

An Evaluation of SCM Initiatives in Indian Manufacturing Industries

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ABSTRACT

Delivering great quality and decrease cost is key component of each venture and firm. Nowadays it is exceptionally hard to contend our organizations when organization experience improvements. So, to get great results these organizations embrace some lean assembling process. SCM tries to improve the standard of yield by recognizing and expelling the reasons for imperfections. In this study, we collected information from different enterprises and apply unwavering quality test, AHP, VIKOR. From these results, we came about the conclusion that how profitability and cost relies upon various elements of any industry. According to SCM a perceptible commitment, representatives working all the more helpfully, change in nature of item, efficient working aides in accomplishing positive outcomes. Inspiration and support from top administration and group pioneer influences the execution.

Keywords: SCM, AHP, VIKOR

INTRODUCTION

In business, Supply Chain Management (SCM), the administration of the stream of merchandise and enterprises, includes the development and capacity of crude materials, of work-in-process stock, and of completed merchandise from purpose of cause to purpose of utilization. Interconnected or interlinked systems, channels and hub organizations join in the arrangement of items and administrations required by end clients in an inventory network. Store network administration has been characterized as the “outline, arranging, execution, control, and observing of production network exercises with the goal of making net esteem, fabricating an aggressive framework, utilizing overall coordination’s, synchronizing supply with request and measuring execution all around”.

SCM rehearse draws intensely from the territories of mechanical building, frameworks designing, operations administration, coordination’s, obtainment, data innovation, and showcasing and makes progress toward an incorporated approach. Showcasing channels assume an imperative part in store network administration if your organization makes an item from parts bought from providers, and those items are sold to clients, then you have an inventory network. Some supply chains are straightforward, while others are fairly confused. The

multifaceted nature of the store network will change with the extent of the business and the unpredictability and quantities of things that are produced.

Expanding on globalization and specialization, the expression “SCM” has been authored to portray both changes inside supply chains themselves and in addition the advancement of procedures, strategies, and devices to oversee them in this new “time”. The developing ubiquity of community oriented stages is highlighted by the ascent of Trade Card’s store network cooperation stage, which associates various purchasers and providers with money related organizations, empowering them to lead mechanized production network fund transactions. Web is a pattern in the utilization of the World Wide Web that is intended to build inventiveness, data sharing, and coordinated effort among clients. At its center, the basic trait of Web is to help explore the endless data accessible on the Web keeping in mind the end goal to discover what is being purchased. It is the idea of a usable pathway. SCM repeats this idea in inventory network operations. It is the pathway to SCM comes about, a blend of procedures, systems, instruments, and conveyance choices to guide organizations to their outcomes rapidly as the multifaceted nature and speed of the inventory network increment because of worldwide rivalry; quick value variances; changing oil costs; short item life cycles; extended specialization; close, far, and off-shoring; and ability shortage.

SCM use arrangements intended to quickly convey comes about with the nimbleness to rapidly oversee future change for nonstop adaptability, esteem, and achievement. This is conveyed through competency systems made out of best-of-breed inventory network mastery to comprehend which components, both operationally and authoritatively, convey comes about, and in addition through personal comprehension of how to deal with these components to accomplish the coveted outcomes. The arrangements are conveyed in an assortment of alternatives, for example, no-touch through business prepare outsourcing, mid-touch by means of oversight administrations and programming as an administration, or high-touch in the customary programming sending model.

A simple supply chain is made up of several elements that are linked by the movement of products along it. The supply chain starts and ends with the customer.

