Using CFA find out the relationship between the Latent Critical factors for Buyer Supplier relationship Improvement in Indian Automotive sector

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Abstract: For keeping core competency in mind as well as make buyer more compatible. They have to make their supplier competitive as well to stay in market. 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. In this article, After Exploratory Factor analysis (EFA) is applied for grouping the critical success factors with their items. Research is more interested in finding out relationship between these success factors by applying Amos by using SPSS software. The multi-item scale shows strong evidence of reliability as well as convergent, discriminant validity in a sample. Confirmatory Factor Analysis and Reliability Analysis are applied on data for validation of instrument. Data from 300 respondents from automotive industry were used for analysis.

***Index Terms*- Supplier Development Practices, Buyer Supplier Relationship Development, Buyer Supplier Relationship practices, Confirmatory Factor Analysis.**

I. INTRODUCTION

As automobile is second largest manufacturing hub in India. To sustain in market buyer is expected to make is innovation, quality, time to market likewise problems are their listed below in detail. Researcher is more interested in identifying link between success factors for supplier and buyer relationship by applying CFA. 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).

II. 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).

Factors Identification:-

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

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 (Krause et al., 1998; Hahn 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; 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; Krause et al., 1998; Handfield et al., 2000).

Effective Communication:

Effective Communication between buyer and supplier leads to minimize misunderstanding and clarity in goal. 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; P.K. 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).

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. Early supplier involvement benefits in time and cost saving with improved quality (Eisto 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; 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; Wagner et al., 2011).Trust has been recognized in the literature as important in supply chain relationships (Handfield and Bechtel, 2002). Trust refers to the extent to which relationship partners perceive each other as credible and benevolent

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; Wagner and Krause, 2008).

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 (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).

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). 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).

Competitive Advantages :-

Following are competitive advantages for the study

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 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 (Petroni and Panciroli, 2002). The supplier innovativeness has always positive impacts on manufacturer performance across multiple dimensions and is always appreciated by manufacturer. (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). Improvement in relationship between buyer and supplier leads to benefits both with improvement in performance (Sroufe and Curkovic, 2008; Yeung, 2008).

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). Profitable project especially from the supplier's perspective leads to satisfaction and future business growth (Mao et al., 2008).

III. STATEMENT OF PROBLEM

Supplier development can be considered as an indicator of a cooperative buyer supplier relationship. Although buyer-supplier relationships have started to be researched but has not been linked to supplier development specifically. Effect of improved relationship need to be study for aching competitive advantages.

Research Objectives

Following are the research objectives for the study.

1) To find the critical success factors for Drivers for SDP, BSRP, BSRI, CA
2) To perform the CFA and Reliability analysis on obtained data

PROPOSED FRAME WORK FOR RESEARCH

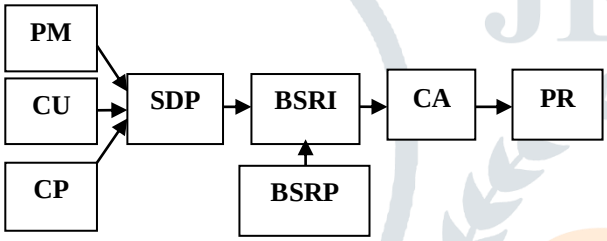


Figure1. Proposed Framework for research

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

IV.METHODOLOGY :

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

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). Data from experts was also complied via mail and interviews were conducted through telephonic mode. To enable respondents to indicate their responses a five–point Likert interval scale was used.

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. Target respondents were plant managers, operations managers, quality managers; quality heads, and sourcing managers. Researcher approached 411 respondents, out of which 312 respondents showed interest to response and at last data from 300 respondents were used as 12 respondents filled information incompletely. Out of 300 items, 5 items (CP5, SE4, TR6, SPBSR7, BSRI6) were deleted after conduction of Exploratory Factor Analysis (EFA) due to cross loading and their least importance in questionnaire for respective construct.

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. 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.

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), 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.

Likewise researcher have find out the relationship between these Latent Construct and Observed relationship get the following Table values which was find significant.

Table 1.

