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Effect of Supply Chain Management Practices on Operational Efficiency in Pakistan's Manufacturing Sector

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<p>Iftikhar Ahmed Department of Project Management, Abasyn University, Peshawar. Ahmedifti33@hotmail.com</p> <p>Nasir Janjua Department of Project Management, Abasyn University, Peshawar. Nasir.pm49@gmail.com</p>	<p>Abstract</p> <p>The present research aims to analyze the relationship between supply chain management (SCM) and operation efficiency in the context of manufacturing industries of Pakistan. Quantitative research was conducted where structured questionnaires were administered on 217 manufacturing firms which are involved in various industries. The following are the issues considered in terms of SCM: Supplier Relationship Management, Information Sharing, Customer Relationship Management, Lean practices, and Technology Integration. The results showed that all five practices have the significant effect on operational efficiency of the organisation out of which the technology integration and lean practices are having significant and strongly positive relationship with the operational efficiency. The findings of the research showed that there is significant improvement in the operational efficiency of the firms that incorporated most of the SCM practices by 27% as compared to firms that have incorporated lesser communication practices. When it comes to the appreciation of modern SCM practices, it was apparent that the rate of improvement was higher with the small firms in comparison to the big ones. These insights can be useful to manufacturing organizations that are pursuing better and optimal SC performance in an effort to improve their competitiveness. Another interesting thing was specific differences concerning the effectiveness of SCM practice that was defined and provided guidelines for improvement at a sector level. The identified topics motivated by the literature review include: supply chain management, operational efficiency, the manufacturing sector, Pakistan, supplier relationships, information sharing, lean practices, and technology integration.</p>
<p>Keywords:</p>	<p>Supply Chain Management (SCM), Operational Efficiency, Manufacturing Industries in Pakistan, Technology Integration, Lean Practices</p>



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Introduction

It is regarded as one of the largest contributors to the economy of Pakistan as it contributes around 13.5% in the overall Gross Domestic Product (GDP) and approximately more than half of the populace of Pakistan is engaged in it (Pakistan Bureau of Statistics, 2022). This is was becoming a real challenge for the manufacturers in Developing economy and thus the Pakistan experience intense pressure to enhance the efficiencies of operations, product quality as well as the price. SCM has now become a tactical and strategic technique that aims at boosting organizational success in this difficult environment.

SCM covers all the activities related to sourcing of the material, buying, acquisition, converting the raw form of material and managing the flow of materials within the company (Simchi-Levi et al., 2014). It could also be pointed out that practising good SCM is effective in enabling operation excellence defined as the means by which organisations manage to deliver products or services at the lowest overall cost and still meet the quality requirements (Slack et al., 2020). Although there is literature relationship between SCM practices and operational efficiency, their evidence in developing countries especially in Pakistan is scarce.

This manuscript reveals that Pakistan context can be a complex environment to implement SCM, where, for example, inadequate infrastructure, relatively low technological advancement, and particular culture that might affect the such business interactions as information sharing. It is therefore important for both the progress of academicians and practitioners to establish how specific SCM practices impact on operational efficiency in this specific environment. In order to provide an answer to this knowledge gap, this research intends to elaborate the relationship between five distinctly defined SCM practices with operational efficiency markers in the manufacturing industry of Pakistan.

The research questions of the study are as follows:

1. This paper aims at identifying the role and relationship between supplier relationship management and operational efficiency in the context of Pakistan's Manufacturing sector.
2. This paper aims at investigating on how information sharing affects the efficiency of operating systems in manufacturing firms.
3. How exactly does the management of customer relationship affect the operational efficiency?
4. A question that arises here is the effect or contribution of lean practices on the overall manufacture operational efficiency.
5. It is now pertinent to discuss how the integration of information technology in the supply chain processes influences operations.

Answering to these questions through quantitative methodology, this research extends understanding of SCM in developing economies and offers practical implication for practitioners aiming to increase the company's and supply chain's operational performance.

Literature Review

2.1 Supply Chain Management Practices

Supply chain management has been a development process over the last decades from logistics field as supply chain to be strategic management approach to multiple perspectives (Mentzer et al., 2001). SCM practices are the activities that a firm undertakes to ensure that supply chain processes within the organization are well managed as put by Li et al., 2006. According to the literature the following are some of the SCM practices that impact on the performance of an organization.