- **Customer:** The client begins the chain of occasions when they choose to buy an item that has been offered available to be purchased by an organization. The client contacts the business division of the organization, which enters the business and arrange for a particular amount to be conveyed on a particular date. In the event that the item must be fabricated, the business request will incorporate a necessity that should be satisfied by the creation office.
- **Planning:** The prerequisite activated by the client's business request will be consolidated with different requests. The arranging division will make a creation plan to deliver the items to satisfy the client's requests. To fabricate the items the organization will then need to buy the crude materials required.
- **Purchasing:** The acquiring office gets a rundown of crude materials and administrations required by the creation division to finish the client's requests. The acquiring office sends buy requests to choose providers to convey the important crude materials to the assembling site on the required date.
- **Inventory:** The crude materials are gotten from the providers, checked for quality and exactness and moved into the stockroom. The provider will then send a receipt to the organization for the things they conveyed. The crude materials are put away until they are required by the creation division.
- **Production:** In view of a creation plan, the crude materials are moved stock to the generation territory. The completed items requested by the client

are produced utilizing the crude materials obtained from providers. After the things have been finished and tried, they are put away back in the stockroom preceding conveyance to the client.

- **Transportation:** At the point when the completed item touches base in the distribution center, the delivery division decides the most effective technique to send the items with the goal that they are conveyed at the very latest date indicated by the client. At the point when the merchandise is received by the client, the organization will send a receipt for the conveyed items.

SCM (Supply Chain Management) incorporate points from the diverse procedures and assembling operations, buying, transportation, physical appropriation into a solitary program. After this SCM co-ordinates and incorporates every one of these exercises into a solitary procedure. It connects every one of the accomplices in the chain. Inside any association or industry store network alludes to an extensive variety of practical territories. In this inbound and outbound transportation, warehousing and stock control. Essentially expressed, the store network includes those exercises related with moving merchandise from the crude materials arrange all the way to the finish client. The vital part of the inventory network administration for providing products to their individual spots where they are required.

Supply chain management is urgent for the achievement of any scale production and manufacture extend and can be the integral variable between an effective venture and a venture loaded with deferrals and cases. Better material administration strategies and choice models are expected to enhance the electrical business current practices, in this manner expanding productivity and limiting expenses. A successful supply administration framework is basic for overseeing effective material administration to maintain a strategic distance from material deficiencies, removals, misfortune, and robbery which may bring about increments in team sit without moving circumstances, loss of profitability and deferral of exercises.

On the off chance that an organization hopes to accomplish profits by their production network administration handle, they will require some level of interest in innovation. The spine for some huge organizations has been the endlessly costly Enterprise Resource Planning (ERP) suites, for example, SAP and Oracle. These undertaking programming usage will incorporate an organization's whole store network, from buying of crude materials to guarantee administration of things sold. The many-

sided quality of these applications requires a critical cost, a financial cost, as well as the time and assets required to effectively actualize a venture wide arrangement. Purchase in by senior administration and sufficient preparing of staff is vital to the achievement of the usage. There are presently numerous ERP answers for browse and it is vital to choose one which fits the general needs of an organization's inventory network. Since the wide reception of Internet advancements, all organizations can exploit web-based programming and internet correspondences. Moment correspondence amongst sellers and clients takes into consideration opportune updates of data, which is enter in administration of the inventory network.

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Following activities involved as part of company supply chain management:

1. Inventory management.
2. Transportation service procurement.
3. Material handling.
4. Inbound transportation.
5. Warehouse management.

Principles of SCM are:

1. Segment client in light of administration needs.
2. Customize as indicated by the assets the inventory network administration arrange.
3. Listen to signs of market request and plan as needs be.
4. Differentiate item nearer to the client.
5. Sources that are utilized for supply oversaw deliberately.

6. Develop a store network wide innovation system.
7. Adopt channel-spreading over execution measures

In this approach there are three steps which are following:

- Strategic analysis
- Specification
- Implementation
- Strategic analysis: In this, the investigation of present and future needs of business and advancement of those answers for meet these necessities. This procedure includes the models made by total to get the full comprehension of the principle issues and to analyze the viable options.

