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Validation of Constructs for Buyer Supplier Relationship Development Strategies: Indian Manufacturing Context

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Abstract
Focus of buyer is to satisfy the end user with improved quality and diversified range. As it is not possible to manufacture all components in house, supplier base of buyer should be self-efficient and developed one. This development of supplier can be achieved by applying different supplier development practices as per the requirement, For being competitive in market, supplier base of buyer should be self-efficient and this can be achieved through implementing supplier development practices Excellence in supplier development and relationship improvement results in betterment of supply chain performance. In this article, a new measurement scale to assess the supplier development practices, relationship between the buyer and the supplier with competitive advantages and profitability is developed and validated. To examine the impact of supplier development practices in the context of buyer–supplier performance, a survey was conducted on 512 manufacturing companies. The multi-item scale shows strong evidence of reliability as well as convergent, discriminant validity in a sample. Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and Reliability Analysis is applied on data for validation of instrument. Exploratory factor analysis yielded nineteen factors, which were further confirmed by confirmatory factor analysis. Suggestions for applying the measure in future research are presented.
Keywords: Supplier Development, Buyer Supplier Relationship Development

1. Introduction

The term "Supplier Development" describes efforts by manufacturers (Buyer) to increase the number of viable suppliers and improve supplier's performance. More specifically supplier development has been defined as any effort by an industrial buying firm to improve the performance or capabilities of its suppliers (Krause and Ellram, 1997). Cooperation with suppliers can make buyer more efficient and thus enable goods to be purchased at lower prices and also makes buyer to look for his core competency to remain more competitive (Lau, 2011). Supplier development is a kind of cooperation between a buyer and a supplier to seek continuous improvement in supplier performance to make buyer competitive (Hahn et al., 1990; Krause, 1999; Wagner, 2011).Supplier development can further linked with relationship development, improvement in competitive advantage and these efforts will lead to profitability of buyer and supplier. More focus of these efforts for supplier development is towards supplier performance, buyer competitive advantage, and buyer-supplier relationship improvement (Li et al., 2007).

2. Literature Review

Problems faced by buyer from suppliers are like current suppliers is not providing product that was demanded by buyer, suppliers are either not performing up to expectations or requirements, quality provided by supplier is not making buyer competitive, non-availability of capable suppliers in market. For such problems there are mainly 3 solutions as follows 1) Supplier switching 2) Vertical integration 3) Supplier development. Currently 3rd option is becoming more important and feasible because it is quite difficult to search for more capable supplier and to make components in house is big investment. So supplier development is emerging and feasible solution to buyer for his mentioned problems (Wagner S.M., 2006).

Supplier development programme is divided mainly in 2 categories, direct and indirect supplier development programme. Indirect supplier development improves suppliers' product and delivery performance and that direct supplier development improves supplier capabilities (Wagner, 2010; Aslan et al., 2011). It is mandatory that before selecting any supplier buyer should make a proper evaluation of supplier by doing frequent visit and if some small issues are coming then by giving required training buyer can select him (Aslan et al., 2011). Involving suppliers in product development can result in major benefits in terms of money and time but it requires a great deal of thinking and effort. (Wan et al., 2011).

2.1 Factors Identification

By critical review of literature following factors found to contribute primarily for supplier development and relationship practices, shown in following.