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Supplier Relationship Management

SRM entails identifying and nurturing long-term close relationship with the suppliers who offer added values based on loyalty and commitment (Chen & Paulraj, 2004). Nyaga et al. (2010) opined that effective SRM enhances the coordination and the efficiency, decrease the transaction costs, and ensures the enhancement of quality and standardization. Zhu and Sarkis (2004) established that when in developing economy, managing collaborative relationships with suppliers have positive impacts on both environmental and economical performance among the manufacturing firms.

Information Sharing

Information sharing is defined as how far and how much of critical and sensitive information is disseminated within firms and their supply chain members (Li et al., 2006). This paper has shown that every exchange of relevant data eliminates the bullwhip effect, increases the accuracy of demand forecasts, and improves the communication between members of the chain (Lee et al., 2000). Other related research by Prajogo and Olhager (2012) suggest that information sharing enhances the operational performance since this leads to a decrease in the cost of inventory and increased product supply in cases of change in market conditions.

Customer Relationship Management

CRM, in the context of supply chain, is therefore the strategies targeting at long term customer interaction with a view to understanding their needs and delivering superior satisfaction (Tan et al., 2002). Such benefits are; Through effective customer relationship management, a manufacturer is in a position to better suit the customer needs hence improving on the service deliver to the clients and at the same time reducing on cost factors (Vickery et al., 2003) According to Flynn et al. (2010), customer integration has a significant and positive relationship with operational performance in the manufacturing organizations.

Lean Practices

Lean manufacturing or lean production system is primarily aimed at manufacturing and supply systems' simplification and reduction of as much non-value added activities as possible (Shah & Ward, 2007). It has adopted strategies such as just in place production, total quality management and continuous improvement programmes. Nawanir et al. also learn that lean inventory practices positively impacts operation performance with regards to cost, quality and cycle time in a manufacture environment.

Technology Integration

They have defined technology integration as the use of technology solutions to support the major supply chain activities together with the coordination of the same by the different supply chain associates. Some of the important technologies for supply chain include Enterprise Resource Planning ERP, Radio Frequency Identification RFID and supply chain analytics tools that enhance visibility and coordination with the aim of improving the decision making process of the system (Yu et al., 2015). According to Zhang et al. (2011), increased usage of technology in a business entity has a positive impact on operation efficiency since it minimizes human error and enhances convergence.

Operational Efficiency in Manufacturing

Manufacturing operational efficiency means achieving the production of goods with the least possible cost while satisfying customers' needs and achieving high quality of the produced goods. There are several performance measures that are useful in evaluating the operational efficiency at the manufacturing operations: Utilisation of resources, manufacturing cost, cycle time, inventory turnover, performance standard and quality.

A number of works have been conducted concerning the link between SCM practices and operational performance. Qrunfleh and Tarafdar while conducting a study with the help of quantitative method revealed that lean supply chain strategy has a positive impact on cost efficiency and quality performance in manufacturing organizations. Wong et al., (2011), also pointed out that I-Sharing and supplier involvement had a direct positive impact in the three operational performance criteria; cost, quality, delivery and flexibility.

Pakistan's Manufacturing Sector Context

Pakistan's manufacturing industry can be divided into various industries such as textile, food, medicines, automobiles, and electronic appliances. That is why, the sector, despite its critical importance for the national economy, has all kinds of problems – short in energy, with limited infrastructure, and a lack of technology, not to mention unstable policies (Khan & Mehmood, 2016).

There are very few works done on SCM practices in context to manufacturing sector of Pakistan. According to Iqbal et al., (2017), this integration has a positive effect on operational performance of the textile industry but there are major implementation issues. In the same year, Haleem et al also studied the effects of lean manufacturing on Pakistani automobile industry and although the results suggested more efficiency in the industries they also pointed out certain limitations of the context in Pakistan.

The existing bodies of knowledge show that there is a deficit in the understanding of the manufacturing industries of Pakistan of how these numerous SCM practices affect the overall operational efficiency of the industry at once. To fill this void this paper seeks to establish the correlation between five adopted SCM practices and operational efficiency measures in quantitative terms.

