only one buying organization. In such cases, the measurement of supplier satisfaction always delivers firm-specific values; therefore

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comparative studies across different companies are required to be carried out in the industry to reach industry specific insights. For generalizability purposes, one can also study the similar problem by collecting more data and/or the same problem can be studied for different industries which is one of the focus areas of the present research. Another major roadblock in the generalizability of the findings of these research findings is that the empirical investigations have largely been conducted in the automobile sector only. In order to improve the generalizability of the studies, it should be extended to other industries and should encompass service sector too in addition to the manufacturing sector. The present work is an attempt to plug the above research gaps.

### **3 Conceptual model and hypotheses**

A study of supplier's satisfaction from the buyer's perspective reveals that not enough study has been done in this field. The research herein finds the influence of different factors/perspectives: purchase policy, coordination, finance/payment, cooperation and technology & digitization on supplier's satisfaction. The hypothesis formation is presented in the following subsections.

#### **3.1 Purchasing policy and supplier's satisfaction**

It was observed by Essig and Amann (2009) in a related work that business processes associated with ordering and delivery of goods affect supplier's satisfaction. According to Schiele et.al. (2012) time for purchase transaction, order processing time, options of goods delivery and transparency in technical specifications/parameters affects supplier's satisfaction. The construct related to purchasing policy of the buyer's organization, much reliance was on the suppliers recommendation such as: timeliness, cooperation provided by procurement department, process guidelines and clarifying commercial terms.

Therefore,

*H1: Purchasing policies positively influence the supplier's satisfaction.*

#### **3.2 Financial/Payment factors and suppliers satisfaction**

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Suppliers satisfaction is greatly influenced by payment practices and procedures for receiving payment of buying organization (Maunu, 2003;Wong, 2000;Essig and Amann, 2009). The suppliers are concerned with the finances of the buyer firm's as it ultimately affects its ability to pay (Burt *et al.*, 2008). It is also important to have a fair pricing and payment terms. To measure the suppliers satisfaction related to payment, five items were extracted from earlier work of Corsten *et al.*, (2006), Maunu, (2006), Ghijsen *et al.*, (2009) and Essig and Amann, (2009) studies. Therefore payment terms and policies have been considered as a driver for supplier's satisfaction in buyer-supplier relationships leading to the framing of the hypothesis:

*H2: Financial (payment) policies positively influence the supplier's satisfaction.*

### **3.3 Coordination factors and suppliers satisfaction**

Supplier's satisfaction is influenced by coordination by buying organization (Wong, 2000; Essig and Amann, 2009).For the coordination issue related to supplier's satisfaction, items was extracted from the work of Maunu (2003), Essig and Amann (2009), Benton and Maloni (2005) and Ghijsen et al. (2009). According to Essig and Amann (2009), cooperation plays an important role to ensure suppliers satisfaction. Some more items were added based on supplier's suggestion. Timely return of rejected material, Earnest money deposits (EMD), bank guarantees and placing order in timely manner do have a positive effect on supplier's satisfaction. Therefore, better coordination policies are considered to ensure higher satisfaction level in buyer-supplier relationships. To study coordination for both parties that affect supplier's satisfaction, the following hypothesis is developed:

*H3: Coordination policies have positive influence on supplier's satisfaction.*

### **3.4 Cooperation and supplier's satisfaction**

A good cooperation of buying organization with its suppliers reduces the suppliers fear and increases the supplier's satisfaction because suppliers derive pleasure from working with buyers with a successful record of cooperation with its suppliers (Corsten et al., 2006, Maunu, 2006). In total, nine items were selected to measure the influence of cooperation of the buying organisation on supplier's satisfaction. Certain items for this construct were adopted from the earlier work of Maunu, (2003), Corsten et al. (2006) and Essig & Amann, (2009). Other items

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were added on suggestions of the suppliers. Capable suppliers are interested to maintain association with buyers who maintain a healthy relationship with its supplier's (Burt *et al.*, 2008). If buying firm ensures fair dealing and constant support as compared to other buyers, the able suppliers will be more interested for supplying the goods/services (Essig and Amann, 2009). This can be in form of conflict resolution, timely return of rejected material, guidance provided or emergency response. Thus, it can be hypothesized that cooperation has positive impact on suppliers satisfaction.

