South Asian Journal of Operations and Logistics
2024 Vol. 3, No. 2, pp. 84-99
DOI: 10.57044/SAJOL.2024.3.2.2430

Effect of logistics integration and demand and supply uncertainties on manufacturing performance: A mediating role of product characteristics

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Article History

Received: 02 July 2023
Revised: 15 January 2024

JEL Classification
R41
G14
Q56

ABSTRACT

This study examines the influence of distribution convergence, delivery lead times, manufacturing difficulties, material management, and procurement on company performance. Primary and secondary data from small and large-scale manufacturing enterprises will be gathered and analyzed using structured and explorative methods, with different analyses applied for causal and cross-comparison outcomes. It will be used as a mathematical model for the following investigation. It assessed the variables' correlation and function as a mediator between them. Cronbach's alpha, a measure of internal consistency, was used to assess overall variable agreement. The study shows the role of interdependence in logistics convergence, pricing fluctuation, and demand and supply uncertainty. Demand and supply uncertainty is one of lead time and substantially impacts outcomes. In this research, procurement lead time significantly impacts the relationship between overall market volatility and supply and demand characteristics. Efficacious Manufacturing requires well-planned procurement, as well as extensive logistical integration.

Keywords: *Logistic integration, Demand and supply uncertainties, Product characteristics, Lead-time, Procurement, Manufacturing*

Citation of this article:

Aslam, B. & Jiang, L. (2024). Effect of logistics integration and demand and supply uncertainties on manufacturing performance: A mediating role of product characteristics. *South Asian Journal of Operations and Logistics, 3*(2), 84-99. https://doi.org/10.57044/SAJOL.2024.3.2.2430

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1. Background of the Study

Purchase decisions can be crucial for organizational functions by ensuring that specific pressing issues are usually present for operations management. Significant expenditures are required for the manufacturing process, such as purchasing and supplier relationship management. Effective inventory management saves production costs by selecting a suitable supplier, maintaining attitudes in the purchase process, and only acquiring elements entirely in sync (Araz & OZkarahan, 2007; Kumar et al., 2018; Pereira & Costa, 2017). Even though the federal budget for information is often regarded as a fast-increasing field of demand or demand forecasting, All other processes must be known to the organization to purchase efficiently. This article analyzes the overall purchasing strategies that acknowledge both seeking to procure (supplier decision) and obtaining for the company's operational operations to be implemented (Baloch & Rashid, 2022). Furthermore, this study indicates how to purchase various products from a distributor or a retailer utilizing the inventory control value methodology employed in the sales mechanism (Rashid & Rasheed, 2023a).

Inventory management is not a new concept in the commercial world, and it has gained maturity (Rashid, 2016). This is seen from a written laptop of clay soil first produced in Syria. Nonetheless, there was no specialist acquiring authorities at one point, and all the products and services required were given to the governing party by market intermediaries who received a commission on their sales, either acquired for the military and other social authority bases (Thai, 2001; Rashid & Rasheed, 2023b). As a critical component of an organization's business strategy, purchasing assumes that Manufacturing, supplier delivery, demand flexibility, availability, and expenses are all understood. As a result, the financial impact of acquiring various economic the government budget stability and profitability of practically every trading nation in the manufacturing process, as a critical component of an organization's business strategy, purchasing assumes that Manufacturing, supplier delivery, demand flexibility, availability, and expenses are all recognized. As a result, the financial impact of acquiring various economic and government budget stability and profitability of practically every trading nation in the production process; the requirements and methods must be capable of correctly determining and providing harvesting options for resolving the issues raised by continuous processing. Firms promote the formation of suppliers and develop plans to examine the main features of the provider and the provider's capacity utilization. Firms are constantly updating their estimates of the likely future impact of provider delivery dates on productivity. Supplier integration is an essential aspect of organizational purchasing since it allows industrial organizations to avoid the effects of delays in manufactured goods while also improving efficiency and frequency (Zhang et al., 2018; Rashid et al., 2023a).

