
The Role of Effective Supply Chain Practices on Firm Performance: Mediating Role of Organizational Culture

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Abstract: The management of supply chain practices is the essential element for high organizational performance and captures the focus of regulators and recent studies. Thus, the current study examines the impact of supply chain practices such as supplier relationship, customer relationship, and lean manufacturing on the performance of manufacturing companies in Pakistan. This research also investigates the mediating role of organizational culture among the relationships of the supplier relationship, customer relationship, lean manufacturing, and performance of manufacturing companies in Pakistan. This study has followed the quantitative approach of data collection and used the questionnaires for this purpose and also used the smart-PLS for analysis purposes. The results exposed that supplier relationship, customer relationship, and lean manufacturing have a positive association with the performance of manufacturing companies. The findings also indicated that organizational culture positively mediates the relationships among the supplier relationship, customer relationship, lean manufacturing, and performance of manufacturing companies in Pakistan. This study will help the policymakers while formulating the policies related to the supply chain and organizational performance.

Keywords: Supplier relationship, Customer relationships, Lean manufacturing, Supply chain practices, Organizational culture

INTRODUCTION

In the modern age, the market has become more dynamic, global, and customer-driven. Now, customers demand more varieties in the products, better quality of products, higher durability, higher reliability, and in-time delivery. Though the product life cycle has been shortened, the variety in a product is being increased; rapid developments are occurring in the production and operational technology (Das, 2018). In order to be dynamic and to compete against rivals in the market, the business firms need to adopt upstream and downstream collaboration and integration with the stakeholders. That is why there is an impending need for all the economic sectors across all the chain to adopt supply chain management. Supply chain management has attracted deep attention from several researchers, practitioners, and scholars for the past few years as it has significant benefits for operational, production, and financial performance. It is a useful way for business firms to enhance competitive advantages. Additionally, it has been widely taken as an efficient administrative instrument for the business firms to bring stability into the business operation, raise their economic growth rate, and bring high superiority (Khan & Qianli, 2017).

Supply chain management has a number of approaches and practices for efficient integration with the customers, suppliers, manufacturers, and distributors. These supply chain practices are helpful in enhancing the long-term performance of the individual firms and the supply chain as a whole -(Mathivathanan, Govindan, & Haq, 2017). The current study aims at analyzing the three main practices of the supply chain, such as integration with the suppliers, customers' relationship, and lean manufacturing strategy, and checks their influences on the firm's performance within the supply chain of the manufacturing industry in Pakistan. Pakistan is a developing country with having a lower-middle-income economy. The economy of Pakistan is the 22nd largest country in the world if it is ranked in terms of purchasing power parity, whereas in terms of nominal gross domestic product, it is the 45th largest state of the world. The statistics of 2020, the gross domestic product at current prices is 41,726.683 billion rupees. The economy of Pakistan is based on three economic sectors the agriculture, industry, and service sector (Ilyas, Hu, & Wiwattanakornwong, 2020).

Manufacturing is considered the most significant sub-part of the industrial sector. In the industrial sector, the contribution of manufacturing enterprises is 64.4%, while its contribution to the gross domestic product of the country is 13.45%. Some highlights related to the industrial production have been mentioned in Figure 1.