*H4: Cooperation positively influences the supplier's satisfaction.*

**3.5 Technology and supplier's satisfaction**

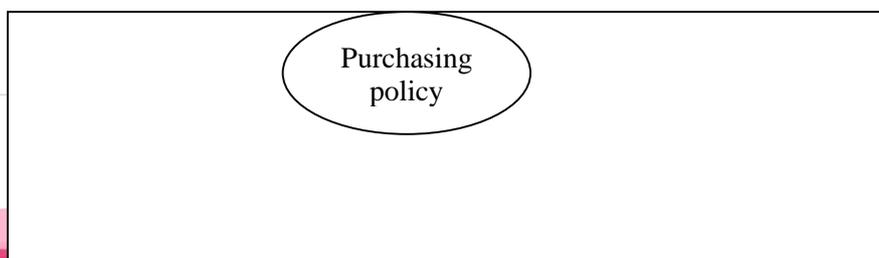
The impact of technology and digitisation towards supplier relationship has a positive character and is directly related to supplier's satisfaction (Bienhauss and Haddud, 2017). It is imperative that buyer organization maintains supplier's system alignment into account while aligning its own procedures and processes towards the digital strategy (Brabazon, 2016).

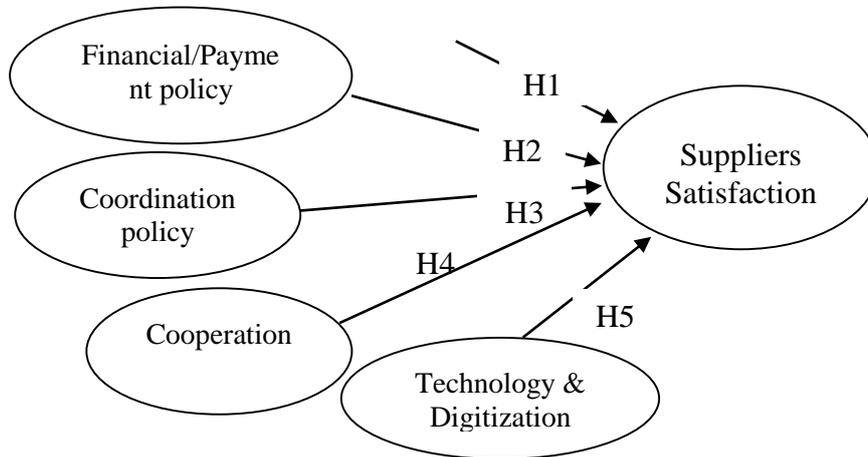
In this context, new business models may occur and procurement needs to extend its support function to the suppliers to enable the organization to act as a pioneer or early adaptor (Johnson and Flynn, 2015). There were maximum 14 items related to technology. This can be attributed to the increasing role of technology in sourcing function in buyer's organization. The major items can be attributed to the research by Ketchen *et al.* (2014) and Mantey (2015) apart from the supplier's recommendation. Therefore, technology does play an important role in suppliers satisfaction and is hypothesized accordingly

*H5: Technology and Digitization positively influence the suppliers' satisfaction*

The hypothesis formation as stated above is presented in Figure 1. Partial Least Squares (PLS) method is used to assess the predictive power of the theoretical model.

Figure 1: Conceptual model for hypothesis





#### **4 Research Design and Methodology**

The details of research design and methodology applied for this work is presented in this section. The present work probes the issue of supplier satisfaction in a purchasing relationship and the various factors that might have a bearing on this relationship. An instrument, developed for this purpose after wide ranging discussions with Heads and Operations Officers of supplier firms as also the available literature on the subject, was validated through pilot testing. All the issues were on focus from a supplier's perspective. The supplier's satisfaction depends upon many factors. The major factors influencing suppliers satisfaction in buyer-supplier relation are extracted from the published past works and supplier's feedback are listed in Table 1. Questionnaire development was done in three stages. In first stage, literature review was performed to understand the supplier's satisfaction from earlier studies. In the second stage, meeting was conducted with selected few supplier's organization to discuss the parameters which we took from literature to seek their suggestions. Furthermore, in order to improve the survey and strengthen the survey instrument, some additional parameters were added to the questionnaire based on supplier's recommendations. Finally, a pilot test was conducted with few select suppliers. They were contacted over phone and requested to participate in the study. The constructs and their observable items are given in Table 1.