A corporation's performance level varies, primarily based on purchasing productivity; if purchasing is shorter, manufactured items will be more accessible. Manufacturing efficiency is the ability to produce customized solutions with small lot sizes, the cheapest possible platform lower asserts on delivered raw materials, and a solid competitive role that can directly influence whether another organization purchases, profits, or both. A significant relationship exists between production efficiency (demand and supply forecasting) and industrial speed. Organizations measure shorter sourcing and Manufacturing with superior strategic plans and supplier relationships that increase precision machining to run their businesses compared to their competitors. Because of the supply chain, businesses can interact with customers and begin making someone more accessible to consumers faster than their competitors. Supplier measures can help manufacturing organizations reduce supply chain risk, and this research focuses on two types of production processes: Demand and supply uncertainty and logistic integration (Rashid et al., 2023b). The questions of our research are as follows:

1. *What is the link between supply and demand unpredictability and complex product characteristics?*
2. *What is the connection between logistical integration and complex product characteristics?*

3. *How does Manufacturing performance affect the link between demand and supply uncertainty and complicated product characteristics?*
4. *How does manufacturing performance influence the relationship between logistical integration and complicated product features?*

Overall, there are significant achievements in the research in the current study. This research is a detailed effort to maintain a methodology in the production process that contributes positively to attaining an organization's competitive advantage. The internal and external impact of logistics systems on production, as well as the impact of speed on market performance, is experimentally explained in this research. A survey of the literature on procurement management, supplier relationships, and speed-to-market in advanced markets is not conducted by professionals. Previous research is also popular in established economies, and these studies needed help to grasp how regulatory compliance and purchasing practices might affect the development and commercial performance of business enterprises, particularly in developing or growing markets. The primary distinction between advanced and developing regions is the use of technical breakthroughs, most educational and managerial workers, and integrated supply chain transit infrastructure. As a result, the overall supply chain procedures, which vary by country, affect such disparities. As a result, this research was conducted to address this issue by inspecting makers in an attempt to represent all large manufacturing businesses in Pakistan, which verifies the research's generalized statement of conclusions.

2. Literature Review

2.1 Theoretical Review

This supply chain employs procedures that are integrated efforts by all functional components, such as resellers and manufacturers, to achieve mutually agreeable outcomes and relationships with partners and vendors. With all of our hearts, we believe bridge coordination and uniformity are critical in supply chain supply management because tactical teamwork is required to enable bridge contacts and progress, yet unified operations must be completed (Flynn et al, 2020; Rasheed & Rashid, 2023). Second, it is a complex manufacturing process that extends from the initial phases of acquiring resources to raw materials, processing them, and making final goods in the appropriate sequence on time to service delivery. Because any mechanism can be implemented through the collaboration of organizational roles, an integrated supply chain is the outcome of collaboration with supplier partners who can communicate and combine information and procedures.

The 'from within' supplier relationship extends only beyond the suppliers and is necessary to develop a larger ecosystem, whereas the 'outwardly' comprises collaboration with stakeholders and customers in addition to external source management. Even though the total expenses of attaining the necessary assimilation of internal procedures from material processing to consumer requirements are increased, these must be avoided if a company desires to respond to requests rapidly. This representational approach helps group discussions. Working one step ahead and two steps back is preferable to working two steps forward; when procurement, distribution, production, and selling are in progress, people's perceptions change instead of taking two steps forward. More broadly, provider implementation supports the correct integration and sharing of information and engagement in sales contacts between businesses and their consumers. Reiterate the challenge: It is necessary to more easily assimilate vendors, including teaming up to deal with them and assist them in resolving issues; it is also preferable to collaborate on architecture, and transferring knowledge to other groups is also a viable alternative via strategic coordination. On the customer side of the supply chain, firms will identify their varied clients, respond to their needs, and present and develop wants.

2.2 Direct Effects of Demand and Supply Uncertainty

Fynes et al. (2004) established a link between supply chain efficiency and commodity complexity characteristics on demand and supply instability. The procedure's implementation significantly impacts manufactured products due to an elevated level of knowledge volatility. These

findings demonstrate that the impact of supply management product quality on demand and supply levels varies based on demand and supply uncertainty levels. Often, it is critical to establish a supplier partnership system to address supply-related challenges, assist the business in making more informed judgments regarding the extent of a market's reach, and provide supply management with applicable recommendations for various characteristics.