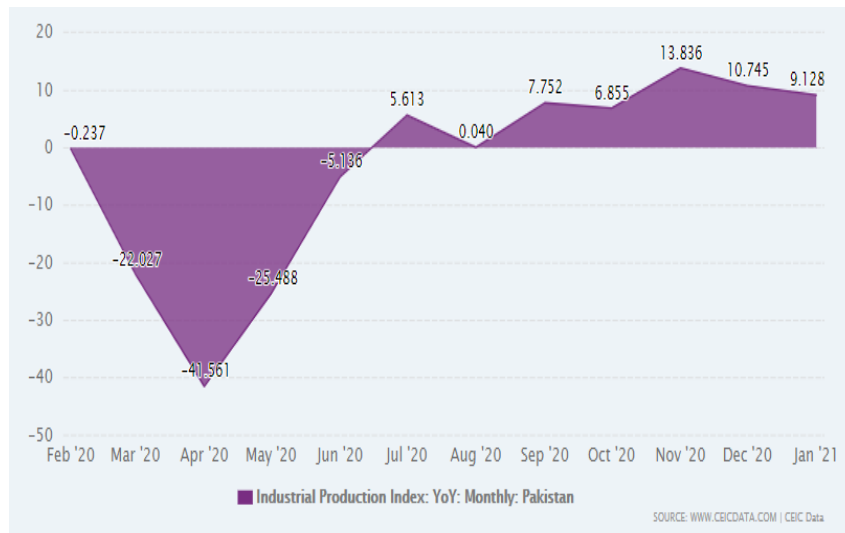


Fig.1: Industrial Production Index in Pakistan

The organizations in Pakistan are likely to attain competitive advantages with the increase in the productivity of manufacturing activities and the fulfillment of changing customers' requirements. So, the manufacturing enterprises should not only bring innovation in their manufacturing techniques but also efficiently implement supply chain practices. The previously conducted study of Shahzad et al. (2020) has thrown light on the need to understand supply chain practices for the manufacturing firms in Pakistan for staying in the competitive worldwide race and the achievement of high profitability. There is increasing awareness of the significance of supply chain practices among the manufacturing organizations in Pakistan. The individual firms in the supply chain of the manufacturing industry are making rapid progress in the marketplace as the effective implementation of supply chain practices has enabled them to achieve better operational, production, and financial performance. The most important contribution which the effective implementation of supply chain practices has made to the performance of manufacturing chain nodes is the innovation and agility in their operations and production (Abas, Khattak, Habib, & Nadir, 2020). Still, though some of the manufacturing organizations in Pakistan have got the significance of implementing supply chain practices, they fail to realize the exact set of supply chain practices and their effective implementation. The conduct of this study will successfully remove this problem of manufacturing firms.

LITERATURE REVIEW

The current age is the age of emerging competition. The market trends and customers' demands change constantly. Nowadays, customers want more varieties in the products, higher quality products, and services, and they demand more reliability and fast delivery (Sun et al., 2020). In order to meet the increasing demands of customers, the business firms have to monitor the change in the customers' preferences, acquire knowledge about the innovative material, technology, and production approaches. The introduction of the supply chain in different economic sectors has enabled the business firms to keep their operations adaptive to the changing customers' preferences as it provides the opportunity to adopt upstream and downstream integration with the stakeholders (Gong, Gao, Koh, Sutcliffe, & Cullen, 2019). The establishment of supply chain management and the effective implementation of its practices bring improvement in the performances of individual business firms and the chain as a whole. The supply chain practices and their key role in getting superior performance have a significant place in the past literature. Several studies like Hong, Zhang, and Ding (2018) have thrown light on the contribution of effective implementation of supply chain practices such as lean production, agile production, customer relationship, and customers customer relationship. Our study analyses the three practices of the supply chain, such as customer relationship, lean manufacturing, supplier relationship, on the individual firms in the chain along with a mediator between customer relationship, lean manufacturing, and supplier relationship, and firms' performance with allusion to the previous studies.

The literary investigation of Li, Li, Choi, and Sethi (2020) shows that the integration with the supplier is one of the most significant supply chain practices, which facilitates all the chain nodes in getting competitive advantages and superior performance. This investigation highlights that the persistent communication and collaboration with the suppliers makes it easy for the firm within the chain to attain its goals of better production, better operations, and superior marketing. The favorable social relationship with the suppliers makes them provide good quality material which is free from pollutants (Mohsin, Kamran, Nawaz, Hussain, & Dahri, 2021). The use of such pollution-free material in the production procedures keeps the working environment safe and does not adversely affect the health of the works. In this environment, the workers can perform their

production and operational duties actively and give more production. The pollution-free material gives better quality products which are highly demanded by the consumers. Thus, the relationship with suppliers enables the chain firms to attain higher environmental and marketing performance (Amoako-Gyampah, Boakye, Adaku, & Famiyeh, 2019). The sound integration with the suppliers helps the business firms within the chain to attain up-to-date technology and other tools, which give more production in minimum time and reduce the wastes of material. In this way, firms have to bear less cost, and more productivity leads to more marketing, minimum lead time, and more profits. Similarly, having good social relationships with the suppliers, the firms can inform them about the marketing trends and consumers' requirements and ask them to provide raw-material, semi-finished goods, and other resources having such quality as can meet the up-to-date requirements and leads to the superior operational and financial performance of the firms (Panagopoulos, Rapp, & Ogilvie, 2017). Hence,

H1: Supplier relationship is linked with the firm's performance in a positive manner.