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Table 1: The latent variables and their observable indicators

Construct	Manifest Variable
Coordination Policy	CO1: Interdepartmental cooperation
	CO2: Convenience in delivering goods at receiving section
	CO3: Information sharing
	CO4: Involvement in decision making processes
	CO5: Number of meetings with suppliers
	CO6: Range of contracts offered
	CO7: Level of trust between the parties
	CO8: Timely return of earnest money deposit (EMD)
Cooperation (CP)	CP1: Clarity on rejection material
	CP2: Existence of conflict management cell in the buyer firm
	CP3: Documents procedure for conflict management
	CP4: Courtesy extended
	CP5: Emergency response
	CP6: Financial reports
	CP7: Guidance to avoid conflict situations
	CP8: Intradepartmental cooperation
	CP9: Timely return of rejected material
Purchasing Policy (PP)	PP1: Clarity in Commercial and technical parameters
	PP2: Feasibility of delivery requests/options
	PP3: Guidance to avoid conflicts
	PP4: Order processing time
	PP5: Process guidelines
	PP6: Timely exchange of information/required documents
	PP7: Timely purchase order placement within validity period
	PP8: Transparency in purchasing process
Payment terms (P)	P1: Financial assistance as and when required
	P2: Gross payment
	P3: Convenience in Payment schemes
	P4: Timely payment
Technology and digitization (TD)	T1: Reduction in Cost of bidding through e procurement
	T2: Early supplier involvement thorough IT platform
	T3: Exposure to new tools
	T4: Regularity of Guidance provided in IT tools
	T5: IT infrastructure in supply chain applications
	T6: Enablement in Inspection process

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	T7: Financial issue in New technology
	T8: Managerial skills provided for adopting new technology
	T9: Help extended in implementing new technology
	T10: IT Security
	T11: Training in IT application provided by buying firm
	T12: Source of manpower/labor for IT support
	T13: Functioning of the work station provided for establishing link

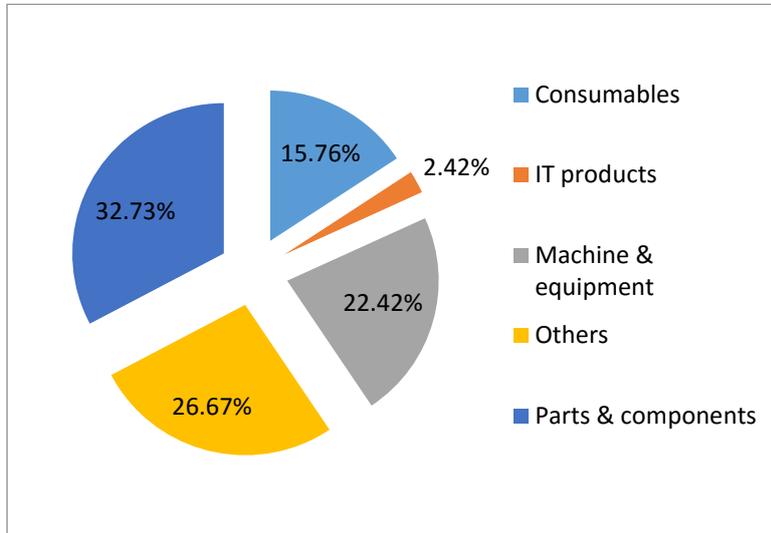
The questionnaire was designed based on the factors that were identified from the previous literature and suggestions of both the buyer and suppliers organization. The initial questionnaire was adopted from the work of Meena and Sarmah (2012) and later modified based on the opinion of pre-testing participants. After that, a formal survey was finalized. This study chose nearly 300 Indian firms who are suppliers to some organization and invited them to participate in our online or paper-based survey. The survey was conducted mostly through web based processes. The questionnaires were e-mailed to approximately 300 different suppliers located in some major cities of India. Out of the 300 questionnaires mailed, 171 responses were received. These respondents were from 160 companies, the details of them being presented in Table2 and Figure 2. Thus the response rate was about 57%, of which 12 responses were eliminated due to incomplete questionnaire, thus making the effective sample size as 159.