Significant demand is still creating supply chain inconsistency, which simplifies saying that there is a critical chain alignment, so having better continuity in technological and customer chain consistency becomes simple. In the study, two schools of thought have emerged regarding the roles of supply and demand and uncertainty. The product's supply and demand characteristics and manufacturing attributes may be linked to highlight potential consequences for demand volatility. Even though we concur that supply and demand management remain essential factors for supply organizations, we accept supply and demand in an external context. Our point of view has been quantitatively demonstrated to be true for the first time. The increase in integration shows that it is necessary to eliminate supply and demand volatility and assist in mitigating the positive performance effects of supply and demand uncertainty. Many argue that industry sectors that have done well due to the increased use of functional components have had lower overall earnings, forcing them to incorporate various features (Rashid et al., 2022a).

Suppose demand and supply forecasting is simply a portion of a supply department science. In that case, it does not follow that demand delivery is only concerned with supply departments but also with company operations as a whole. Maintaining long-term and dynamic competitiveness entails ensuring a consistent flow of products and services. Determining the firm's present goals, defining targets, and looking at past and future resources are essential to sustainable procurement. Suppose a corporation has determined the likelihood of the demand side for a demand-exposed product and service offering in the market. In that case, the forecasting team will investigate supply and future providers to enhance supply. Following the completion of the interviews, organizations must establish and implement a procurement plan in order to meet their goal of generating high-quality solutions. The negotiation and implementation of the reform are the final stages of the sustainable sourcing approach.

It is a detailed demonstration of how a person engages in inventory control. Provide it as a visual representation of a boss's engagement in the general running of the organization, as well as advice on how an employee styles themselves in connection to the mechanical equipment. To obtain access to all its new features, demand and supply planning, as with other economic forecasts, is influenced by purchasing decisions made by diverse businesses, and the methodologies used to manage product and service orders rely on them. Management positions serve as a reference point for both purchasing and provisioning decisions.

In terms of distribution, the researchers are capable of developing novel scheduling, modelling, forecasting and guiding the flow of institutional contacts with interested stakeholders both inside and outside the organization, as well as contract producers and distributors (Dasci & Guler, 2019). For example, because information supply and information demand transfers are addressed concurrently in the same operation, they are free to pursue their primary aims in a greater capacity to deliver knowledge. Including and portioning all R&D department work projects, maintenance, and advertisements is advantageous because it aids in the progress and performance of the project and the employee. When using renewable or ecologically friendly materials, tops, and inputs, dependable age-linked suppliers and manufacturers are critical to ensure the supply's long-term viability. This not only gives access to sustainable resources but also gives management the ability to have constant data access to many parties and different parts of the manufacturing process. Manufacturing companies that would considerably improve supply and demand chain reliability would speak with one another regularly (Rashid et al., 2022b).

2.3 Direct Effect of Logistics Integration

Most of the original business interactions focused on merely expanding an existing business

connection. One form of execution Staid mentioned in his work was the requirement for two types of strategy: intradepartmental and interdepartmental. This indicates that the corporation's interests are almost as vital as theirs. As a result, the company's goals may be prioritized over the interests of its divisions. Although it is necessary to have an internal rather than an exterior perception of the importance of interpersonal interactions and exchange, an incorrect internal focus might have disastrous repercussions. As a result, the customer will be the happiest person on the planet. "Due to the changed business climate, the channel structure as a whole must be managed via integrated logistics," Kdinder and Larson said.

Furthermore, corporations are beginning to see that logistical convergence has ramifications beyond cost and profit margins. Nowadays, there is recognition that it has only recently attained a level of usefulness well above its limits and frequently approaches a new extreme. Effective logistics management of global supply chains and establishing a suitable agreement on growth-driven growth are all today's strategies. This guideline requires that all operational processes begin by considering any step from the top to the bottom.

Expanding the interconnected material can result in more significant interconnections. Advances in transportation, operations, and other developing technologies have accelerated digital technology to the point where it is now a crucial tool for manufacturers and exporters to stay global and provide inventory information, as well as for customer management and operations. When multinational enterprises expand and establish a platform in a specific industry, the focus has switched to global trade rather than whole enterprises. For example, a direct consumer salesperson might recruit customers from a larger company that sells its products only at wholesale stores but delivers them directly to customers via a network that smaller retailers can access. For any cooperative effort to thrive, the inner organization of firm activities is essential. Individual company deals, business-to-business, and industry-to-industry deals can be linked so that any deal made on the platform must be interlinked. For logistical actions to be understandable and implemented, proper support must also be supplied. According to a recent study by La Londe and Powers (1993) on the impact of the environment on transportation networks, transportation planning in the twenty-first century is linked to best practices in account expansion.