Sr No.	Factor	Authors
1	Training & Education	Handfield et al. (2000), Krause et al. (2007), Chivaka (2007), Sanchez-Rodriguez et al.(2005), Modi and Mabert (2007), Wagner & Krause (2008), Kadir et al. (2011).
2	Reward	Krause et al. (1998), Krause (1999), Krause & Handfield (1999), Handfield et al. (2000), Krause et al. (2000), Kannan et al. (2010), Humphreys et al. (2011).
3	Evaluation	Watts & Hahn (1993), Hahn et al. (1990), Krause (1999), Wagner (2006), Krause et al. (2007), Kannan et al. (2010), Charterina and Landeta (2010), Hald and Ellegaard (2011), Azadegan (2011), Schiele et al. (2011).
4	Communication	Prahinski and Benton (2004), Sako (2004), Eamonn et al. (2008), Sanders et al. (2011), Chidambaram et al.(2009), Srikanta Routroy and Sudeep Kumar Pradhan (2013).
5	Asset Specificity	Krause (1999), Rokkan et al. (2003), Li et al. (2007), Daniel (2012).
6	Joint Action	Krause and Handfield (1999), McIvor and Humphreys (2004), Song and Benedetto (2008), Jiao et al. (2008), Eisto et al. (2010), Feng et al. (2010).
7	Top Management Support	Handfield et al. (2000), Li et al. (2003), Humphreys et al. (2004), Kannan et al. (2010).
8	Trust	Morgan & Hunt(1999), Krause et al., 2000, Krause et al. (2007), Li et al. (2007), Hosmer (2008), Gullett et al. (2009)
9	Long term Commitment	Watts and Hahn (1993), Li et al. (2003, 2012), Humphreys et al. (2004, 2011), Kannan et al. (2010).
10	Suppliers Perspective	Bensaou and Anderson (1999), Marzouk and Moselhi (2003), Gilbert et al. (2010).

Table No1: Factors for supplier development and relationship practices.

Training and Education:
Programs for supplier development that receive assistance from buyers can be regarded as buyer supported training. The right type of training could then lead to an increase in performance for the supplier which would in turn encourage an increase in buyer-supported training (Modi and Mabert, 2007; Krause et al., 1998). Training and giving education to supplier for his development mostly concerned quality improvement, including topics such as statistical process control, total quality management, design of experiments, sampling methods, inspection techniques, and ISO 9000 (Krause, 1997). Automotive companies have used training and education aspect in their supplier development programmes, where suppliers have the opportunity to directly experience new production methods (Hahn et al., 1990; Womack et al., 1990; Kadir et al., 2011).

Evaluation:
First step of supplier development is supplier's evaluation because after this buyer can identify areas of supplier where improvement is needed (Hahn et al., 1990). Supplier evaluation and feedback has been used to improve supplier's capabilities (Watts and Hahn, 1993; Hahn et al., 1990; Krause et al., 2000; 2007). This step helps to point out exact cause of problem (Carr and Pearson, 1999; Cormican and Cunningham, 2007). Shaping and reshaping of supplier performance is necessary to raise quality of supplier and to remain competitive (Hald and Ellegaard, 2011; Azadegan, 2011).

Reward:
Recognition and awards for outstanding suppliers can serve as an incentive for improved supplier performance (Krause et al., 1998; Krause, 1999). Appropriate incentives for improvement should be developed to ensure that the improvement effort is not limited to a single process (Krause and Handfield, 1999; Krause and Handfield, 1999; Krause et al., 1998). Supplier development may be achieved by promises of increased present and future business if supplier performance improves (Krause et al., 1998; Handfield et al., 2000).

Effective Communication:
Effective Communication between buyer and supplier leads to minimize misunderstanding and clarity in goal (Eamonn et al., 2008). Buyer-to-supplier information sharing, buyer-to-supplier performance feedback and buyer investment in inter-organizational information technology are key enablers of buyer-to-supplier communication openness (Sanders et al., 2011). Open and frequent communication between buying firm personnel and their suppliers was identified as a key approach in motivating suppliers (P.K. Humphreys et al., 2004; Chidambaram et al., 2009; Srikanta Routroy and Sudeep Kumar Pradhan, 2013).

Asset Specificity:
Dedicated investments offer tangible evidence that a partner can be believed, cares for the relationship, and is

willing to make sacrifices through such investments which lead to improvement in trust and relationship (Rokkan et al., 2003).Asset specificity improves the market responsiveness of a buyer (Li et al., 2007) and also improves relationship effectiveness (Daniel and Nirmalya, 2005). Asset specificity acts as a credible commitment for being competitive.

Joint Action:

Then the concept of joint action with early involvement of suppliers has come which also gives additional advantage of suppliers innovativeness to buyer. (McIvor and Humphreys, 2004; Song and Benedetto, 2008). To achieve better result of joint actions, supplier should be capable, committed and faithful (Jiao et al., 2008). Early supplier involvement benefits in time and cost saving with improved quality (Eisto et al., 2010). Joint actions efforts increases with supplier's innovation, valuable knowledge and expertise. Supplier involvement increases the quality, reliability, delivery, processes flexibility and customer service with decrease in cost which brings competitive advantage to buying firm. (Feng et al., 2010).