This approach gives:

- 1) Confidence in the recommended solution.
- 2) Identifies a clear way forward.
- Specification: This progression gives right intelligent accentuation on every part of the arrangement. It gives a straight details of recommendations limiting the danger of unanticipated cost.
- Implementation: This is the last stride. In this progression all exercises and pre-results are actualize to get positive outcome. To achieve superior performance, there are five key dimensions of supply chain management.
- Strategy: The alignment of supply chain strategies with the overall business dimensions. Key decision points for managers are following:
 - a. What is needed to align the supply chain with the business strategy.
 - b. Which type of channels of distribution best meet our goals and needs of the customer.
- Infrastructure: Infrastructure effects cost service performance of firm or organisation and established the boundaries of operation of supply chain for good performance.
- Process: The desire to achieve functional excellence and integration across all main processes. Managers must ask themselves the following:
 - a. Which all the main supply chain processes driving the business.
 - b. How can we build linkage with our suppliers and customers.

- Organization: Giving the counterfeit achievement variables of union, amicability and joining cross-wise over association elements. Inquiries to consider incorporates:
 - a. To oversee COH forms adequately. It chooses what level of cross-utilitarian reconciliation is required to get great outcomes.
 - b. What execution estimation and detailing structure can help us accomplish our targets.
- Technology: Technology gives the power to the supply chain to operate on new level of performance and is making new ideas for those companies to able to harness it.

LITERATURE REVIEW

- Jaffar *et al.*, (2007), depicted the challenges faced by the UAE dates industry in adopting and aligning its business strategy with the use of Information System and Information Technology (IS/IT) within its operations. Highlights the UAE dates industry existing state of readiness in adopting IS/IT and the extent of optimizing supply-chain management business practices.
- Bhardwaj, (2013), Green Supply Chain Management (GSCM) has become the driver of sustainable strategy. It has been gaining increasing attention within both academia and industry for making the industry competitive. With the ever increasing demand for reducing carbon foot prints and green house gas emission, there is a need to study the various parameters and drivers of sustainable development, especially in supply chain management. The need for developing the sustainable model including the drivers of sustainability needs to be designed. The paper aims to discuss these issues. After providing a background discussion on GSCM, the authors categorize and review recent GSCM literature under three broad categories, with a special emphasis on investigation of adoption, diffusion, and outcomes of GSCM practices. Within this review framework, the authors also identified GSCM research questions that are worthy of investigation. The study suggests that the main drivers of GSCM include the environmental policy and the green human resource management by providing them training for adopting sustainability practices. Besides this, another key driver is the sustainability criteria in supplier selection which was found to be enhancing the outcomes of sustainability.
- Bhardwaj, (2016), discussed the issue with the ever increasing demand for reducing carbon foot prints and greenhouse gas emission, there is a need to study the various parameters and drivers of sustainable development, especially in supply chain management. The need for developing the sustainable model including the drivers of sustainability needs to be designed. After providing a background discussion on GSCM, the authors categorize and review recent GSCM literature under three broad categories, with a special emphasis on investigation of adoption, diffusion, and outcomes of GSCM practices. Within this review framework, the authors also identified GSCM research questions that are worthy of investigation. The study suggests that the main drivers of GSCM include the environmental policy and the green human resource management by providing them training for adopting sustainability practices. Besides this, another key driver is the sustainability criteria in supplier selection which was found to be enhancing the outcomes of sustainability.
- Hsu *et al.*, (2016), explores the global outsourcing shifts manufacturing jobs to emerging countries, which provides new opportunities for improving their economic development. The authors develop and test a theoretical model to predict; first, how sustainable supply chain initiatives might influence reverse logistics outcomes and second, the impact of eco-reputation and eco-innovation orientation strategies on the deployment of sustainable supply chain initiatives. The results show that firms that implement sustainable supply chain initiatives can realize positive reverse logistics outcomes; the study also provides new insights into eco-innovation and eco-reputation strategic orientations as theoretically important antecedents of sustainable supply chain initiatives.
- Aloini *et al.*, (2012), analyzed the development of Supply Chain Management (SCM) introduction in the construction industry, investigating the risk factors affecting the implementation of SCM principles. To achieve the research objective a literature review approach was adopted, which involved the selection and classification of about 140 research articles. Papers were critically classified and analyzed according to a Risk Management (RM) perspective.