Construct	No. of items (Before Study)	No. of items (After Study)	Cronbach's alpha (α)	EFA loading range	KMO Value
PM	5	4	0.748	0.859 to 0.929	0.846
CP	4	4	0.732	0.932 to 0.946	
CU	4	4	0.746	0.882 to 0.880	
TE	4	4	0.818	0.740 to 0.840	0.727
RE	2	2	0.918	0.926 to 0.930	
EC	4	4	0.923	0.848 to 0.945	
SE	4	3	0.91	0.904 to 0.927	
AS	3	3	0.873	0.846 to 0.911	
TMS	3	2	0.818	0.823 to 0.882	
JA	3	3	0.828	0.879 to 0.940	
TR	6	5	0.929	0.797 to 0.912	0.880
LTC	3	3	0.801	0.796 to 0.875	
SPBSR	7	6	0.931	0.803 to 0.880	
BSRI	6	5	0.947	0.889 to 0.929	0.900
OE	4	4	0.893	0.794 to 0.901	0.850
INV	6	4	0.890	0.679 to 0.907	
TAD	4	4	0.914	0.822 to 0.901	
RIM	2	2	0.839	0.889 to 0.920	
PR	4	4	0.814	0.709 to 0.854	0.805

Table 1: Data Analysis for 300 Automotive Industry.

Confirmatory Factor Analysis (CFA):

Confirmatory Factor Analysis (CFA) is a special use of Structural Equation Modelling (SEM), which is also known as linear structural relationship model (Marsh and Hocevar, 1985; Joreskog and Sörbom, 1997) 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, standardised residuals, and modification indices (Kaynak, 2003; Nahm et al., 2004; Byrne, 2013).

The literature reviewed was found to highlight the significance of 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 ($\chi 2/df$). 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:

Starting with RMSEA, (RMSEA < 0.05), good model fit; (0.05 <RMSEA< 0.10) reasonable model fit; and (RMSEA> 0.10), poor model fit. Also RMR (Root Mean Square Residual) and Standardised Root Mean Square Residual (SRMR) is an absolute

measure of fit and is defined as the standardised difference between the observed correlation and the predicted correlation. A value less than 0.08 is generally considered a good fit and a value between (0.08 and 0.10) indicates reasonable model fit (Hu and Bentler, 1999). Moreover, an additional fit index used most frequently 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) can indicate an over-fitted model, and high values (>3.0) can indicate an under-parameterised 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, which is considered a moderate fit while >0.90 is a great fit (Naor et al., 2008).

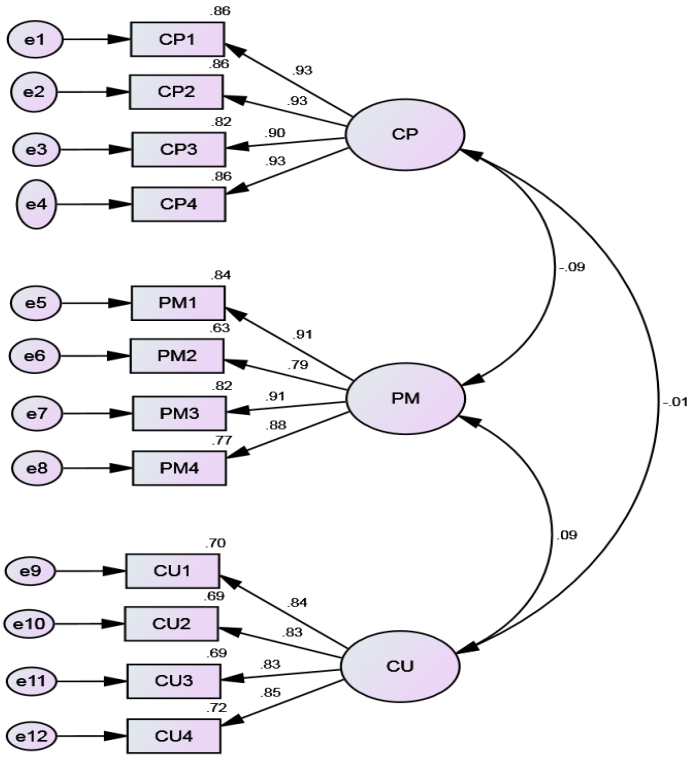
First-Order CFA:

First-Order CFA was conducted for all the six primary groups, viz., Drivers for Supplier Development, SDP, BSRP, BSRI, CA and PR.