Furthermore, they feel that a "horizontal" logistics executive must be well-versed in both practical and hierarchical data, possess "vertical supply (below-level)," have "compensatory advantages," and be an executive with experience in the supply chain sector. This improvement will significantly impact distribution managers, as chain management has numerous implications. The other two tasks that integrated logistics are assumed responsible for are cost reduction and increased output, resulting in higher productivity. Regarding incremental interventions, we frequently hear about benefits like more excellent service and uptime, decreased reaction time to service demands, better forecasting, and increased customer support. Furthermore, there is little to go on in terms of proof. The nature of the relationship between processes and success has been investigated in many analytical investigations. The product creation analysis under the Integrated Logistics System aims to analyze supply networks and logistics competitiveness relationships with merchandise as an aspect of product features in order to further this goal target (Hashmi et al., 2021a).

A company's strategic objective is implementing a long-term customer/business relationship. This entails cultivating long-term partnerships with clients and suppliers, allowing such relationships to benefit from a company's long-term goals. Information exchange is critical for both product development and component manufacturing. Manufacturers' involvement in growing profitability results from less financial pressure, the inability to access prospective investment, and more innovative ways to produce better products. This data gap allowed the manufacturing industry to act and boost its confidence, and it may lead to the discovery of new, more challenging difficulties. Many procedures can help obtain more knowledge about the firm, gain new insights, and raise the company's level of competence by increasing the overall correctness of data. Increase the number of people who respond in order to illustrate the notion. Different sectors have come up with diverse terminology to describe the same concept, such as strategic supply chain partners, exclusive study studies, the acquisition of

pre-purchasers, and different research focuses (Hashmi et al., 2020a). After several authors and academics have weighed in on the various strategies for expanding a business, they have all come to the conclusion that sales operations are always looking for service suppliers. As a fundamental goal of integration, it reduces internal engineering and manufacturing commitments in all new product launches. While several surveys have indicated that business productivity is varied, all agree that having multiple enterprises vying for the same market substantially impacts business productivity (Zhang et al., 2018). The larger the overall speed and capacity of design, the faster the suppliers are for execution (Ragatz et al., 2002). Farmers can develop more appropriate product lines and improve their fundamental skills by increasing the volume of fine grain production. An effective strategic alliance requires constant knowledge sharing among partners (Chen et al., 2004). According to research, the best practice for a purchasing company's correlation in inventory purchases and inventory availability is for the acquiring firm's downstream partners to reduce the expense gap. Several initiatives have been announced. According to the corporation, cooperation will improve supply chain management methods, information sharing, and awareness of supply agreements. Providers would be treated as patients, and long-lead technologies to minimize coordination and transaction times would be implemented. The supply chain method applies the application of goods to each component, supply and distribution, to distinguish two big groups. Boosting speed-to-market and technology transfer affects the time it takes to develop and deploy new products. This will allow the client and the contractor to perform any of these jobs, aiding in efficient production and process regulation. We know that needed equipment is directly tied to production processes and delivery period, which leads us to believe that there is a direct association between the quantity of demand and everyday activity among enterprises and suppliers.

2.4 The Mediating Role of Manufacturing Performance

Slack et al. (2022) present a measurement model for operating quality, speed, and dependability and an expense model for these two primary buying variables to assist organizations in making better selections. Production success necessitates doing all it takes to effectively build or supply the merchandise to customers as quickly as possible while meeting or exceeding their expectations. Ascended with the help of nationalism, different factors, such as financial aspects, influence how well a company's products perform (Hashmi et al., 2020b). The fundamental purpose of these marketing metrics is to encourage the organization's successful and profitable use of such assets for raising funds and lowering costs, increasing revenue value and customer loyalty, and effectively competing in the market. Firm prices, as well as the short turnaround time, are frequently mentioned, which commonly alludes to inventory turnover, especially when production is nearing completion and there are high sales with only a few staff members. To determine why manufacturers' logistical operations impact their product marketing plans and to find best practices for assisting suppliers in developing and executing their supply chains. This study also looks into aspects previously discovered through the discovery process and those that are out of the usual (Rashid et al., 2020).