As stated by Lambert and Enz (2017) in his literary workout, the effective implementation of supply chain practices enables the chain nodes to have effective and sound relations with their customers, whether they are end consumers or customer firms in the chain. This relationship with the customers is very useful for the chain firms in achieving their goal of competitive advantages and superior performance. The consistent relationship with the customers affects the strategies, processes, techniques, resources, and technology of the chain firms. The interaction with the customers proves to be an effective source of information (Nawaz et al., 2020). It enables the firms to know about the requirements of consumers about the quality of products and services. If the firms find that the requirements of consumers are changing, they bring change in the quality of material, resources, and production procedures so that they can manufacture products according to the changed requirements of products. This enables the firms to retain their customers and create some new ones (Hu, Liu, Yuen, Lim, & Hu, 2019). Similarly, when a firm brings a change in the design or quality features of products or manufactures entirely new products, the sound relationship with the customers enables the firms to introduce it in the market and make it successful as the firms having a sound relationship with customers have customers satisfaction and confidence and thus, can motivate them to try this new product. The sincere relationship with the customers forces them not to turn towards other brands if they find something valuable with them; rather, they share this information with the concerned firms, which is used in bringing improvement in the production (Gölgeci & Kuivalainen, 2020). So,

H2: Customer relationship is linked with the firm's performance in a positive manner.

According to the well-known scholar Rehman, Usmani, Umer, and Alkahtani (2020), lean manufacturing the method of production which focuses on the reduction of wastes and manufacturing maximum products with minimum input. With the application of lean manufacturing strategy, the firms within the supply chain are able to reduce lead times, reduce operating costs and improve the quality of the production. Identification of products' value from the customers' point of view is one of the fundamental principles of lean manufacturing. When the firms identify to what extent customers give value to the products and can pay for them, they can eliminate the waste parts of the products which have no value towards the customers. Thus, they can add value to the products and thus, can save the production costs. Under lean manufacturing, the firms record and analyze the stream of information and material needed to produce specific products so they can identify the wastes and can remove them. The firms which do not employ unnecessary material to the products and do not charge much accordingly have more marketing for the products and make more profitability. The application of lean manufacturing strategy in operations enables the chain firms to create smoothness in the business processes as, under lean manufacturing, functional barriers are removed, and such methods are identified as improve lead time (Kamble, Gunasekaran, & Dhone, 2020). Hence,

H3: Lean manufacturing is linked with the firm's performance in a positive manner.

Organizational culture is the consistent or authentic behaviors of firms' owners, managers, team leaders, team members, and employees towards one another, outsiders, changes, and requirements. The firms have healthy, experience more revenue growth as a great organizational culture critical for the development of the traits necessary for the business success. When the organizational culture aligns with the employees, they feel more comfortable, valued, and supported. Thus, they perform in favor of firms (Bowers, Hall, & Srinivasan, 2017). And similarly, the positive behavior of the firm personnel's towards the shifts of the results of the market in better operational and production performance. The relationship with the suppliers molds the behaviors of firm personnel. Like the fair dealings by the suppliers as a result of the good relationship motivates the management to adopt favorable behavior towards the supplier and market shifts, and the employees also adopt positive towards the management and business goals (Nawaz et al., 2021). The consistent and social relationship with the customers affects the thinking of firm' management towards their market requirements, change in technology towards the employees, and it also affects the social and working behavior of employees within and outside the organization. And the change in the organizational culture brings a change in the organizational performance (Zhang & Cao, 2018). Moreover, the application of lean manufacturing in the chain firms whose aim is to eliminate the wastes, functional barriers, and extra processes so that the lead time can be removed,

organizational costs can be minimized, and both production quality and quantity can be raised force the managers, team leaders, and employees to adopt positive behavior towards one another and customers.

H4: Organizational culture is a significant mediator between supplier relationships and the firm’s performance.

H5: Organizational culture is a significant mediator between customer relationships and the firm’s performance.