Top Management Support:

Involvement and continuous follow of supplier development programme from top management leads to success of SD programme (Handfield et al., 2000; Li et al., 2003; Humphreys et al., 2004; Kannan et al., 2010).Top management has been found to be a key enabler in initiating a supplier development program based on the firm's competitive strategy (Hahn et al., 1990).

Trust:

High level of trust is necessary in competitive environment to build relationship for result oriented process (Choi and Wu, 2009; Gullett et al., 2009; Wagner et al., 2011).Trust has been recognized in the literature as important in supply chain relationships (Svensson, 2001; Handfield and Bechtel, 2002). Trust refers to the extent to which relationship partners perceive each other as credible and benevolent (Ganesan, 1994). To build relationship between supplier and buyer, trust plays a vital role (Whipple and Frankel, 2000).

Long Term Commitment:

A long-term cooperative effort between a buying firm and its suppliers to upgrade the supplier's technical, quality, delivery and cost capabilities and to foster ongoing improvements (Watts and Hahn, 1993; Handfield et al., 2000). It develops quality attitudes in workers and management and continuously focuses on quality in design, production and performance (Aslan et al., 2011). Long term commitment helps to improve supplier's capabilities and the knowledge transfer from the buyer to the supplier (Wagner and Krause, 2008). Product and vendor development programme also get influenced by long term commitment for successful execution (Wan et al., 2011)

Suppliers Perspective:

Supplier needs to offer value to the customer but also needs to gain benefits from the customer at the same time. For effective binding it is recommended that supplier should know the objectives and requirements of buyer (Cannon and Perreault, 1999; Rokkan et al., 2003). For keeping improvement in relationship and to achieve competitive advantage, buyer should also consider the perspective of supplier (Gilbert et al., 2010). Consideration of requirements of supplier from buyer increase trust, long term relationship and commitment. (Marzouk and Moselhi, 2003).

2.2 Buyer–supplier relationship improvement:

SDP initiatives by buyer and continuous follow up with suppliers perspective leads to improvement in BSR. So a more cooperative and long lasting relationship may be derived from supplier development Programs (Euehun et al., 2013; Lambert and Schwieterman, 2012; Hald et al., 2009; Krause, 1997). Improved BSR helps to implement new advanced technologies effectively (Azmawani Abd Rahman, David Bennett, 2009). Supplier evaluation is an indicator for selecting supplier development programme and effective implementation of SD programme leads to improvement in BSR (Krause et al., 2000; Wen-Li et al., 2003; Wagner, 2010). Buyer–supplier relationship also depends on position of one with respect to other (Anni-Kaisa K, 2014).

2.3 Competitive Advantages

Technology Adaption:

Relationship with supplier is important parameter for new technology adaption and its implementation (Zhao and Co, 1997). Lack of support from supplier has been associated with impediments to technology acquisition and implementation (John Baldwin and Lin, 2002).It is recommended from supplier to adopt new technologies like CAD-CAM, manufacturing resources planning, robotics, group technology, flexible manufacturing systems, automated materials handling systems, computer numerically controlled (CNC) machine tools to remain competitive (Azmawani Abd Rahman & David Bennett, 2009).

Innovation:

Supplier base need to be innovative oriented and should have capabilities of competencies in R&D, Product and Process (Carson et al., 1995; Petroni and Panciroli, 2002). The supplier innovativeness has always positive

impacts on manufacturer performance across multiple dimensions and is always appreciated by manufacturer. Therefore, the suppliers should have innovative attitude and capabilities in order to compete successfully in the marketplace to attract the manufacturer for SD program (Wang and Ahmed, 2004; Mao, 2007). Technical capability of supplier affects greatly on innovation and buyer feels that the best resources of this supplier work for him (Schiele et al., 2011). Exchange of knowledge, investment in specific assets and commitment lead to innovation (Charterina and Landeta, 2010). Relationship improvement plays a vital role in innovation (Aydin Inemek, Paul M, 2014).