Theoretical Framework and Hypothesis Development

This paper is built on the conceptual framework that supports two theories namely, the Resource Based View (RBV) and Transaction Cost Economics (TCE). The RBV suggests that resources presumed by firms for attaining competitive advantage include those that are valuable, rare, difficult to imitate, and have no substitutes (Barney, 1991). In this regard, SCM practices can be viewed as company's competencies that may improve business operations. TCE posits that there is a desire on the part of the firms to reduce the transaction costs in the exchanges through the use of proper governance mechanisms (Williamson, 1985). SCM practices can lower transaction costs since the organizations involved in the supply chain are in a position to cut down on the risks which characterize the transaction.

Therefore, according to the findings mentioned above and the theoretical framework, the following hypotheses can be developed:

H1: The management of suppliers has a positive correlation with operational efficiency in Pakistan's manufacturing environment.

H2 Information-sharing is positively associated with operational performance in Pakistan's manufacturing industries.

H3 : Relationship between Customer relationship management and operation efficiency in manufacturing sector of Pakistan.

H4: It was also found that there is a positive correlation between lean practices and operational efficiency in selecting contexts of Pakistan's manufacturing sector.

H5 Technology utilization affects operation performance with a positive sign in the manufacturing industries of Pakistan.

The proposed model demonstrating these hypothesized relationships is provided in the figure below: Figure 1.



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Research Methodology

Research Design

As for the research method, this study used a cross sectional quantitative research design. Therefore, the quantitative approach was deemed fitting for providing generalisable findings for hypothesised relationships between variables. This means data was gathered only once, which is advantageous since it gave a cross-sectional snapshot of the current SCM practices and the current level of operation in the target population.

Population and Sampling

The target population was manufacturing firms in Pakistan of all sectors such as textile, food processing, pharmaceuticals, automobile, electronics, and chemicals. In particular, the method used for sample selection was the stratified random sampling to cover all industries and sizes of firms.

The sample frame was prepared by compiling the databases from Pakistan Bureau of Statistics, association, and chamber of commerce. Following the estimates for the multiple regression dose-response study with five predictor variables, the sample size required to achieve sufficient power for the analysis of estimating medium effect size at a power of 0.80 and 0.05 statistical significance was 200. Based on the estimation of using 30% response rate, 670 firms were invited for participation out of which, 217 usable responses were received, giving a response rate of 32.4%.

Data Collection Instrument

Questionnaire was structured comprising of the following three parts. The first part of the questions was related to the demographic characteristic of the respondent and the organization such as, the type of industry, size of the firm, number of years in operation, and the position of the respondent. The second section assessed the five SCM practices by means of a set of multi-item constructs that has been developed using prior scales from prior empirical work (Li et al., 2006; Flynn et al., 2010; Prajogo & Olhager, 2012). The third section was based on the self-developed index of operational efficiency, which was developed by constructing an index of manufacturing cost, cycle time, inventory turnover, and quality performance indicators based on Gunasekaran et al. (2004) and Wong et al. (2011).

All items of SCM practice and operation efficiency index were evaluated using a five Likert scale with response options ranging from 1: Strongly Disagree to 5: Strongly Agree. The questionnaire was also piloted with 15 supply chain professionals and academicians to establish face validity of the items included in the questionnaire. Some of the changes involved less alterations on what my sources provided them back.

Data Collection Procedure

The questionnaires were completed online and face-to-face in the third quarter of year 2024. Online questionnaires were sent through emails accompanied by an introductory e-mail that described the purpose of the study as well as the need to keep the respondents' identity anonymous. To ensure a good response rate to the questionnaires, follow-up was made after two and four weeks. Face-to-face interviews were carried out on the respondent's appointment in industrial estates, and production units. The targeted respondents were those supply chain managers, operation managers or other higher up executives who have the knowledge of how the supply chain operations are conducted.

Data Analysis Techniques

Statistical analysis was done with the use of Statistical Package for Social sciences (SPSS) software version 28. The tests used in the analysis were descriptive analysis, Cronbach's Alpha reliability analysis, correlation analysis and multiple regression analysis, to analyze the hypothesized relationship. Moreover, the Statistical test on the variation analysis commonly referred to as analysis of variance (ANOVA) was used to compare the level of SCM practice and operational efficiency with the different industry sectors and firm size.