As per Uraon & Gupta (2019), supply chain integration has shown firmness to be strong in their studies of the overall effectiveness of their business forces and found them to be robust in productivity, as well as all explain that operating efficiencies lead to better sales efficiency results when measured over the longer term. According to a previous study, strategic sourcing and supplier availability have been demonstrated to improve product efficiency, resulting in product availability. As a network of interlaced activities and supply chains produces increased product readiness due to timely delivery of services and flexibility in marketing, we may see that enterprises cause higher productivity (Hashmi et al., 2021b). Hence, the following hypotheses are developed: *H1: Uncertainty about Demand and supply substantially impacts manufacturing performance.*

H2: Logistics integration is linked to manufacturing performance in a significant way.

H3: The relationship between demand and supply uncertainty and complicated product attributes is mediated by manufacturing performance.

H4: The relationship between logistical integration and complicated product features is mediated by manufacturing performance.

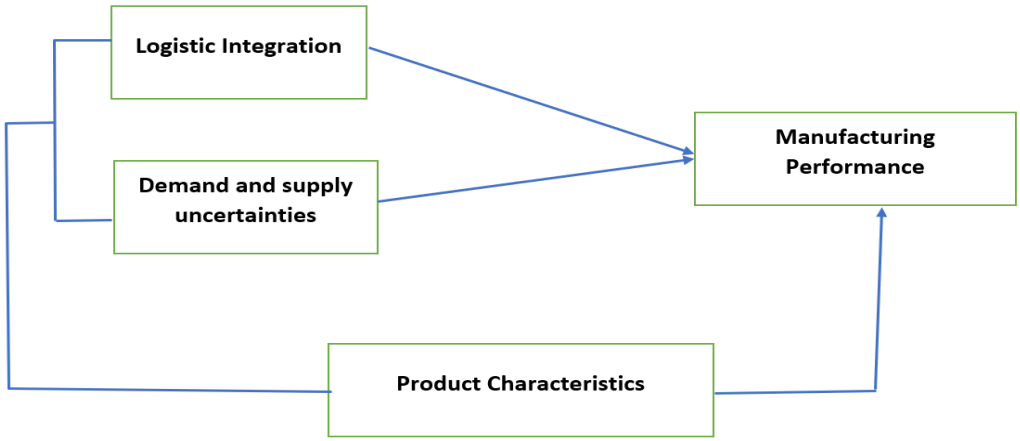

Figure 1: Theoretical framework
Source: Authors' creation from literature

3. Research Method

Because this is an explanatory investigation, the critical range of knowledge has been quantitative (Rashid & Rasheed, 2022; Hashmi & Mohd, 2020). This proposed study project employs an inductive methodology since we know logistical convergence, demand and supply complexity, and various product characteristics. This exam is based on a visual study, in which each concept was broken down into diagrams and pie outlines, with surveys and findings to back it up. A single analytic approach is a research strategy that stresses the ambiguity and dynamic commodity aspects of logistic integration, demand, and supply, as well as the mediating functions of product characteristics and production efficiency at the acquisition level (Khan et al., 2023; Rasheed et al., 2023).

3.1 Sampling

The middle of the intelligence spectrum's strategy is open questions and meetings. The input of Karachi citizens and specialists is then gathered to confirm their knowledge of the city. The data is also readily available. The information is gathered from employees of Karachi-based manufacturers who comprehensively understand logistic integration, demand, supply, and a wide range of product qualities, as well as the mediating role of product characteristics and production results. Non-probability assessment techniques were utilized for this project. Specialists use purposeful sample methods in nonprobability research, where they grasp the purpose and features of the population, which is one of Pakistan's distinguishing traits, as Karachi stands out for its mix of cast and community (Rashid et al., 2021; Khan et al., 2022a; 2022b). The supply chain department of manufacturing enterprises in Karachi functions. Each finding and conclusion is based on a judgmental and emotive technique in which scientists express their feelings in response to subtle inquiries. A partly lower squares analysis examines the interaction between the variables (dependent and independent). Data collection tools include close-end survey questionnaires (Rashid et al., 2019; Khan et al., 2021). Because the questionnaires are open-ended and accepted by the supervisor, the questions are factual and credible.