H6: Organizational culture is a significant mediator between lean manufacturing and the firm’s performance.

Methodology

This study examines the impact of the supplier relationship, customer relationship, and lean manufacturing on the firm performance and also investigates the mediating role of organizational culture among the relationships of the supplier relationship, customer relationship, lean manufacturing, and performance of manufacturing companies in Pakistan. This study has followed the quantitative approach of data collection and used the questionnaires for this purpose. The employees that are linked with the supply chain department are the respondents and selected based on purposive sampling. A total of 520 surveys were sent to them by personal visit and after one month received only 310 questionnaires that represent about 59.62 percent response rate.

This research has also adopted the smart-PLS to examine the nexus among the variables and also check the discriminant and convergent validity. This study has adopted the smart-PLS because hypotheses testing is the goal of the study, and a complex framework has been used by the research (Hair Jr, Babin, & Krey, 2017). This study has taken the firm performance (FP) as a dependent variable with six items, and organizational culture (OC) has been used as the mediating variable with four items. In addition, three supply chain practices have been used as the predictors of the study, such as supplier relationship (SR) with five items, customer relationship (CR) with four items, and lean manufacturing (LM) with three items. These variables are highlighted in Figure 2.

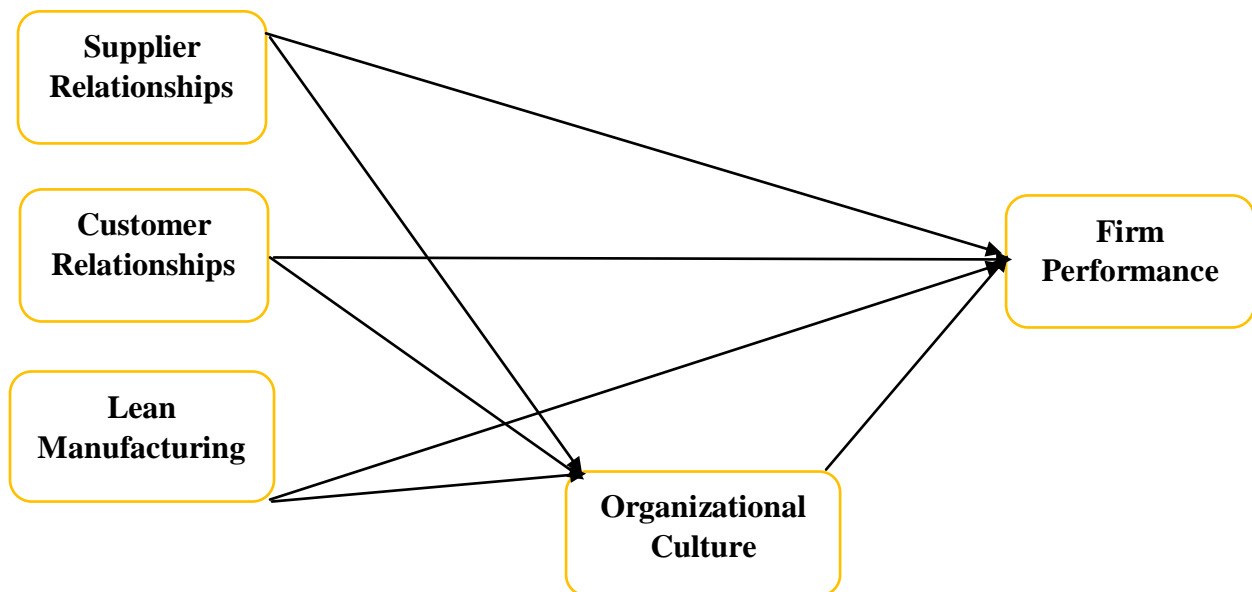


Fig.2: Research Framework

Findings

This study has investigated the convergent validity that shows the relationships between the items. The statistics have been highlighted that the values of CR along with Alpha are not smaller than 0.70, and the values of loadings and AVE are not lower than 0.50. These values have been indicated that the convergent validity is valid and high relationships between the items. These values have been mentioned in Table 1.