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Results and Findings

Demographic Profile of Respondents

Table 1 gives the demographic profile of the firms who responded out of the 217 that were targeted for the study. The target population consisted of the representatives of the manufacturing industries, and of them, respondents from the textile sector comprised the largest portion (28.1 %), and the food processing industry (21.7%) taking into account the organizational structure of manufacturing industries of Pakistan. Of the subjects by firm size, medium enterprises (from 100 to 499 people) were specified as the largest number (41.9%), followed by large-scale (from 500 people) with 32.7% and small companies (less than 100 people) with 25.4%. The survey participants were asked to select one of the five roles appropriate for them from the provided list: the role was specified by 95.7% of the respondents; the majority of them (68.2%) were senior managers who had immediate control over supply chain or operations.

Table 1: Demographic Profile of Respondents

Characteristic	Category	Frequency (n=217)	Percentage (%)
Industry Sector	Textiles	61	28.1
	Food Processing	47	21.7
	Pharmaceuticals	32	14.7
	Automotive	29	13.4
	Electronics	26	12.0
	Chemicals	22	10.1
Firm Size (Employees)	Small (<100)	55	25.4
	Medium (100-499)	91	41.9
	Large (≥500)	71	32.7
Years of Operation	<5 years	19	8.8
	5-10 years	47	21.7
	11-20 years	82	37.8
	>20 years	69	31.8
Respondent Position	CEO/Director	27	12.4
	Supply Chain Manager	83	38.2
	Operations Manager	65	30.0
	Production Manager	31	14.3
	Other	11	5.1

Reliability and Validity Analysis

The internal consistency of the measurement scales was confirmed by the use of the Cronbach's alpha coefficient. As indicated in Table 2, all measures obtained a high reliability with the Cronbach, alpha coefficients being more than the recommended of .7 (Nunnally & Bernstein, 1994). It's another strategy to ensure the content validity where content validity in the assessment whereby content was validated by reviewing extensive literature review

and pre-testing from the various industry stakeholders. Construct validity was established by using factor analysis, which showed that items loaded correctly in their respective factors what made factor loadings to be greater than 0.6.

Table 2: Reliability Analysis of Measurement Scales

Construct	Number of Items	Cronbach's Alpha	Mean	Standard Deviation
Supplier Relationship Management	5	0.842	3.67	0.79
Information Sharing	4	0.825	3.41	0.83
Customer Relationship Management	5	0.863	3.78	0.71
Lean Practices	6	0.891	3.29	0.88
Technology Integration	5	0.879	3.14	0.92

=Descriptive Statistics and Correlation Analysis

From the mean scores obtained in the Table 2, customer relationship management, and supplier relationship management were the most practiced SCM practices among the firms under study. In this case, the lowest implementation level is seen in technology integration (mean = 3.14) which indicates the some hindrances that exist in adopting technology in manufacturing sector of Pakistan.

Pearson correlation test was used in order to analyze the correlation between the variables on SCM practices and the degree of operating efficiency. The analysis of the results presented in Table 3 can indicate a high level of relationship between five specific SCP practices and operative efficiency. It was also found that there was a fairly positive correlation between operational efficiency and technology integration, lean practices, information sharing, supplier relationship management, and customer relationship management with correlations coefficient of 0.642, 0.614, 0.583, 0.526, 0.495 respectively and significance levels less than 0.01.

Table 3: Correlation Matrix

Variables	1	2	3	4	5	6
1. Supplier Relationship Management	1.000					
2. Information Sharing	0.493**	1.000				
3. Customer Relationship Management	0.458**	0.421**	1.000			
4. Lean Practices	0.412**	0.447**	0.395**	1.000		
5. Technology Integration	0.386**	0.563**	0.352**	0.487**	1.000	
6. Operational Efficiency	0.526**	0.583**	0.495**	0.614**	0.642**	1.000

Note: ** Correlation is significant at the 0.01 level (2-tailed).

Multiple Regression Analysis

Multiple regression analysis was performed to use the data to determine the impact of SCM practices on the hypotheses formulated in this study on operational efficiency. The R^2 is 0.627, therefore, 62.7% of the total variance in the operational efficiency is accounted by the model, Adjusted R^2 is 0.618, F ratio is 70.92, and the significance level of the model is less than 0.05, thereby satisfying the criteria for acceptance of the model as valid for this study.