Risk Minimization:

Firms need to choose different management mechanisms for different suppliers based on the salient attributes of individual suppliers and their relationships with the buyers rather than relying on single supply chain practices (Xingxing Zu, Hale Kaynak, 2011). Non effective quality management system leads to supply chain disruption and may cause serious damage to its operation and its business performance (Hendricks and Singhal, 2008; Roth et al., 2008). Improvement in relationship between buyer and supplier leads to benefits both with improvement in performance (Flynn and Flynn, 2005; Kaynak and Hartley, 2008; Park et al., 2001; Sroufe and Curkovic, 2008; Yeung, 2008). These cooperative relationships benefit not just both parties but the whole supply chain (Flynn and Flynn, 2005; Kaynak and Hartley, 2008; Park et al., 2001) provided there should be long term commitment from both the side.

Operational Excellence:

Improved performance of supplier in operations focuses on improvement in quality, delivery, cost, inventory, lead time and the rate of new product introduction (Hahn et al., 1990). Improvement in operations and performances leads to competitive advantage as quality improvement, cost reduction and faster product development (Slack et al., 2004). SDP and Supply chain practices leads to increased competitive advantage including improvement in operations (Thatte et al., 2013).

Profitability:

Higher profitability can be achieved through long-term relationships. Increase in profitability leads to openness between suppliers and buyer and thus greater knowledge and appreciation of each other's contribution to the relationship (Corsten and Kumar, 2005). Long term relationship with trust lead to creation of value, leading to the profit (Wilson D.T. and Jantrania S, 1994; Parasuraman A., 1997). Profitable project especially from the supplier's perspective leads to satisfaction and future business growth (Mao et al., 2008)

3. Proposed Frame Work for Research

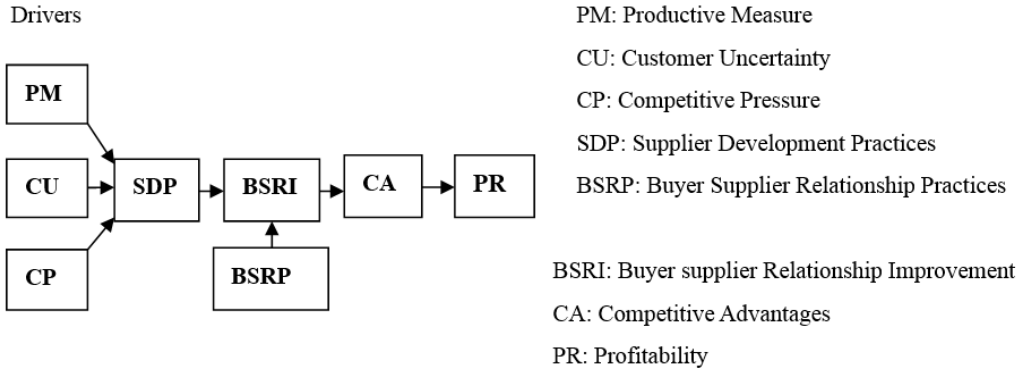

Fig1: Proposed Framework for research

Increasing competition forces buyer for making their supplier base more innovative and leading toward new technology adaption for being competitive along with operational excellence and profitability. For analyzing effect of supplier development on relationship improvement, work is classified in 6 parts. 1) Drivers for supplier development (3 drivers as, PM: Productive Measure, CP: Competitive Pressure and CU: customer Uncertainty) 2) Supplier Development Practices (SDP) 3) Buyer Supplier Relationship Improvement (BSRI) 4) Buyer Supplier Relationship Practices (BSRP) 5) Competitive Advantage (CA) 6) Profitability (PR)

Increasing innovation and new technology adaption is necessary from supplier side to remain updated and to make buyer competitive along with increase in operational excellence and profitability. Buyer may have risk of supplier switching or technology leak from supplier during or after developing stage. So it is necessary that there should be increase in relationship between buyer and supplier for capturing competitive advantage and to minimize the risk.

This frame work will undertake the competitive advantage and risk minimization through improved BSR under the condition of supplier development.

4. Methodology

Research methodology is a crucial part in research which facilitates researchers in achieving the objectives (Antony et al., 2002; Tsang & Antony, 2001). Rigorous statistical methods were used to assess and validate the constructs. The methods used were: Content validity (using structured interviews), Reliability (using Cronbach α) exploratory factor analysis (for factor structure and initial validity) and confirmatory factor analysis.