Table 2: Types of items supplying vs Company Profile

<b>Company profile</b>	<b>Consumables</b>	<b>IT products</b>	<b>Machine &amp; equipment</b>	<b>Others</b>	<b>Parts &amp; components</b>	<b>Grand Total</b>
< 1 year	2	1	3	3	4	13
1-2 years	3	0	4	8	8	23
2-3 years	2	0	3	4	3	12
3 years and above	18	1	27	29	37	112
<b>Grand Total</b>	<b>25</b>	<b>2</b>	<b>37</b>	<b>44</b>	<b>52</b>	<b>160</b>

Figure 2: Types of items supplying

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**4.1 Measurement Scales**

The steps recommended by Churchill (1979) were followed to develop multiple item scales for each construct. The measures were included from the perspective of suppliers. A five-point Likert scale (Magidson, 1994) was used. The scale ranged from very unimportant to very important or from totally unsatisfied to fully satisfied to evaluate the postulated variables of each construct.

**4.2 Validity and Reliability of the Measurement Scale**

To examine the construct validity an exploratory factor analysis was carried out. According to Hair *et al.*, (2006), there should be a threshold loading of at least 0.45 for all items loaded on their expected constructs. Cronbach’s alpha value shows the internal consistency of the scale items. In this study, the value of Cronbach’s alpha is more than the required value (see Table 3), thus verifying the internal consistency of items.

**4.3 Partial Least Squares (PLS)**

The Partial Least Squares (PLS) approach is used to assess the structural model in this paper. Joreskog and Wold (1982) have shown PLS as a causal predictive model. It’s a combination of factor analysis and multiple regressions for studying both the measurement and the structural properties of theoretical models. There are two sets of linear equations: the inner model and the outer model. The reason for using PLS is that it includes formative items in analyses and

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also allows analyzing moderator effects properly (Chin, 1998). PLS requires smaller sample sizes compared to other covariance based methods. Normality of data is not a requisite for PLS application, also it should not be necessarily measured on interval scale (Fornell et. al., 1996; Wold, 1985). The software used for the analysis is Smart PLS. The choice of PLS in this research is mainly for identifying an efficient approach to understand buyer’s satisfaction with focus on maximizing the explained variance. To generate loadings between reflective constructs and their indicators and weights, PLS algorithm provides an effective method. It also produces standardised regression coefficients between the constructs. PLS is insensitive to impurities in the real-world model and the real data (Raposo et al., 2009). Only 159 valid samples were obtained in this study due to limited number of accepted questionnaire in this survey. Thus for this research, considering all the justifications, the PLS method can be understood as a better alternative than covariance-based SEM. This is more so as the nature of our study is more exploratory than confirmatory and sample size is small.

To test the model, it is imperative to assess the accuracy of the measurement model. To measure the validity of the model and to ensure that theoretical constructs are adequately presented, it is important to assess individual item reliability, discriminant validity and internal consistency.

**5. Results of PLS estimation**

The relationships between indicators and their latent variable are shown in the measurement model as given in Table 3.

Table 3: Model results

Constructs	Observable variables	Description of observable variables	T statistic	Sign (2-tail)	Path Coefficient	Communality	AVE	CR	Cronbach alpha
Cooperation (CP)	CP1	Clarity rejection matl.	17.96	0.00	0.7059	0.6239	0.6239	0.9370	0.9241
	CP2	Conflict cell availability	15.886	0.00					
	CP3	Conflict cell document procedure	27.09	0.00					
	CP4	Courtesy extended	11.27	0.00					
	CP5	Emergency response	11.57	0.00					

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	CP6	Financial reports	28.46	0.00					
	CP7	Guidance	13.50	0.00					
	CP8	Intradepartmental cooperation	14.74	0.00					
	CP9	Timely return of rejected material	23.61	0.00					
Purchasing Policies (PP)	PP1	Clarity Commercial	13.06	0.00	0.2655	0.6136	0.6136	0.9268	0.9097
	PP2	Feasible delivery	20.23	0.00					
	PP3	Guidance avoid conflicts	16.92	0.00					
	PP4	Order processing time	13.75	0.00					
	PP5	Process guidelines	13.77	0.00					
	PP6	Timely exchange	9.81	0.00					
	PP7	Timely purchase	15.5	0.00					
	PP8	Transparency satisfaction	22.41	0.00					
Coordination (CO)	CO1	Communication	11.33	0.00	0.2412	0.6062	0.6062	0.9247	0.9071
	CO2	Convenience delivery	10.97	0.00					
	CO3	Information sharing	23.25	0.00					
	CO4	Involvement in decision	13.49	0.00					
	CO5	No. of meetings	10.96	0.00					
	CO6	Range of contracts	16.02	0.00					
	CO7	Trust level	18.11	0.00					
	CO8	Timely return	27.43	0.00					
Payment (P)	P1	Financial assistance	30.21	0.00	0.0808	0.7258	0.7258	0.9132	0.8717
	P2	Gross payment	32.06	0.00					
	P3	Payment schemes	38.02	0.00					
	P4	Timely payment	11.96	0.00					
Technology and Digitization (T)	T1	Cost of bidding	10.78	0.00	-0.1807	0.6360	0.6360	0.9576	0.9516
	T2	Early supplier involvement	16.84	0.00					
	T3	Exposure new tools	15.64	0.00					
	T4	Guidance_quality dept.	16.89	0.00					
	T5	IT infrastructure	31.90	0.00					
	T6	Inspection process	23.02	0.00					
	T7	New tech financial skills	33.82	0.00					
	T8	New tech adopted	17.59	0.00					