Initial Measurement Model for Drivers of Supplier Development:

The initial measurement model was then constructed using the explored factor structure, as illustrated in Figure 1. The Drivers for Supplier Development construct is reflective due to the homogeneity of the items. The CFA results indicate that all of the parameter estimates are significant at five percent level, and all the model fit indices are above/below the acceptance level (GFI=0.979, CFI=0.993, RMR=0.040, RMSEA=0.038). Thus, we conclude that the original measurement model with all the indicators, as specified in Figure 1, fits the data well. Further, the composite reliability (CR) for each of the three factors of Drivers is well above the acceptable limit - 0.898 (for Product Measure), 0.818 (for Competitive Pressure), and 0.855 (for Customer Uncertainty). Similarly, the average variance extracted (AVE) for each of the three factors of Drivers is well above the acceptable limit - 0.626 (for Product Measure), 0.530 (for Competitive Pressure), and 0.597 (for Customer Uncertainty) (Table 29).Thus, we can conclude that the Drivers for Supplier Development construct is internally reliable and convergent valid.

Figure 1.Initial Measurement Model for Drivers of Supplier Development (first order)



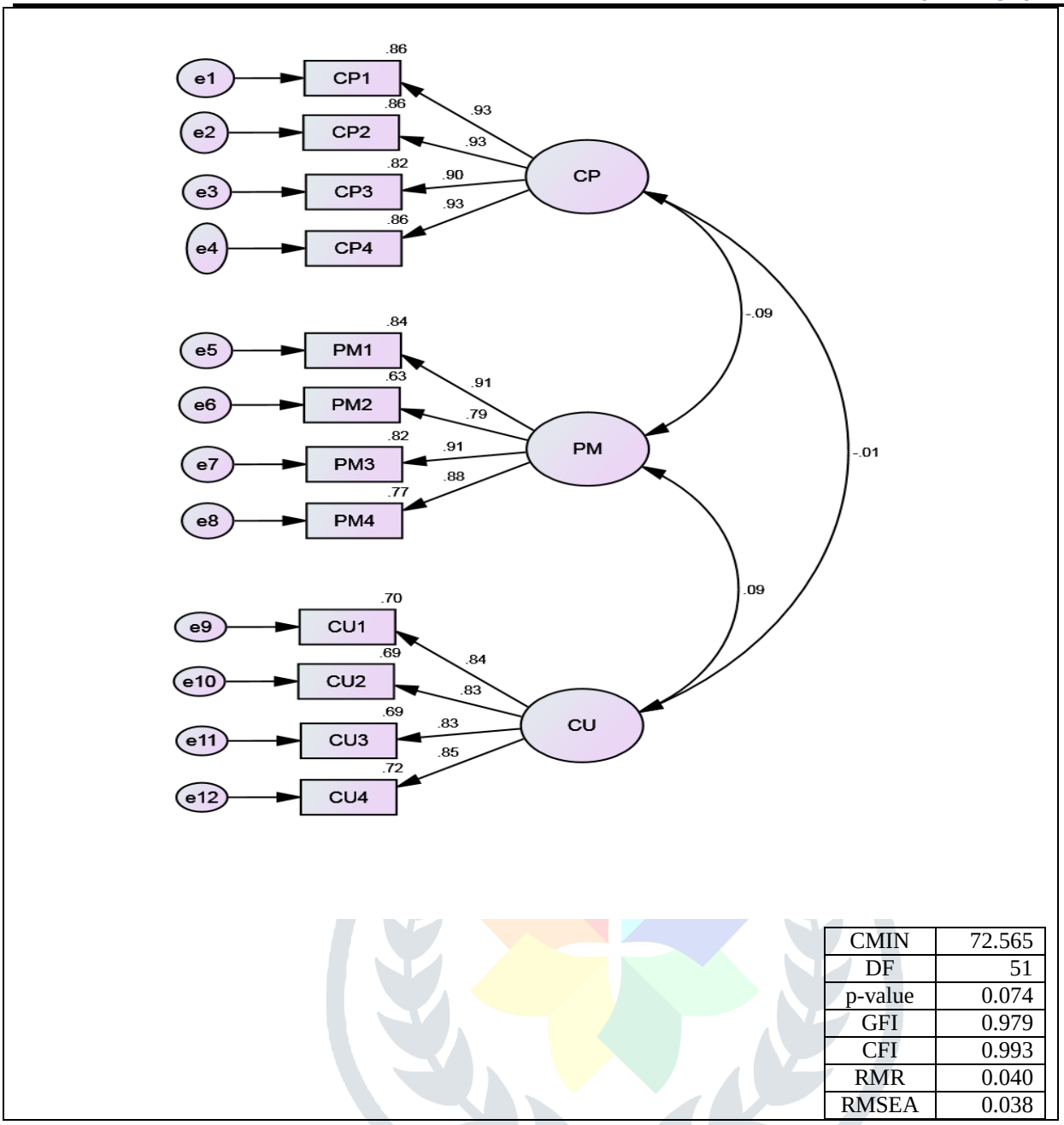
Second-Order CFA:

Second-Order CFA was conducted for Supplier Development Practices, Buyer-supplier Relationship Practices and Competitive Advantages. As the covariance between latent variable is high correlation so researches has to make second order CFA.