It was ascertained that all the five SCM practices were statistically significant tools that explained the extent of operational efficiency. This research revealed that technological integration was the most significant predictor of supply chain performance among the independent variables with a coefficient of (0.284, $t = 6.927$, $p < 0.001$), followed by, lean activities ($\beta = 0.247$, $t = 6.073$, $p < 0.001$), information sharing ($\beta = 0.192$, $t = 4.418$, $p < 0.001$), supplier relationship management ($\beta = 0.158$, $t = 3.677$, $p < 0.01$), and customer management ($\beta = 0.143$). It can be seen that all five hypotheses of this study (H1 to H5) are supported by the results of the study.

Table 4: Multiple Regression Analysis Results

Variables	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t-value	p-value	Hypothesis
(Constant)	0.421	0.184		2.288	0.023	
Supplier Relationship Management	0.151	0.057	0.158	2.649	0.009	H1: Supported
Information Sharing	0.175	0.056	0.192	3.125	0.002	H2: Supported
Customer Relationship Management	0.152	0.063	0.143	2.413	0.017	H3: Supported
Lean Practices	0.213	0.052	0.247	4.096	0.000	H4: Supported
Technology Integration	0.235	0.050	0.284	4.700	0.000	H5: Supported

Note: Dependent Variable: Operational Efficiency; $R^2 = 0.627$; Adjusted $R^2 = 0.618$; $F(5, 211) = 70.92$, $p < 0.001$

Analysis by Industry Sector and Firm Size

To analyse if SCM practices have differential effects with respect to industries and the size of the firms, regression analyses for each broad industry and the size of the firms was performed. These are reported in Table 5 below and provide an interesting insight into the distribution of importance across the identified SCM practices.

Table 5: Standardized Beta Coefficients by Industry Sector and Firm Size

Industry/Size	Supplier Relationship Management	Information Sharing	Customer Relationship Management	Lean Practices	Technology Integration	R ²
Industry Sector						
Textiles (n=61)	0.176*	0.207**	0.124	0.283***	0.248**	0.651
Food Processing (n=47)	0.143	0.172*	0.219**	0.196*	0.315***	0.618
Pharmaceuticals (n=32)	0.134	0.226**	0.158	0.249**	0.317***	0.673
Automotive (n=29)	0.167*	0.153	0.129	0.342***	0.276**	0.645
Electronics (n=26)	0.135	0.248**	0.142	0.186*	0.351***	0.687
Chemicals (n=22)	0.149	0.183*	0.163*	0.246**	0.271**	0.612
Firm Size						
Small (n=55)	0.168*	0.156*	0.183*	0.223**	0.345***	0.593
Medium (n=91)	0.147*	0.204**	0.152*	0.257***	0.273***	0.635
Large (n=71)	0.159*	0.214**	0.114	0.267***	0.248**	0.654

*Note: *p < 0.05; **p < 0.01; ***p < 0.001

The measurement cut by industry segments show that the applied technology as a construct has the highest t_coef for the food processing, the pharmaceuticals, and the electronics industries to measure the level of the operational efficiency. While lean practices have a dominant t_coef for the textiles and automobile industries. Thus, the influence of Customer relationship management is stronger in the food processing industry, which may be due to the fact that it provides services to the consumers.

Technology integration is most significant for firm size where its impact is positively significant by 0.345 and significant at p < 0.001, suggesting that technology adoption may significantly benefit the small manufacturing firms. The lean practices show that their impact does not vary significantly with the size of a firm and that the customer relationship management has a propensity to have a greater impact on the small firm than the large firms.

Discussion

The study results also support the research hypothesis that the independent variables of SCM practices enhance the dependent variable of operational efficiency in the context of Pakistani manufacturing organisations. The null hypotheses for all the five hypothesized relationships were rejected with the data presenting insights to the effect that supplier relationship management, information sharing, customer relationship management, lean practices and technology integration significantly influence operational efficiency.



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Therefore, significantly, the findings show that technological support came out as the most influential factor showing that technology plays a key in the improvement of operations in the supply chain. This is in line with the study by Zhang et al. (2011 and Yu et al. (2015), the findings have it that technology solutions tend to improve visibility, coordination and decision making within a supply chain. In particular, in the case of the manufacturing sector of the Pakistan economy, where the diffusion of information technologies is relatively recent and far from the level observable in the US, the results indicate that increased investments in technologies of supply chain are possibly to bring significant increases in efficiency.

The lean practice also shown that it has the second highest effect on operation efficiency in line with the studies conducted by Nawanir et al. (2013) and Qrunfleh and Tarafdar (2014) on the positive correlation between waste reduction and process improvement for the manufacturing sector. The fact that the lean practice now has a wide coverage on all sectors under manufacturing shows that the principle of lean thinking plays a great role in enhancing the manufacturing processes.