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	T9	New tech implemented	31.14	0.00			
	T10	Source of labor	9.91	0.00			
	TQ11	Training by buying firm	15.35	0.00			
	TQ12	Training on safety	19.12	0.00			
	TQ13	Work station	16.74	0.00			
Overall	O1	Conflict management	45.03	0.00	0.7624	0.9506	0.9376
	O4	Coordination Overall satisfaction	25.36	0.00			
	O5	Payment	40.86	0.00			
	O6	Purchasing policy	27.82	0.00			
	O7	Quality	24.25	0.00			

According to Fornell et. al., (1996), how the manifest variable describes the related latent variable is given by communality and its value should be equal to more 0.60. The Cronbach's Alpha and Composite reliability (CR) is a popular measure for construct reliability and values of these indicators should be more than 0.7. As suggested by Fornell and Larcker (1981), the composite reliability index can be used to assess the internal consistency for a block of indicators. Hair et al (1998) suggested 0.7 as benchmark and our measurement model shows internal consistency for all the constructs with the measures being more than 0.90. The values of Cronbach's Alpha and CR exceed the recommended value of 0.7 for all constructs thus the construct reliability is satisfied. Convergent validity of the constructs can be evaluated by its Average Variance Extracted (AVE) and its value should be greater than 0.5, Fornell and Larcker (1981). AVE of all constructs is found to be more than the recommended value of 0.5, which ensures convergent validity as shown in Table 3. Communality is used to measure the capacity of the manifest variable to explain the related latent variable (Fornell et. al., 1996). The value recommended is equal to or more than 0.60 for each manifest variable for communality. This is satisfied in our output. The next step is to evaluate discriminant validity which indicates how a given construct is different from other latent constructs. As demonstrated by Barclay et al (1995), a judgement of discriminant validity is when the construct shares more variance with its measures than it does with other constructs in the model.

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The correlations among reflective constructs can be compared with the square root of the AVE (diagonal values). As demonstrated by Chin (1998), the square root of the AVE should be greater than the correlation between a construct and any other construct. In our case we found good convergent and discriminant validity. As shown in Table 4, all constructs were having strong correlation with their own measures than with any other constructs.

Table 4: Correlation between latent variables

<b>Latent variables</b>	Cooperati on	Coordinati on	Payment Policy	Purchasing Policy	Technology
Cooperation	<b>1</b>	0	0	0	0
Coordination	0.8821	<b>1</b>	0	0	0
Payment	0.7526	0.7441	<b>1</b>	0	0
Purchasing Policy	0.8689	0.8221	0.8022	<b>1</b>	0
Technology	0.7924	0.8233	0.7792	0.7756	<b>1</b>

The structural model was analyzed to understand the relationships between constructs or latent variables as put in the hypothesis in the theoretical model. The results of the structural model are provided in Figure 3. The value of  $R^2$  measure for the supplier's satisfaction model is 0.8426 which means that the 84.26 % of the variance supplier satisfaction is explained by the proposed constructs. In PLS, structural model is tested by examining path coefficient and their significance levels. In PLS, by examining path coefficients and their significance levels, the hypotheses are tested. The t-statistic values show the statistical significance of path coefficients. Based on the empirical data collected and assessed through PLS, the path analysis is obtained as shown in Figure 3. The results are presented in Table 5. It can be observed that four hypotheses were supported and one was refuted.