- Meade *et al.*, (2009), explored the magnitude and duration of the negative impact on reported profits experienced during a lean manufacturing implementation. Their research uses a multi-period simulation model of a production operation that incorporates a manufacturing planning and inventory tracking system. A hybrid simulation approach is employed using Microsoft Excel to model the Manufacturing Resource Planning (MRP-II) function, while Pro Model simulation software is used for the development and operation of the model production environment.
- Subhankar *et al.*, (2011), studied various perspectives and practices regarding risks, benefits, and challenges in global IT outsourcing. They delve into some important issues IT outsourcing, particularly the challenges along with benefits. Finally, we present case studies of two Global 200 organizations and validate some of the claims made by previous researchers on it outsourcing. This study will help the management to identify the risk factors and take the necessary remedial steps. Risk factors are weighed to reflect financial implications as well. Other than effective project management, and participative association of vendors in formulating design specifications, it is very important to have planned and periodic reviews to improve the communication with the team members.
- Eriksson *et al.*, (2015), assessed elements that affect social responsibility in supply chains and beyond. The elements are classified into drivers, facilitators and inhibitors. Sixteen elements are identified and presented in a framework along with their proposed constituents. The elements capture structures and management principles of supply chains that are important for social responsibility.
- Cristina *et al.*, (2015), analyzed the complex inter-relationships among environmental drivers, Green Supply Chain Management (GSCM) approaches and performance. Design/methodology/approach – A survey was sent to a sample of managers in the field of Purchasing and Supply Management in Spanish firms. Data were analyzed using Smart PLS 2.0 to test a model that relates GSCM drivers, GSCM approaches and performance. Results show that coercive and non-coercive drivers have different implications in terms of GSCM approaches. Moreover, monitoring itself is not sufficient to improve performance; firms need to adopt collaborative practices with their suppliers. Results show that whereas collaboration has a direct effect on performance, monitoring has only an indirect relationship through collaboration. This study analyses the implications in terms of drivers and performance for each GSCM approach (monitoring and collaboration), using a quantitative approach.
- Soni *et al.*, (2016), several authors in extant literature have shown concern towards lacuna in availability of standard constructs in Supply Chain Management (SCM). These standard constructs can represent pillars of SCM excellence. However, frameworks on SCM excellence unlike its contemporary fields are very few. Thus the purpose of this work is to develop a path analysis for proposed framework of SCM excellence in Indian manufacturing industry proposed by Soni and Kodali (2014) using Interpretive Structural Modelling (ISM) and Structural Equation Modelling (SEM). The major findings revealed that ISM based on focal company having highest SCEI, is statistically fit for SCM excellence framework, and finally the structural models of the constructs for each pillar of SCM excellence are also formed by using path analysis.
- Chen, (2015), developed green supplier selection model using an index system based on a combination of traditional supplier and environmental supplier selection criteria. Strategies that balance economic and environmental performance are increasingly sought after as enterprises that increasingly focus on the sustainability of their operations. Green Supply Chain Management (GSCM) in particular, enables the integration of environmentally friendly suppliers into the supply chain to be systematised to fit with specific environmental regulations and policies. More persuasively, GSCM allows enterprises to improve profits whilst lowering impacts on the global environment. Senior managers were found to rank traditional criteria more highly than environmental alternatives - the implication being that for the company, concerned, it may take some time before environmental awareness is fully assimilated into GSCM practice.
- Chung *et al.*, (2008), aimed to examine how trust interacts with factors affecting inter organizational knowledge sharing in green supply chains, where cooperation and competition coexist. The paper

finds that trust is the pivot of the factors influencing inter organizational knowledge sharing. The more a factor contributes to trust positively (such as participation and communication) or negatively (such as opportunistic behavior), the more the factor contributes to knowledge sharing correspondingly. The factors with no significant influence on trust (such as shared values and learning capacity) have no or less influence on knowledge sharing. The new research model developed allows the relationships between trust and other influencing factors on inter organizational knowledge sharing to be explored. The model reflects the coexistence of the cooperation and competition relationships between supply chain members, which is not dealt with in previous studies.