The fact that information sharing constitutes an element with a positive impact on operation efficiency underlines the need to establish channels of sharing information among the members of the supply chain network. This is in support with the literature that points at information sharing as a factor in managing inventory costs and responsiveness according to Prajogo and Olhager (2012). The remaining highly significant results include the pharmaceuticals and electronics industries; the food and beverages industry also had a particularly high mean score; this may be because co-ordination is more difficult in such sectors than in others.

The impact of supplier relationship management on the operational efficiency relates well with Chen and Paulraj's (2004) and Nyaga et al. (2010) works that pointed that shared supplier relationships enhance cost reduction and quality improvement. Presumably, these circumstances associated the increase in strength in the textiles and automotive industries with the relevant significance of the material characteristics and homogeneity.

The positive relationship between customer relationship management and operational efficiency affirms earlier arguments by Flynn et al. (2010) on the impact of customer integration on operational performance. Food processing is one of the more customer-sensitive industries and, thus, one would expect the stronger effect of customer-oriented approaches in this industry or for smaller firms that are likely to be closer to consumers. These differences help in the development of implementation strategies because they indicate the relative emphasis placed on the examined SCM practices in diverse industries. As it can be seen, the use of IT has a distinct significance within electronics and pharmaceutical industries, while lean processes are more significant in textiles and automobile industries. Such differences may be due to specifics of the operation of each industry and the peculiarities of the corresponding activity.

When comparing the differences between firms' sizes, it can be seen that, more significant gains in technology integration may result from digitalization for smaller firms than in larger ones, as the latter starts off with higher standards of utilization. : This is useful knowledge for Pakistani policy makers and industry development projects to enhance the notion that extended technological support alongside with the fabrics industry's small manufacturers could produce a tremendous economic effect.

Conclusion

In this paper the authors analysed by quantitative method with 217 manufacturing firms with the aim of examining relationship of the supply chain management practices and operation efficiency of manufacturing sector in Pakistan. Supplier relationship management, information sharing customer relationship management, lean practice and technology integration have been also found significant and beneficial for operational efficiency where the technology integration and lean practices are found to be most beneficial factors.



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Thus, the research adds valuable knowledge to the existing SCM literature because it focuses on the factors influencing SCM in the context of a developing economy characterised by a number of specific challenges and operating conditions. The study establishes that indeed many principles of SCM remain relevant globally while at the same time ascertaining the sensitivity of the importance levels of these principles to industry type and size of the firm.

This research therefore becomes helpful for the policymakers, manufacturing practitioners in Pakistan to draw some valuable recommendations for the strategic decision making process when it comes to SCM investments and improvements strategies. This is in light of the fact that the integration of technology has a strong positive effect on various supply chain, especially in the pharmaceutical, food products, and electronics industries. Likewise, the broad presence of lean practices in various industries means that waste reduction and drive for operational excellence are the concepts yielding strong payoffs.

The study also has implications for policy makers and organizations that represent manufacturing industries, in their attempt to increase competitiveness of Pakistan's manufacturing industries. Specific initiatives, targeted at the promotion of the technological advancement within the industry for SMEs, might provide major rationalization in the given field. Nevertheless, there may be more specific guidelines that should be developed to promote the proper implementation of SCM and to indicate which practices are more important for corresponding industry.

Nevertheless, there are some limitations in this regard, which give hints to future research. It cannot establish causality since it gives a "picture" of the situation at a given time, nor does it enable one to compare incidences through time. Future studies could therefore, consider undertaking longitudinal research to establish how the implementation of SCM unfolds and affects operations more especially over several years. Besides, the quantitative method establishes the correlation between the variables but fails to examine the underlying reasons and issues with the implementation. Future mixed-methods research that contains a qualitative component could give enhanced comprehension of how the best practises SCM is adopted in the specific contexts of Pakistan.

Therefore, in the overall context of this work, conceptualisation and integration of all these SCM practices can be seen as providing a way forward to improve operations within the manufacturing sector of Pakistan. Through development of "value-enhancing supplier organisations' links; information-sharing and CGI; CRM; organising for operational improvement; and technologies investment" the manufacturing firms can enhance their competitive capability in the currently dynamic and competitive global markets.

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