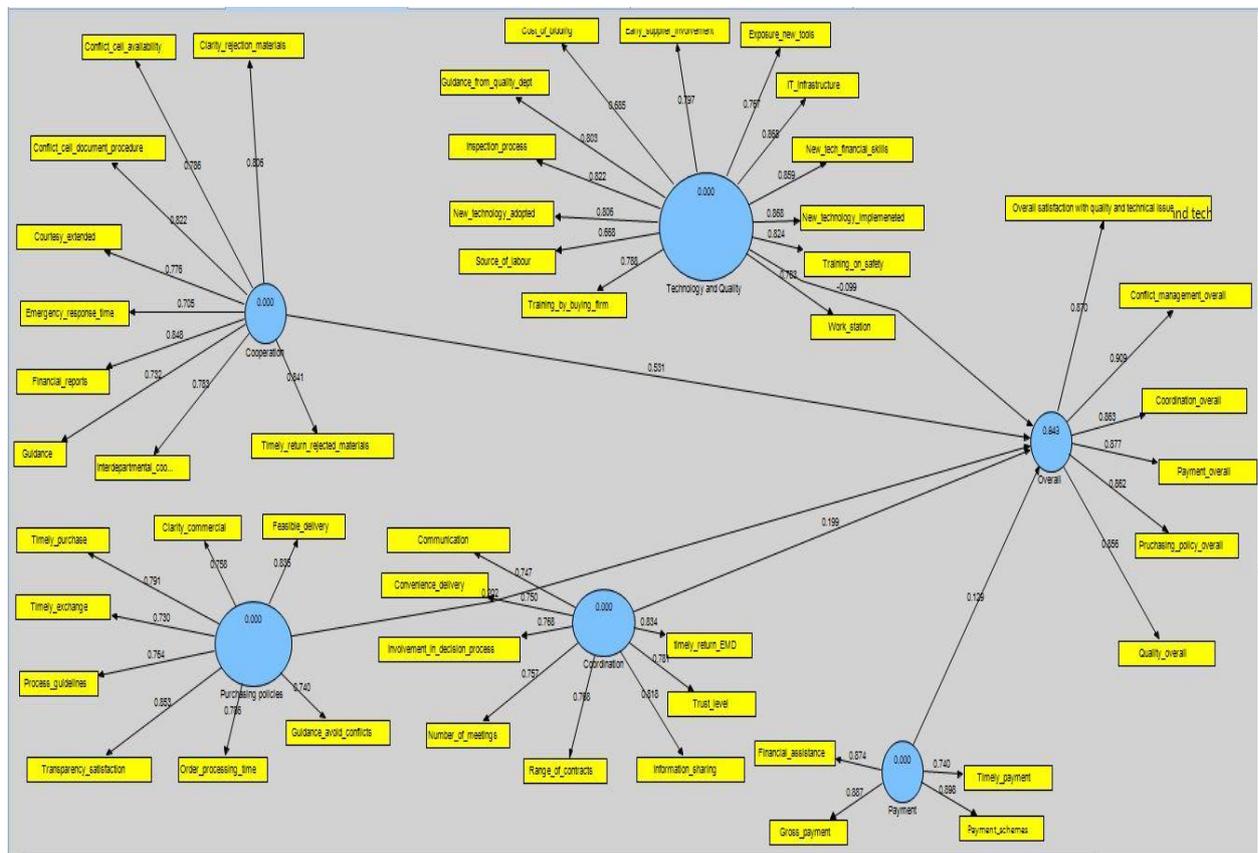
Table5: Result of analysis

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics ( O/STERR )
Cooperation -> Overall	0.5307	0.5251	0.1091	0.1091	4.865
Coordination -> Overall	0.1989	0.2005	0.1051	0.1051	1.8919

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Payment -> Overall	0.1288	0.109	0.0827	0.0827	1.5575
Purchasing policies -> Overall	0.2017	0.2028	0.1346	0.1346	1.4979
Technology > Overall	-0.0989	-0.0718	0.1289	0.1289	0.7673

Figure3: Final structural model



The results presented for the statistical significant relationships shows that Cooperation holds the greatest path coefficient suggesting that understanding mutual requirements and maintaining a healthy relationship plays the most important role for supplier’s satisfaction. This is in line with transaction cost theory which says that with higher uncertainty within market exchange relationships, the aggregate transaction costs will increase due to lack of

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communication (Williamson, 1985). However with explicit contractual arrangement and long-term relationship, opportunism can be diminished (Ring & Ven de Ven, 1992).