- Tan, (2014), examined how corporate entrepreneurship, social capital and resources contribute to the implementation of Supply Chain Management (SCM) practices in Association for Southeast Asian Nations (ASEAN) automotive industry. The analysis of survey data suggests that corporate entrepreneurship theory and social capital theory play a key role in motivating and preceding SCM practices. However, traditional resource-based explanations of SCM decisions by western manufacturing firms do not always apply to ASEAN automotive suppliers.
- Du *et al.*, (2007), provided a case study of a successful corporate group, Yue Yuen Industrial Holdings Limited, which acquired its competitive advantage through Supply Chain Management (SCM) and Supply Chain Integration (SCI). Focusing on this as a representative example, the paper discusses the features, operations model and performance of SCM and SCI as a useful reference for business, enterprise and academia. Through nearly two years of research work, it was found that Yue Yuen's success in supply chain management lies in its large investment in information technology. It was found that a global supply chain strategy should target timeline improvements in product development and procurement to produce optimal effects in terms of cost and quality. Rather than optimizing a single process or segment of the supply chain, a firm should target improvements throughout the entire supply chain.
- Yang *et al.*, (2010), explored relationships between lean manufacturing practices, environmental man-

agement (e.g., environmental management practices and environmental performance) and business performance outcomes (e.g., market and financial performance). This research model presents lean manufacturing as an important antecedent of environmental management practices.

- Mandal *et al.*, (2016), explored how Knowledge Management Strategy (KMS), Technology Management Strategy (TMS), and Information Management Strategy (IMS) influence an organization's performance. The purpose of this paper is to study how Knowledge Management strategy (KMS), Technology Management Strategy (TMS), and Information Management Strategy (IMS) influence an organization's performance.
- Larson *et al.*, (2008) The purpose here is to report results of a survey in support of re-designing the Purchasing Management Association of Canada (PMAC) professional accreditation program, the Certified Professional Purchaser (CPP). The paper finds that PMAC members lack a common view of SCM. While 63 percent have adopted a broad SCM perspective; 37 percent have a more narrow perspective. However, the most important topics for supply chain professionals are robust across the perspectives. These topics pertain to general managerial skills (e.g. communication, leadership and relationship building); rather than specific functional or analytical tools and techniques.
- Dubey *et al.*, (2013), explored the antecedents of Indian firms practicing green manufacturing practices and their impact on extended supply chain performance. The factor analysis output has further validated the findings from literature review. The factor analysis output suggests that Total Quality Management (TQM), Supplier Relationship Management (SRM), R&D and technology and lean manufacturing practices are important determinants of Indian firms practicing green manufacturing practices which impact extended supply chain performance. The regression analysis output has further established that TQM and R&D and technology are strong determinants of extended supply chain performance. However, present study does not support SRM and lean manufacturing practices from respondent's perspective. However, it further needs to be explored.

- Jharkharia *et al.*, (2006), explored the dissimilarities in supply chain practices among different sectors of Indian manufacturing industry through development and testing of some hypotheses. It is observed from this study that the companies in the auto sector significantly differ from those in the other sectors in the adoption of SCM practices. Engineering and auto sectors have some similarities in certain aspects of SCM.
- Yu-Anne Shiah, (2016), explored the moderation effect of environment uncertainties (supply, competition and demand) in the relationship between a firm's drivers (internal and external) and practices (purchasing, design and manufacturing, logistics and internal management) when going green. The result indicates that both the internal and external drivers have significant influence on the adoption of green-related practices when firms go green. It is further confirmed that the practice of green purchasing is significantly influenced by the moderator of environmental uncertainty. Moreover, supply uncertainty has the most significant influence on numerous green practices, such as green purchasing, internal management and green logistics.
- Gullledge *et al.*, (2008), aimed to automate the Supply Chain Operations Reference (SCOR) model as an enabler for process-oriented supply chain business intelligence. In order to achieve the full benefits from the SCOR model, effective business process management and the SCOR Key Performance Indicators (KPIs) must be implemented and used. Unless data collection to support KPI construction is automated, it is difficult to institutionalize the SCOR model as a measurement and benchmarking framework. We have demonstrated that automated support for KPIs is feasible and achievable.
- Geng *et al.*, (2010), introduced environmental, Green Supply Chain Management (GSCM), experiences of large Japanese manufacturers. A comparative analysis shows that Japanese large manufacturers implement one key GSCM practice, internal environmental management, much more actively and effectively than Chinese manufacturers. The sample of Japanese manufacturers implement four other GSCM practices green purchasing, customer co-operation with environmental considerations, eco-design and investment recovery – at similar levels when compared to Chinese manufacturers.