Table 1: Convergent Validity

Constructs	Items	Loadings	Alpha	CR	AVE
Customer Relationships	CR1	0.800	0.840	0.893	0.676
	CR2	0.837			
	CR3	0.835			
	CR4	0.816			
Financial Performance	FP2	0.840	0.849	0.898	0.689

	FP3	0.848			
	FP5	0.831			
	FP6	0.800			
Lean Manufacturing	LM1	0.856	0.775	0.821	0.605
	LM2	0.756			
	LM3	0.715			
Organizational Culture	OC1	0.792	0.773	0.803	0.511
	OC2	0.517			
	OC3	0.743			
	OC4	0.773	0.832	0.880	0.595
Supplier Relationships	SR1	0.857			
	SR2	0.762			
	SR3	0.758			
	SR4	0.753			
	SR5	0.721			

This study has also investigated the discriminant validity that shows the relationships between the variables. The statistics have been highlighted that the values of Heterotrait Monotrait (HTMT) ratios are not higher than 0.85. These values have been indicated that the discriminant validity is valid and low relationships between the variables. These values have been mentioned in Table 2.

Table 2: Discriminant Validity

	CR	FP	LM	OC	SR
CR					
FP	0.737				
LM	0.737	0.716			
OC	0.727	0.711	0.697		
SR	0.751	0.837	0.635	0.715	

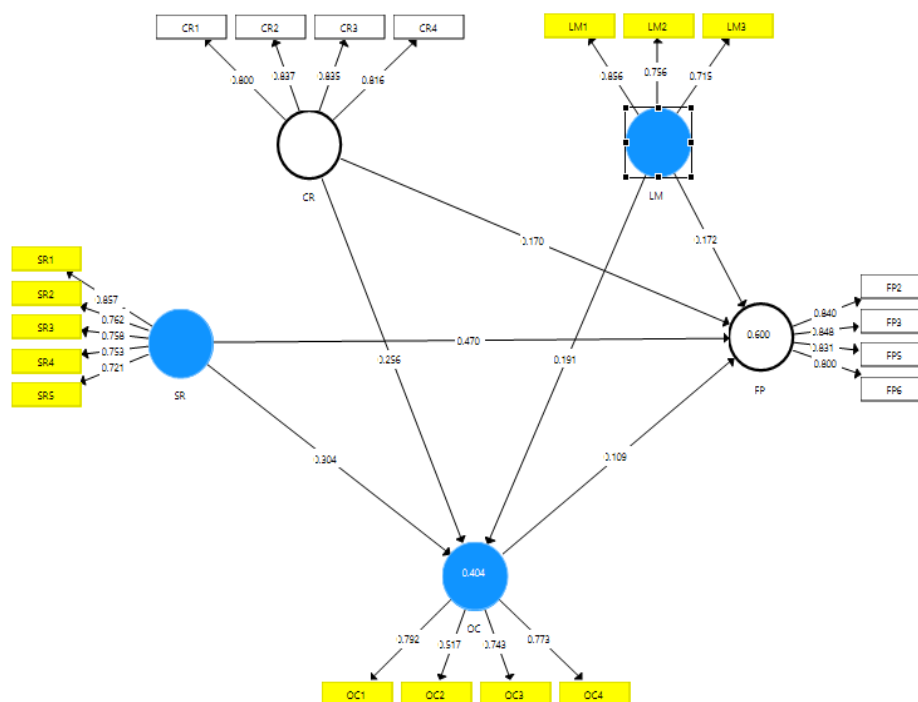


Fig.3: Measurement Model Assessment

Finally, the nexus among the variables have been examined by using path analysis, and the results exposed that supplier relationship, customer relationship, and lean manufacturing have a positive association with the performance of manufacturing companies and accept H1, H2, and H3. Furthermore, the findings also indicated that organizational culture positively mediates the relationships among the supplier relationship, customer relationship, lean manufacturing, and performance of manufacturing companies in Pakistan and accept H4, H5 and H6. These relationships are mentioned in Table 3.