An effective instrument should cover the content domain of each construct (Nunnally, 1978; Churchill, 1979). The items that measure a construct should agree (converge) with each other, and the items of one construct should disagree (discriminate) with measures of the other constructs. Each construct should be reliable, short and easy to use. Scale development and refinement is a two-phase approach. In the first phase, the definitions of the constructs as well as the measurement items for each construct were established. This phase provided tentative indications of reliability and validity. This phase included item generation and content face validation. In the second phase, further refinement of the scale and validation of the measures was done using pilot survey based on the scales that was developed in the first phase. A survey instrument was developed in order to test the research model. Although the items and questions in the proposed questionnaire were adopted from existing studies, the questionnaire was pre-tested with several experts from academics and industry sector to ensure that the wording and format of the questions were appropriate.

To develop the scale for survey instrument, an extensive literature review was first conducted to identify scales used in previous studies that were found to have strong validity and reliability. The critical variables of drivers for supplier development, practices for supplier development and buyer supplier relationship, buyer supplier relationship improvement and competitive advantage, were identified from the literature had content validity because an extensive review of the literature was conducted in selecting the items followed by discussion with the industry practitioners on applicability of these variables in Indian context. Content validity represents the sufficiency with which a specific domain of content (construct) was sampled (Nunnally, 1978; Ahire et al., 1998). Data from experts was also complied via mail and interviews were conducted through telephonic mode. The second stage consisted of using items from the first phase for the various constructs for convergence and discernment validity and reliability for the assessment of scale. To enable respondents to indicate their responses a five–point Likert interval scale was used.

4.1 Sampling and Data Collection:

The present study has adopted purposive sampling technique. This method was considered to be appropriate to collect sufficient information from the respondents for making statistical inference (Talavera, 2004). The target respondents were plant managers, operations managers, quality managers; quality heads, and sourcing managers. The researcher approached respondents from manufacturing organizations through e-mail and personal visit for data collection. These respondents were requested to complete the questionnaire designed. Out of these 561 respondents, 543 respondents agreed and responded, out of which 29 responses were incomplete. Hence data collected from 512 manufacturing organizations was used for the analysis.

4.2 Profile of Respondents:

The respondents were from various departments of organizations. Following table shows details of respondents.

Classification	*Nos*	*% total*
Industry Category		
• Auto Ancillary	267	52.14
• Sheet metal and casting	112	21.8
• Oil engine	59	11.52
• Generator manufacturing	51	9.96
• Electrical Equipment	23	4.49
Department		
• Sourcing	183	35.74
• Supplier Quality Control	134	26.17
• Manufacturing	109	21.28
• Quality	86	16.79
Employee Size		
• Less than 50	43	8.3
• 50-100	89	17.38
• 100-500	253	49.41
• 500-1000	127	24.8
Education		
• Graduate	436	85.15
• Post Graduate	76	14.84
Experience		
• 0-3	41	8
• 3-5	109	21.28
• 5-10	124	24.21
• 10-15	152	29.68
• Above 15	86	17.8
Turn Over		
• 50-100	78	15.23
• 100-200	216	42.18
• 200-500	171	33.39
• 500-1000	47	9.17

Table No 1: Profile of respondents

4.3 Data Analysis and Result:

Content Validity:

In total, 74 items, under 19 factors of drivers for supplier development, practices for supplier development and buyer supplier relationship, buyer supplier relationship improvement, competitive advantages and profitability were reviewed by 7 experts from academicians and 6 from industry to assess the content and face validity.

Reliability Analysis:

The first and the most important step of analysis is to refine the scale by computing coefficient alpha i.e. Cronbach‘s alpha (Churchill Jr, 1979). The Cronbach‘s alpha measures the reliability of the instrument, and detects consistency of the measurement scale developed on the basis of responses. Value of Cronbach's alpha which is needed to be at least .60 and considered highly reliable beyond 0.70 (Nunnally, 1994).The present study used the Internal Consistency’ technique in determining the instrument's reliability for all factors.