OBJECTIVES

The present research work has emphasized on the following objectives:

1. Synthesizing the concept of Success in Indian Manufacturing Industry.
2. Exploring SCM initiatives in Indian Manufacturing Industry.
3. Analyzing the impact of SCM on Success in Indian Manufacturing Industry.

DATA ANALYSIS

Correlation Analysis

The purpose of correlation was to identify the relationship between each statements within input and output parameters. Moreover, the direction of perception was measured by using correlation by assessing statements as all were measured on the same scale. The correlation process was Karl Pearson Correlation with significances level 0.05.

The purpose of above correlation matrix was to establish the relationship and its direction between different parameters of the organizations. The hypothesis was also framed for the significances of the relationship between the parameters at 0.05 levels of significances.

H₀₁: There was no relationship between productivity and input parameters.

The analysis of the above correlation matrix showed that the above null hypothesis assumed was not acceptable as the correlations obtained between productivity and input parameters was significant and they were being affected in the organization in a positive manner. It was inference that the correlation of productivity with the parameters was significant positive.

H₀₂: There was no relationship between profit and input parameters.

The analysis of the above correlation matrix showed that the above null hypothesis assumed was not acceptable as the correlations obtained between profit and input parameters was significant and they were being affected in the organization in a positive manner. It was inference that the correlation of profit with the parameters was significantly positive.

Table 1: Karl Pearson Correlation Matrix of Input Factors with Output Factors

	Productivity	Profit	Quality Control	Market Share	Customer Base	Production Time	Growth	Product Flexibility	Environmental Outcomes	Production Capability	Competitiveness
Setup time	.645	.735	.443	.527	.474	.410	.552	.445	.419	.268	.282
Maintenance	.735	.523	.631	.587	.466	.523	.601	.355	.496	.443	.269
Quality	.443	.631	.752	.427	.314	.511	.507	.432	.524	.584	.297
Process control	.527	.587	.427	.407	.639	.501	.402	.479	.496	.393	.325
Transportation	.474	.466	.314	.639	.562	.479	.326	.660	.407	.440	.466
Facilities Layout	.410	.523	.511	.501	.479	.618	.604	.404	.646	.639	.261
Customer orientation	.552	.601	.507	.402	.326	.604	.510	.361	.390	.481	.360
Issue Relate To Inventory Control	.445	.355	.432	.479	.660	.404	.361	0.319	.408	.392	.480
Management Commitment	.419	.496	.524	.496	.407	.646	.390	.408	0.423	.781	.330
Employee Involvement	.268	.443	.584	.393	.440	.639	.481	.392	.781	0.471	.410
SCM Issue	.282	.269	.297	.325	.466	.261	.360	.480	.330	.410	0.529

H₀₃: There was no relationship between quality and input parameters.

The analysis of the above correlation matrix showed that the above null hypothesis assumed was not acceptable as the correlations obtained between quality and input parameters was significant and they were being affected in the organization in a positive manner. It was inference that the correlation of quality with the parameters was significantly positive.

H₀₄: There was no relationship between market share and input parameters.

The analysis of the above correlation matrix showed that the above null hypothesis assumed was not acceptable as the correlations obtained between market share and input parameters was significant and they were being affected in the organization in a positive manner. It was inference that the correlation of market share with the parameters was significantly positive.

H₀₅: There was no relationship between customer base and input parameters.