Table 3: Path Analysis

Relationships	Beta	S.D.	T Statistics	P Values	L.L.	U.L.
CR -> FP	0.170	0.032	5.366	0.000	0.095	0.220
LM -> FP	0.172	0.037	4.705	0.000	0.111	0.247
OC -> FP	0.109	0.032	3.454	0.001	0.062	0.167
SR -> FP	0.470	0.035	13.382	0.000	0.387	0.526
CR -> OC -> FP	0.028	0.010	2.700	0.008	0.013	0.050
LM -> OC -> FP	0.021	0.008	2.770	0.007	0.010	0.037
SR -> OC -> FP	0.033	0.009	3.586	0.001	0.019	0.049

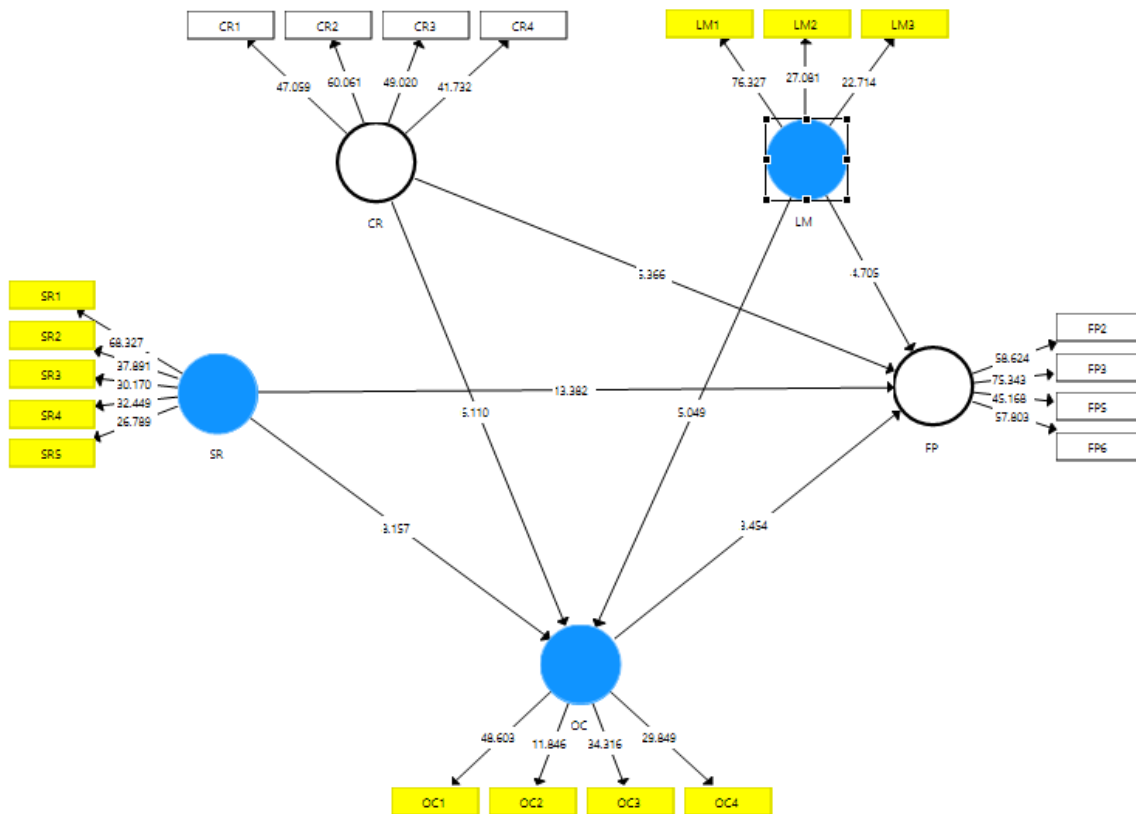


Fig.4: Structural Model Assessment

DISCUSSIONS AND IMPLICATIONS

The study results have revealed that the supply chain practices regarding the supplier relationship have a positive relationship with the firm’s performance. The study states that the consistent social relationship with the suppliers enables the business firms to maintain operational, production, and financial performance. These results are in line with the past study of Chae, Choi, and Hur (2017). This study has been conducted with an aim to examine the positive contribution of effective implementation of supply chain practices in achieving superior performance. This study suggests that the sound and favorable relationships with the supplier help in maintaining the quality of products and smoothness in the operational and marketing procedures. The study results have also indicated that supply chain practices regarding the relationship with customers have a positive association with the firm’s performance. These results are approved by the past study of Seman et al. (2019),

which indicates that the effective implementation of supply chain practices regarding the establishment of a sound and consistent relationship with the customers help the firms to keep their resources, processes, and technology up-to-date to have superior quality innovation-based products and services which enhances not only operational but also the financial performance of the firms. The study findings have also indicated that lean manufacturing is one of the effective supply chain practices which has a positive influence on the firm's performance. These results are in line with the past study of Khan and Qianli (2017), which indicates that lean manufacturing is an important driver of a firm's superior performance as it reduces the production time, improves the quality of products, and reduces the time required to deliver products towards the customers.