Construct	No. of items	Reliability Cronbach's alpha (α)	Item to total Correlation (above 0.5)	Excluded variables
PM	4	0.857	All	**PM5**
CP	4	0.818	All	No
CU	4	0.855	All	No
TE	3	0.824	All	**TE2**
RE	2	0.637	All	No
EC	3	0.704	All	**EC3**
(S)	3	0.946	All	No
AS	3	0.891	All	No
TMS	2	0.735	All	**TMS3**
JA	3	0.855	All	No
TR	5	0.870	All	No
LTC	3	0.801	All	No
SPBSR	6	0.896	All	No
BSRI	5	0.87	All	No
OE	4	0.853	All	No
INV	4	0.85	All	**INV2,INV3**
TA	4	0.903	All	No
PR	4	0.834	All	No
RIM	2	0.712	All	No

Construct Validity:
After conducting reliability analysis Exploratory Factor Analysis (EFA) was applied on drivers, practices, competitive advantages and profitability. The purpose of EFA was to explore the structure between the latent and observed variables. The Principal Component Analysis (PCA) using Varimax rotation was executed for extracting factors through SPSS 20.0 software. A minimum cut off criteria for the deletion of the items was: factor loadings (>0.50) (Karatepe et al., 2005), cross loadings (<0.40) or communalities (<0.30) (Hair et al., 2010). The appropriateness of the data was determined by the examination of Kaiser-Meyer-Olkin (KMO) statistic of sampling adequacy and Bartlett's Test of Sphericity. For good factor analysis, the value of KMO must be at least 0.60 and above. The present study performed the EFA separately on four groups i.e. Drivers, Supplier Development Practices, Buyer Supplier Relationship Practices and Competitive Advantages.

Exploratory Factor Analysis (EFA):
The purpose of EFA was to explore the structure between the latent and observed variables. The Principal Component Analysis (PCA) using varimax rotation was executed for extracting factors (using the SPSS 20.0 software. The minimum cut-off criteria for the deletion of the items were: factor loadings (>0.50) (Karatepe et al., 2005), cross-loadings (<0.40) or communalities (<0.30) (Hair et al., 2010). The appropriateness of the data was determined by the examination of Kaiser-Meyer-Olkin (KMO) statistic of sampling adequacy and Bartlett's Test of Sphericity. For good factor analysis, the value of KMO must be at least 0.60 and above. All analyses were made at 95% confidence level. Confirmatory Factor Analysis (CFA) was conducted in the third phase on large data.

Confirmatory Factor Analysis (CFA):
Confirmatory Factor Analysis (CFA) is a special use of Structural Equation Modeling (SEM), which is also known as linear structural relationship model or covariance structure. It is a multivariate method applied when the investigator possesses particular evidence about the underlying latent variable structure. The measurement model for the present study was developed using AMOS V20.0 and Maximum Likelihood method was performed on the entire set of items. The measurement model was evaluated by examining the goodness-of-fit indices, factor loadings, standardized residuals, and modification indices (Hair et al., 2010).

The literature highlighted that both incremental fit indices (comparative fit index (CFI), incremental fit index (IFI), and Tucker–Lewis index (TLI)) and absolute fit indices (root mean square error of approximation (RMSEA), chi-square ($\chi 2$), and normed chi-square ($\chi 2/df$)) are enough to report the fitness of model. The RMSEA is a measure of model fit that is not dependent on sample size, whereas other fit measures such as chi-square ($\chi 2$) and goodness-of-fit index are highly dependent on sample size (Hair et al., 2010). Hair et al. (2010) provided the following guidelines for model fit: RMSEA < 0.05= good model fit; 0.05 <RMSEA< 0.10 = reasonable model fit, and RMSEA>.10 = poor model fit. Also, RMR (Root Mean Square Residual) and Standardized Root Mean Square Residual (SRMR) are absolute measures of fit. RMR is the difference between the observed and predicted correlation values, while SRMR is the standardized difference between the observed

and predicted correlation values. For both RMR and SRMR, a value less than 0.08 is generally considered a good fit while a value between 0.08 and 0.10 indicates a reasonable model fit. Moreover, an additional fit index that is frequently used is chi-square ($\chi 2$/df) because it corrects for sample size. A suggested value of normed chi-square is between 1.0 and 3.0, because small values of normed chi-square (<1.0) indicate an over-fitted model while high values (>3.0) indicate an under-parameterized model. Incremental fit indices (CFI, IFI, and TLI) range from 0 (no fit at all) to 1.0 (perfect fit), and an accepted decision rule is to accept fit that is approximately above 0.80 (moderate fit); here, values >0.90 are considered a great fit (Hair et al., 2010).