The analysis of the above correlation matrix showed that the above null hypothesis assumed was not acceptable as the correlations obtained between customer base and input parameters was significant and they were being affected in the organization in a positive manner. It was inference that the correlation of customer base with the parameters was significantly positive.

H₀₆: There was no relationship between production time and input parameters.

The analysis of the above correlation matrix showed that the above null hypothesis assumed was not acceptable as the correlations obtained between production time and input parameters was significant and they were being affected in the organization in a positive manner. It was inference that the correlation of production time with the parameters was significantly positive.

H₀₇: There was no relationship between growth and input parameters.

The analysis of the above correlation matrix showed that the above null hypothesis assumed was not acceptable as the correlations obtained between growth and input parameters was significant and they were being affected in the organization in a positive manner. It was inference that the correlation of growth with the parameters was significantly positive.

H₀₈: There was no relationship between product flexibility and input parameters.

The analysis of the above correlation matrix showed that the above null hypothesis assumed was not acceptable as the correlations obtained between product flexibility and input parameters was significant and they were being affected in the organization in a positive manner. It was inference that the correlation of product flexibility with the parameters was significantly positive.

H₀₉: There was no relationship between environmental outcomes and input parameters.

The analysis of the above correlation matrix showed that the above null hypothesis assumed was not acceptable as the correlations obtained between environmental outcomes and input parameters was significant and they were being affected in the organization in a positive manner. It was inference that the correlation of environmental outcomes with the parameters was significantly positive.

H₁₀: There was no relationship between production capability and input parameters.

The analysis of the above correlation matrix showed that the above null hypothesis assumed was not acceptable as the correlations obtained between production capability and input parameters was significant and they were being affected in the organization in a positive manner. It was inference that the correlation of production capability with the parameters was significantly positive.

H₁₁: There was no relationship between competitiveness and input parameters.

The analysis of the above correlation matrix showed that the above null hypothesis assumed was not acceptable as the correlations obtained between competitiveness and input parameters was significant and they were being affected in the organization in a positive manner. It was inference that the correlation of competitiveness with the parameters was significantly positive.

REGRESSION ANALYSIS

Multiple linear regression model was applied in this section to develop the mathematical model in between the dependent variable as all process of output and independent variable as all the parameters of the manufacturing competencies and strategic success. The mathematical model developed were each unique for all the process of the output. ANOVA analysis was also

performed for the significances of the regression model and the significances of the independent parameters were identified with the test for the regression coefficients.

Productivity

The following were the regression outputs for the dependent variable Productivity and all rest input parameters as independent variable.

Table 2: Regression Analysis

	Un Standardized Coefficients		Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.186	.270		4.495	.000
Maintenance	.021	.037	.096	.550	.583
Quality	-.010	.037	-.061	-.270	.788
Process control	-.005	.027	-.033	-.197	.845
Transportation	.122	.053	.520	2.279	.025
Facilities Layout	-.043	.044	-.198	-.982	.328
Customer orientation	.111	.037	.521	3.009	.003
Issues Related To Inventory Control	.095	.031	.405	3.081	.003
management Commitment	-.041	.025	-.252	-1.629	.106
Employee Involvement	-.005	.036	-.033	-.133	.894
SCM Issue	-.097	.051	-.307	-1.911	.059

Similar analysis for other factors namely, Profit, Quality, Market share, Customer Base, Production time, Growth, Product flexibility, Environmental outcomes, Production capability, Competitiveness.

approximate values (Saaty, 1980, 1994; Merkin, 1979).

The resulting weights and ranks for the criteria based on above pair-wise comparisons are:

ANALYTICAL HIERARCHY PROCESS (AHP)

'AHP is a structured decision making technique that involves organizing and analyzing multiple criteria by structuring them into hierarchy and assess their relative importance. It also helps in comparison of alternatives for every criteria and defining ranks to the alternatives', as stated by DSS Resources. AHP captures both objective and subjective evaluation measures and provides a valuable tool for checking the consistency of the options as suggested by the team and thus reduces favoritism in decision-making.