The study results have also shown that organizational culture plays a mediating role between the supplier relationship and the firm's performance. These results have been approved by the past study of Dubey et al. (2019), which indicates that the positive and consistent relationships with the suppliers improve the organizational culture, which improves the work efficiency of employees and can better meet the customers' demands. Thus, organizational culture improved by the favorable relationships with the supplier under a supply chain gives superior firm's performance. Moreover, the results have represented that organizational culture is a significant mediator between customers' relationships and the firm's performance. These results are in line with the past study of Altay, Gunasekaran, Dubey, and Childe (2018). This study examines the role of organizational culture in the achievement of superior operational production and financial performance. This study suggests that the consistent integration with the customers affects the behaviors and values of organizational personnel from management to employees, which improves the quality of operations and production. This results in high marketing and high profitability. In addition, the results have indicated that organizational culture is a considerable mediator between lean manufacturing and the firm's performance. These results are in line with the previously conducted investigation of Dubey et al. (2017), which reveals that the effective application of principles of lean manufacturing affects the thinking, behaviors, and performance of organizational personnel, and the improved organizational culture leads to more production in high quality and more profitability.

Both the theoretical and empirical implications have been made by the present study. This article has great theoretical importance as it adds a lot to the supply chain literature. This study examines the influences of some supply practices such as suppliers relationship, the relations with the customers, lean manufacturing on the achievement of a firm's superior performance. Many studies have discussed the influence of organizational culture on a firm's performance, but very few studies have addressed organizational culture as a mediator between the implementation of supply chain practices and a firm's performance. But this study fills this literary gap with the introduction of organizational culture as a mediator between three significant supply chain practices like supplier relationship, customer relationship, and lean manufacturing and firm's performance. This study is significant to economists as it provides a theoretical guideline on how to accelerate the firm's performance with a consistent and fluent relationship with the suppliers and customers within the supply chain and effective implementation of lean manufacturing.

CONCLUSION AND LIMITATIONS

The study examines the performance of an individual firm within the supply chain. This study looks at the influences of supply chain practices like supplier relationship, interaction and relations with the customers, and lean manufacturing on a firm's performance. The study throws light on the large contribution of relationships with the suppliers within the supply chain into the achievement of superior business performance. The study suggests that the consistent positive relationship with the suppliers enables the chain firms to maintain the quality of resources, technology, and production, which determine the superior performance of the firm in the market. Similarly, the relationships with the customers prove to be beneficial for the chain firms to show higher innovation-based performance. Firms get awareness about the consumers' up-to-date requirements and their preferences regarding the quality of products and services. This knowledge proves to be an asset for the firms to achieve higher performance. Lean manufacturing is one of the significant supply chain practices which deeply influences the supply chain firms' performance. The effective implementation of lean manufacturing within the firms improves the overall performance as it reduces wastes, eliminates unnecessary steps and material, reduces lead time, and increases production. The study also elaborates that when the firms have positive organizational culture, it can better motivate the employees to perform wholeheartedly and can influence the customers' buying intention. Thus the overall firms' performance increases.

A number of limitations are found in this literary investigation. These limitations require attention from researchers and practitioners in the future. This study is based on quantitative data acquired from an emerging economy of Pakistan. As this study depends just on a single economy that is developing one, the comprehensiveness and reliability of data are under question. To remove this limitation, the scholars in the future should analyze the firms' performance within a chain of more than one country, including both developing and developed countries. This has taken into consideration three particular supply chain practices like supplier relationship, relations with customers, and lean manufacturing as the constructs of firms' performance within the chain. While many other economic factors and supply chain practices except these

mentioned above also affect the firms' performance, but the author of this study has paid no attention to the influence of these factors on a firm's performance.

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