Table 2 EFA and CFA loadings

Group	Construct	EFA loading range	KMO Value	CFA range	
				1st Order	2nd Order
Drivers for Supplier Development	PM	0.798 to 0.922	0.793	0.71 to 0.95	-
	CP	0.788 to 0.815		0.71 to 0.75	-
	CU	0.823 to 0.843		0.75 to 0.790	-
Supplier Development Practices (SDP)	TE	0.795 to 0.814	0.81	0.75 to 0.81	0.59
	RE	0.763 to 0.751		0.47 to 1	0.42
	EC	0.737 to 0.807		0.63 to 0.68	0.43
	SE	0.883 to 0.902		0.89 to 0.98	0.690
	AS	0.853 to 0.910		0.79 to 1	0.52
	TMS	0.761 to 0.776		0.73 to 0.8	0.51
	JA	0.839 to 0.891		0.78 to 0.86	0.37
Buyer-Supplier Relationship Practices (BSRP)	TR	0.804 to 0.814	0.858	0.75 to 0.77	0.597
	LTC	0.837 to 0.853		0.73 to 0.79	0.498
	SPBSR	0.778 to 0.933		0.72 to 0.96	0.618
Buyer-Supplier Relationship Improvement (BSRI)	BSRI	0.804 to 0.818	0.878	0.75 to 0.77	-
Competitive Advantages (CA)	OE	0.811 to 0.8350	0.811	0.76 to 0.79	0.44
	INV	0.791 to 0.812		0.74 to 0.78	0.38
	TAD	0.842 to 0.945		0.73 to 0.98	0.39
	RIM	0.869 to 0.873		0.73 to 0.76	0.21
Profitability (PR)	PR	0.812 to 0.831	0.814	0.74 to 0.77	-

Table 3 Fit indices after CFA (1st Order)

Group	CMIN	DF	CFI	GFI	RMR	RMSEA
Driver	66.293	51	0.997	0.994	0.04	0.024
SDP	137.178	132	0.973	0.999	0.049	0.009
BSRP	88.431	74	0.976	0.996	0.045	0.020
BSRI	5.481	5	0.997	0.949	0.013	0
CA	80.614	71	0.978	0.997	0.031	0.016
PR	2.155	2	0.998	1	0.012	0.012

Table 4 Fit indices after CFA (2nd Order)

Group	CMIN	DF	CFI	GFI	RMR	RMSEA
SDP	19.983	14	0.995	1	0.021	0.00
BSRP	20.778	20	0.990	0.999	0.031	0.009
CA	3.295	2	0.997	0.97	0.022	0.036

GFI: Goodness of Fit Index **CFI:** Comparative Fit Index **RMR:** Root Mean Square **RMSEA:** Root Mean Square Error of Approximation

All values of goodness-of-fit indices were found to be satisfactory with respect to the cut-off values mentioned above. Also, all values for reliability, EFA and CFA were found to be satisfactory as per the cut-off values mentioned above. Constructs were supposed to be reliable and valid as per the analysis.

5. Discussion and Conclusion

The scale emerging from this study shows a good degree of reliability, validity and uni dimensionality in each of its dimensions. This questionnaire contains 19 factors with total 68 items. All constructs used have internal consistency by seeing Cronbach's alpha value. EFA analysis shows that there is no cross loading between items and satisfactory KMO values. First and second order CFA gives all fit indices above 0.9 and all error values

below 0.1 This questionnaire is reliable and valid.

6. Limitations & Scope for Further Study

This study has been carried out in a scenario where the product is stable and established. Buyer and suppliers selected here are well-established and manufacturing the respective product for a considerable time. End user is supposed to select the product from an easily available range. Innovation considered is incremental innovation, not sudden/drastic innovation. Study can be carried to include the impact of demographic variables on the model. Also study can be done to find the impact of responses on model by differentiating the responses from Indian companies and foreign companies situated in India. Other than Auto sector and Machine/Components manufacturing sector, study can be carried out to see the applicability of model.

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