4. Results and Findings

Further, the descriptive statistical method is employed for this analysis. The researcher appraised the result and studied the effect when studying the Bar Graph, Line Graph, and CD. The questionnaire was distributed among more than 250 people, but we received only 121 responses; among 121 responses, 54 were females, and 67 were male. Similarly, if we talk about age, amongst 121

responses, 33 people were in the age bracket of 18-24, 61 people were in the age bracket of of25-30, 26 respondents were in the age bracket of 31-40, 1 response was from the age bracket of 41-50. In addition, if we talk about qualification, amongst 121 responses, 59 respondents were graduated, 27 were intermediate qualified, and 35 were post-graduate. In addition, if we talk about work experience, amongst 121 respondents, 73 people had work experience of 0-5 years, 8 respondents had work experience of 11-20 years, and 40 respondents had work experience of 6-10 years.

Pearson was used to evaluate the significant hypotheses, and correlation analysis was performed. The strength of the relationship between the predictor and criterion variables is determined via correlation analysis. In order to test hypotheses, the correlations between predictor and criterion variables. According to the findings, both predictor factors are substantially associated with the criterion variable. It implies a modest level of association strength; however, the link is very significant at p 0.01 and indicates a positive relationship between Country Image dimensions and Purchase Intention.

4.3 Hypotheses Testing

In Table 1, R Square: 0.858 denotes an 85% change/variation due to changes in all independent variables.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.926[a]	.858	.855	.314654611604199	.858	355.996	2	118	.000	1.791

a. Predictors: (Constant), DASU, LI
b. Dependent Variable: MP

Table 2: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	70.493	2	35.246	355.996	.000[b]
	Residual	11.683	118	.099		
	Total	82.175	120			

a. Dependent Variable: MP
b. Predictors: (Constant), DASU, LI

Source: SPSS output

The regression model is less likely to violate the null hypothesis due to the expected association between independent and dependent variables, as indicated by Table 2's f-value of 355.996. Consequently, the P value is 0.000, suggesting that all independent factors positively related to the dependent variables. This is significantly less than the 0.05 significance level, indicating that the independent variable is a statistically significant predictor (Haque et al., 2021).

Table 3: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-.133	.184		-.724	.471	-.498	.232		
	LI	.943	.052	.877	18.037	.000	.839	1.046	.510	1.960
	DASU	.086	.061	.069	2.419	.002	-.034	.206	.510	1.960

a. Dependent Variable: MP

Source: SPSS output

As indicated in Table 3, the null hypotheses 1 and 2 are accepted and significant, suggesting that "there is a meaningful link between the independent variable "Logistic Integration and Demand and Supply" and the dependent variable Manufacturing Performance." Table 3 shows that the independent variables Logistic Integration and Demand and Supply do not have a statistically significant relationship with "Manufacturing Performance." This is explained by the statistical findings

that Demand and Supply Uncertainties and Logistic Integration have P-values of 0.471 and 0.000, respectively. The P values are more than the 0.05 level of significance. This result accepts our hypothesis of a significant relationship (Das et al., 2021).

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.841[a]	.707	.702	.385670161541895	.707	142.334	2	118	.000	1.805

a. Predictors: (Constant), DASU, LI
b. Dependent Variable: CPC

Source: SPSS output

In Table 4, R Square: 0.707 denotes a 70% change/variation due to changes in all independent variables.

Table 5: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42.342	2	21.171	142.334	.000[b]
	Residual	17.551	118	.149		
	Total	59.894	120			

a. Dependent Variable: CPC
b. Predictors: (Constant), DASU, LI

Source: SPSS output

Because of the expected connection between independent and dependent variables, as evidenced by the Table 5 f-value of 142.334, the regression model is less likely to violate the null hypothesis. As a result, the P value is 0.000, indicating that all independent variables are positively related to the dependent variables. This is substantially less than 0.05, indicating that the independent variable is a statistically significant predictor (Alrazehi et al., 2021).