This was followed by purchasing policy of the buyer which plays a significant role in shaping the supplier's satisfaction. The most surprising and counter intuitive result came as technology having least effect on the supplier's satisfaction. This may be attributed to the fact that many of the respondents were suppliers belonging to SME category who lack the necessary IT infrastructure and training to leverage on the power of technology (Kamble et. al. 2018). This is in line with the study by (Bienhas and Haddud, 2018) that importance and impact of digitisation is higher in highly developed and automatized countries than in labour intensive countries with low salaries.

## **6 Discussion**

In the field of buyer supplier relationship, satisfaction of the buyer on suppliers' performance have always got due attention of researchers. However, there are limited literatures that focus on supplier's satisfaction. This study is an attempt to address the issue of supplier's satisfaction by identifying the factors and their order in terms of its contribution to the overall supplier's satisfaction level. This is followed by confirming reliability and validity of its constructs by PLS approach. The result indicates that there is a need for the buying firm to have attention on selected factors for improving activities to raise the level of supplier's satisfaction. This study shows practical guidance to the buying firms to measure level of supplier's satisfaction on its various activities and shows the areas for further improvement. Moreover, the study also arranges different factors or dimensions of supplier's satisfaction in decreasing order of importance which conveys practitioners that which activities should be focused more.

The procurement function should emphasize to build-up the required capabilities and capacities to support the supplier's relationship. The engagement of supplier's through smooth cooperation appears to be the most influencing factor. It's important that their creativity and innovativeness is appreciated much, which is seen as an antecedent for satisfaction. It's also important that personal contact with supplier's representative and empathy with each other is established so that a close relationship is build. A level of trust between partner firms is

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essential for both the firms to maintain the minimum requirements of a relationship. Trust constitutes both ability and integrity and when these are well executed; it results in a higher success rate for both firms within the relationship. If the supplier experiences more relational benefits, they are expected to show more commitment to a buyer. If the buyer stretches itself to help out their supplier, it will result into more satisfaction. To drive supplier satisfaction, ensuring business continuity would be the key driver but it should be supported by the visibility towards the future and an assurance to be part of the business roadmap of the buyer's company. Supplier should feel that they will be part of the future success. Suppliers would have to be integral part of the company and share concern in mutual business development and vision. This can be ensured by transparent processes and actions between the buyer and the suppliers and a consistent engagement from the buyer company.

An interesting outcome of the research is refuting the hypothesis related to technology. This has to be understood related to Indian context where the research was conducted. This may be due to to the capital expenditure which the supplier organizations will have to incur for developing the IT system. Many of the technology solutions are difficult to adopt in small and medium industries as there is a lack of sufficient fund for appropriate technologies. There is always a risk related to emerging technologies as there is always a significant threat for investments to organizations as there can be potential financial losses and uncertain payback. Among SMEs there is often lack of requisite IT infrastructure that is required to support the buyer's system. Often there is issue of signal attenuation due to weak signal coverage in certain manufacturing premises.

This study confirms and extends some of the basic findings reported by previous research. First, it provides empirical support that cooperation plays most important role in ensuring supplier satisfaction. Doing so, this study extends previous meta-analyses suggesting that proper cooperation (Corsten et al., 2006, Maunu, 2003) can provide firms' competitive advantage.

Our findings present three direct implications for managers. First, the work provides an empirically grounded argument for making investments on improving cooperation with supplier for better supplier satisfaction. Second, this work provides a guideline to managers for

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prioritizing synergetic investments in supplier's relationship. Third, we warn managers who aim to simultaneously improve the firm's IT capability while ignoring its integration with suppliers. This becomes a bigger concern when majority of the supplier base is SMEs who lack the required bandwidth of IT capability.

**Limitations and future directions**

In this study, we have measured from the suppliers perspectives about the satisfaction in buyer-suppliers relationships. Therefore, in future, satisfaction measurement in buyer-suppliers from both parties (i.e. buyer and suppliers) perspective will be an interesting research area. In addition, qualitative research may be taken up in future which might focus on the processes and mechanisms of buyer organization to study the relationships. Other limitation is related to the measurement approach. We conducted the study examining manager's point of view. An even more objective assessment on the supplier satisfaction practices, as well as the resulting outcomes, might be achieved by triangulating organizational members' perceptions with supplier audits conducted from time to time by the buyer organization. Finally, the sample used for the analysis is focused on Indian firms. Considering the influence of national cultures, institutional settings and working environments, future research could replicate our study in other countries, thus reinforcing the generalizability of our results. Further, the sample size used in this study is small, and therefore a study can be conducted by collecting more data.

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