AHP allows the organization to minimize distractions of decision-making, like planning, lack of participation, focus on which are quite costly and prevents them from making the right choice. AHP is very helpful in situations when the decision set involves multiple criteria with rating according to multiple value choice. It splits the problem into small evaluations while keeping their part in the global verdict. AHP is a Multi-Attribute Decision Making (MADM) technique (Saaty, 1980). It is based on matrices and their corresponding eigen vector's for generating

Table 3: Resultant Matrix

Category	Priority	Rank
Setup time	17.20%	2
Maintenance	8.70%	6
Quality	8.80%	5
Process control	5.60%	8
Transportation	19.80%	1
Facilities Layout	10.60%	4
Customer orientation	6.50%	7
Issues Related To Inventory Control	12.60%	3
Management Commitment	3.90%	9
Employee Involvement	3.00%	11
SCM Issue	3.30%	10

Consistency Ratio = 8.8%

Table 3 presents the results of AHP. The previous work has been validated through this tool as same factors as analyzed from questionnaire analysis were having maximum priority. The factors selected are Transportation, Setup Time, Issues related to inventory control, facilities layout and Quality.

VIKOR METHOD

The compromise solution is a feasible solution that is closest to the ideal solution, and a compromise means an agreement established by mutual concession. The compromise solution method, also known as (VIKOR) the Vlse Kriterijumska Optimizacija I KOmpromisno Resenje in Serbian, which means multi criteria optimization (MCO) and compromise solution, introduced as one applicable technique to implement within MADM. It focuses on ranking and selecting from a set of alternatives in the presence of conflicting criteria. The compromise solution, whose foundation was established by (Yu, 1973; Zeleny, 1982) is a feasible solution, which is closest to the ideal. Here “compromise” means an agreement established by mutual concessions. The VIKOR method determines the compromise ranking list and the compromise solution by introducing the multi-criteria ranking index based on the particular measure of “closeness” to the “ideal” solution.

Table 4: Resultant Matrix

Category	Qi	Rank
Setup time	0.366348	2
Maintenance	0.808504	6
Quality	0.75359	5
Process control	0.87617	8
Transportation	0	1
Facilities Layout	0.597029	4
Customer orientation	0.820815	7
Issues Related To Inventory Control	0.460427	3
Management Commitment	0.925115	9
Employee Involvement	1	11
SCM Issue	0.944253	10

Table 4 presents the results of VIKOR. The previous work has been validated through this tool as same factors as analyzed from questionnaire analysis and AHP were having maximum priority. The factors selected are Transportation, Setup Time, Issues related to inventory control, facilities layout and Quality.

CONCLUSION

The research highlights the attributes of Strategic Potential of SCM on the Indian manufacturing industries in order to enhance performance. The study also critically examines the SCM factors affecting the strategic success of these organizations. Moreover, the study illustrates the relationship of SCM and strategic success factors in

Indian manufacturing industries to have overall business performance. The research critically examines the impact of SCM on strategy formation and thus organization's success. This study is a legitimate reaction to a developing need of both academicians and professionals for better comprehension of the relationship of various SCM's and strategic success attributes.

SUGGESTIONS FOR FUTURE RESEARCH

The primary aim of this research is to synthesis a strategic success concept and to explore manufacturing competencies for automobile manufacturing organizations, while a similar study can also be conducted in future for other Indian products, process and service industries as well. Another direction for future research is developing area-wise, sector-wise and product-wise competency model for automobile manufacturing industry. Thus, individual case study could be conducted for different areas, products and sectors of manufacturing industry and accordingly the typical methodologies can also be evolved in future. The four major manufacturing sector industries (automobile, electrical & electronics, machinery and process) have been included in this study. This study has some suggestions, which future researchers could consider. The suggestions are as follows:

- This study is focused on four manufacturing sector industries automobile, electrical & electronics, machinery and process), other sectors can be included.
- The study disregards the learning effect, owing to the duration the industries have implemented the part of SCM.
- Such studies can also be conducted in other regions of India to develop a holistic competency model for automobile manufacturing industry.

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