Table 6: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.425	.226		1.881	.062	-.022	.872		
	LI	-.051	.064	-.056	-6.800	.004	-.178	.076	.510	1.960
	DASU	.934	.074	.879	12.596	.000	.787	1.081	.510	1.960

a. Dependent Variable: CPC

Source: SPSS output

The null hypotheses 1 and 2 are accepted and significant, implying that "there is a meaningful link between the independent variable "Logistic Integration and Demand and Supply" and the dependent variable Manufacturing Performance," as shown in Table 6. The findings show that "Manufacturing Performance" has no statistically significant link with the independent variables of Logistic Integration and Demand and Supply. Demand and Supply Uncertainties and Logistic Integration have P-values of 0.040 and .000, respectively, which explains this. The P values are more than the threshold of significance 0.05 (Rashid & Amirah, 2017). This data debunked our idea of a major association.

The hypothesis estimation is shown in Table 7. According to the findings, all three steps have been met because estimation shows that Logistic Integration has a positive and significant impact on Demand Supply, and the relationship between the independent variable and the mediator was also significant. Finally, due to the presence of PC, the beta value decreased, resulting in a weaker impact of the independent variable on the complex products. As a result, the p-value is similarly significant, implying that organizational trust acts as a partial mediator between IV and DV.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.928[a]	.861	.858	.312260870681685	.861	241.922	3	117	.000	1.683

a. Predictors: (Constant), CPC, LI, DASU
b. Dependent Variable: MP

Source: SPSS output

In Table 7, R Square: 0.858 denotes an 85% change/variation due to changes in all independent variables.

Table 8: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	70.767	3	23.589	241.922	.000[b]
	Residual	11.408	117	.098		
	Total	82.175	120			

a. Dependent Variable: MP
b. Predictors: (Constant), CPC, LI, DASU

Source: SPSS output

The regression model is less likely to violate the null hypothesis since the expected relationship between independent and dependent variables is demonstrated by the f-value of 241.922 in Table 8. Consequently, the P value for all of the independent variables is 0.000, showing that they are all positively associated with the dependent variables. Because this is less than 0.05, the independent variable is a statistically significant predictor (Hashmi, 2022).

Table 9: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-.187	.186		-1.005	.317	-.554	.181		
	LI	.949	.052	.883	18.249	.000	.846	1.052	.507	1.971
	DASU	-.031	.092	-.025	3.337	.007	-.213	.151	.218	4.597
	CPC	.125	.075	.107	2.678	.046	-.023	.273	.293	3.412

a. Dependent Variable: MP

Source: SPSS output

The null hypothesis 4 is accepted and significant, as shown in table 9, which means that product characteristics mediate the association between logistical integration and difficult product features." The findings show a statistically non-significant association between the independent variables "logistical integration and demand and supply" and the mediating factors "logistical integration, demand-supply, and product characteristics." The statistical findings in Table 9 show that the P-values of product characteristics and logistic integration are .000, 0.007, and 0.046, respectively, explained. The P values are more than 0.05, indicating they are statistically significant. This finding accepts our hypothesis of a significant link (Hashmi, 2023). Table 10 illustrates a summary of the hypotheses and the found results.

Table 10: Hypothesis Assessment Summary

S. No	Hypotheses	Results
1	H1: Uncertainty about Demand and supply substantially impacts manufacturing performance.	Accepted
2	H2: Logistics integration is linked to manufacturing performance in a significant way.	Accepted
3	H3: The relationship between demand and supply uncertainty and complicated product attributes is mediated by manufacturing performance.	Accepted
4	H4: The relationship between logistical integration and complicated product features is mediated by manufacturing performance.	Accepted

Source: Based on SPSS results

5. Discussion, Implications, Limitations and Recommendations

5.1 Discussion

This chapter of the study includes a summary of the findings that reject the hypothesis of this research. A review of the literature and statistical analysis shows that PC mediates the link between Li, DSU, and MP. PC has been proven to mediate between Li, DSU, and MP partially. Furthermore, in all relationships, the coefficients were positive, demonstrating that Pc positively impacts MP. Using mediation MP, we empirically examined the relationship between Li, DSU, and PC, and the study produced various significant contributions. The results of such a study reject all of the study's questions and all of the study's objectives. In today's ever-changing business climate, organizations must undergo continuous transformation to remain competitive, which needs adequate performance.