Second-Order Latent Initial Measurement Model for Buyer-Supplier Relationship Practices

The initial measurement model was then constructed using the explored factor structure, as illustrated in Figure 2. The Buyer-Supplier Relationship Practices construct is reflective due to the homogeneity of the items, and high degree of correlations between the items. The CFA results indicate that all of the parameter estimates are significant at five percent level, and all the model fit indices are above/below the acceptance level, (GFI=0.918, CFI=0.962, RMR=0.019, RMSEA=0.050). Thus, we conclude that the original measurement model, as specified in Figure 2, fits the data well.

Figure 2. Second-Order Latent Initial Measurement Model for Buyer-Supplier Relationship Practices



CMIN	72.565
DF	51
p-value	0.074
GFI	0.979
CFI	0.993
RMR	0.040
RMSEA	0.038

Figure 2. Second-Order Latent Initial Measurement Model for Buyer-Supplier Relationship Practices

After CFA analyzing data for all the group following values are obtained.

Table 2.Fit Indices after CFA (First-Order)

Group	CMIN	DF	CFI	GFI	RMR	RMSEA
Driver for SDP	72.565	51	0.993	0.994	0.04	0.038
SDP	204.856	132	0.974	0.933	0.013	0.043
BSRP	250.039	74	0.947	0.896	0.014	0.089
BSRI	33.081	5	0.981	0.955	0.008	0.137
CA	160.033	71	0.971	0.932	0.012	0.065
PR	0.376	2	1	0.999	0.001	0.00

Table 2 shows the values of fit indices (CFI, GFI, RMR, RMSEA with CMIN and DF), which satisfy the cut-off values. For first-order fit indices, analysis was done for all primary constructs (Drivers for SDP, SDP, BSRP, BSRI, CA and PR).

Fit Indices after CFA (Second-Order)

Table 3 shows the fit indices (CFI, GFI, RMR, RMSEA with CMIN and DF) values, which satisfy the cut-off values. For second-order fit indices, analysis was done for all secondary constructs (SDP, BSRP and CA).

Table 3. Fit Indices after CFA (Second-Order)

Group	CMIN	DF	CFI	GFI	RMR	RMSEA
SDP	250.039	74	0.947	0.896	0.014	0.089
BSRP	168.067	73	0.969	0.930	0.014	0.066
CA	251.957	145	0.962	0.918	0.019	0.050

All constructs show clear pattern matrix with respective items. Based on factor loading value in pattern matrix it can be concluded that items lying in respective constructs explain those constructs effectively.

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 74 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. All values for Reliability (Cronbach's alpha), EFA (first- and second-Order) and CFA were found to be satisfactory as per cut-off values mentioned above. Constructs were supposed to be reliable and valid as per the analysis.

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, study can be carried out to see the applicability of model.

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REFERENCES

[1] Anni-Kaisa K. (2014). The influence of power position on the depth of collaboration. Supply Chain Management: An International Journal, 19(1), 17–30.

[2] Aydin Inemek, Paul M. (2014).The impact of buyer–supplier relationships on supplier innovativeness: An empirical study in cross-border supply networks. *Industrial Marketing Management, 42(1),* 580–594.

[3] Azmawani Abd Rahman, David B. (2009). Advanced manufacturing technology adoption in developing countries: The role of buyer-supplier relationships. *Journal of Manufacturing Technology Management, 20(8),* 1099-1118.

[4] Byrne, B. M. (2001) "Structural equation modeling with AMOS, EQS, and LISREL: Comparative approaches to testing for the factorial validity of a measuring instrument", International journal of testing, Vol.1, No.1, pp.55-86.

[5] Chidambaranathan S., Muralidharan C. and Deshmukh S.G. (2009). Analyzing the critical factors of supplier development using interpretive structure modeling – an empirical study. *International Journal of Advanced Manufacturing Technology*. 43(11), 1081-1093.

[6] Daniel Corsten, Nirmalya K. (2005). Do Suppliers Benefit from Collaborative Relationships with Large Retailers? An Empirical Investigation of Efficient Consumer Response Adoption. *Journal of Marketing, 69(3),* 80-94.

[7] Eisto Taneli, Holtta Venlakaisa, Mahlamaki Katrine, Kollanus Janne, Marko N. (2010). Early Supplier Involvement in New Product Development: A Casting-Network Collaboration Model. *World Academy of Science, Engineering and Technology, 62(1),* 856-886.

[8] Gilbert N Nyaga, Judith M Whipple, Daniel F. L. (2010). Examining supply chain relationships: Do buyer and supplier perspectives on collaborative relationships differ?" *Journal of Operations Management, 28(1),* 101–114.

[9] Hahn C., Watts C., Kim K. (1990). The Supplier Development Program: A Conceptual Model. *Journal of Purchasing and Materials Management, 26(2),* 2-7.

[10] Hald Kim Sundtoft, Ellegaard C. (2011). Supplier Evaluation Processes: The Shaping and Reshaping of Supplier Performance. *International Journal of Operations & Production Management*. *31(8),* 888-910.

[11] Joreskog, K. G., & Sorbom, D. (1997) LISREL 8: A guide to the program and applicationsChicago, IL: SPSS.

[12] Krause D. R., & Ellram L. M. (1997). Success factors in supplier development. *International Journal of Physical Distribution & Logistics Management, 27(1),* 39-52.

[13] Krause D.R., Handfield R.B. (1999). Developing a world-class supply base, Executive summary. Centre for Advanced Purchasing Studies. Tembe. AZ.

[14] Krause D.R., Handfield R.B., Scannell T.V. (1998). An empirical investigation of supplier development: reactive and strategic processes. *Journal of Operations Management, 17(1),* 39-58.

[15] Lau Antonio K.W. (2011). Supplier and Customer Involvement on New Product Performance: Contextual Factors and an Empirical Test from Manufacturer Perspective. *Industrial Management & Data Systems*. *111(6),* 910-942.

[16] Li W., Humphreys P.K., Yeung A and Cheng T.C.W. (2007). The impact of specific supplier development efforts on buyer competitive advantage: an empirical model. *International Journal of Production Economics, 106(1),* 230-247.

[16] Mao J., Lee J., Deng C. (2008). Vendors' perspectives on trust and control in offshore information systems outsourcing. *Inf. Manage, 45(7),* 482–492.

[17] Naor, M., Goldstein, S. M., Linderman, K. W., & Schroeder, R. G. (2008) "The Role of Culture as Driver of Quality Management and Performance: Infrastructure versus Core Quality Practices", *Decision Sciences*, Vol.39, No.4, pp. 671-702.

[18] Nunnally J. C. (1978). Psychometric Theory. Tata McGraw-Hill Education.

[19] Rokkan A.I., Heidi J.B., Wathne K.H. (2003). Specific investments in marketing relationships: expropriation and bonding effects. *Journal of Marketing Research*, *40(2),* 210–224.

[20] Sanders Nada R., Chad W. Autry, David M. G. (2011). The Impact of Buyer Firm Information Connectivity Enablers on Supplier Firm Performance: A Relational View. *International Journal of Logistics Management*, *22(2),* 179-201.

[21] Srikanta Routroy and Sudeep Kumar P. (2013). Evaluating the critical success factors of supplier development: a case study. *Benchmarking: An International Journal, 20(3),* 322-341.

[22] Thatte Ashish A, Subba S. Rao, Ragu-Nathan T.S. (2013). Impact Of SCM Practices Of A Firm On Supply Chain Responsiveness And Competitive Advantage Of A Firm. *The Journal of Applied Business Research*, *29(2),* 499-530.

[23] Wagner S.M. (2006). Supplier Development Practices: An Exploratory Study. *European Journal of Marketing, 40(5),* 554-571.

[24] Wagner S.M. (2011). Supplier development and the relationship life-cycle. *International Journal of Production Economics, 29(1),* 277–283.

[25] Watts Charles A., Hahn, Chan K. (1993). Supplier Development Programs: An Empirical analysis. *International Journal of Purchasing and Materials Management*, *29(2),* 11–17.

[26] Xingxing Zu, Hale K. (2011). An agency theory perspective on supply chain quality management. *International Journal of Operations & Production Management, 32(4),* 423-446.