Even though some scholars consider supply chain resilience a young field (Blackhurst et al., 2005), many companies focus on it. On this subject, investigations and supply have been published on-chain risk and vulnerability due to market fluctuations surroundings. The systematic literature review method was employed in this exploratory study to evaluate intra- and inter-organizational challenges found in the literature. Concerns about supply chain resilience should be addressed via procurement. The study found a positive impact of LI and DSU on MP, where PC performed as a mediator between these variables.

In two respects, this study adds to the operations management literature. The findings show that the link between Li, DSU, and PC is dependent on MP. According to the findings, internal and supplier integration (LI & DSU) both improve Manufacturing. The three categories of supplier integration are non-favorably associated with performance and internal integration. Whereas the past studies provide significant results, i-e- these findings aid academics in understanding why manufacturers with the highest levels of internal and supplier integration perform best (Frohlich & Westbrook, 2001; Flynn et al., 2020; Schoenherr et al., 2014). They also add to our knowledge of how internal and supplier integration work together to improve business performance. This study discovers that internal and supplier integration can be complementary and that organizations can only reap the full benefits of their supplier integration efforts with internal integration. Second, this research fails to show the positive relationship between Li and DSU, as well as for the MP, mediated by the PC among employees. The findings add to current knowledge of the factors determining the effect of supplier integration (Lai et al., 2012; Huo et al., 2013; Boon-itt et al., 2017). Internal trust significantly and positively affects business performance regarding information, process, and strategic integration with suppliers, respectively.

Companies are constantly changing their predictions of the influence of provider delivery dates on productivity in the future. Supplier integration is integral to organizational purchasing because it helps industrial organizations minimize the consequences of manufacturing delays while increasing efficiency and frequency (Zhang et al., 2018). The outcomes of this study further emphasize the importance for manufacturing companies to focus not only on investing in integration techniques but also on how they may increase their resiliency. Resiliency allows Pakistani manufacturing enterprises to efficiently absorb disruptions while continuing to serve consumers with the services and goods they demand. The ability to withstand adversity is especially vital for businesses in rising economies like Pakistan.

The study's findings are important from both a theoretical and practical standpoint. Theoretically, the study prioritized capital procurement assessment criteria and built a cause-effect model, namely the Network Relationship Map (NRM). From a practical standpoint, the findings of this study can assist the industry in making educated judgments on capital procurement supplier selection and resource optimization. A corporation must consider these cause criteria when choosing a capital procurement supplier. As a result, the supplier must carefully review their criteria to ensure a successful process. The cause group includes the supplier profile, which is influenced by practically all other criteria.

Garfamy (2009) and Ramanathan (2013) conducted studies that support the findings of our study. Suppliers should provide support and services after the capital is purchased (Dweiri et al., 2016) and provide information about the capital's life cycle, as well as maintenance and replacement techniques (Sivakumar et al., 2015; Dweiri et al., 2016). The effects of logistical integration, demand and supply unpredictability, and manufacturing performance in global manufacturing industries were investigated in this study. Using trustworthy and robust data, we discovered that logistic integration and demand and supply unpredictability have detrimental effects on manufacturing performance. Through the mediating role of product features, logistic integration positively impacts manufacturing performance. This work is a significant empirical step in analyzing supply chain integration and new product performance in global manufacturing industries from an academic standpoint. This study also emphasizes the importance for manufacturing companies to focus not only on investing in integration methods but also on ways to improve their production performance. Due to logistical integration and demand and supply volatility, Pakistani manufacturing enterprises can efficiently handle interruptions and continue to provide consumers with the services and products they expect. Manufacturing performance competence is very critical for companies in emerging markets like Pakistan.

5.2 Implications

It is easier for manufacturers to manage the complete product development process by engaging suppliers and customers in product development. Our findings offer managers insight into specific effective techniques in product development projects. First, managers should emphasize the importance of logistic integration in product development and other forms of integration. Second, it has been suggested that integrating upstream and downstream is preferable to focusing the firm's efforts solely on integrating consumers or suppliers. There is a risk of misunderstanding and distrust in the fragmented supply networks. Third, SC integration is difficult to achieve and requires significant expenditure (such as IT infrastructure development). Managing relationships through supply and demand is critical in logistic integration. It is advised that a manufacturer should integrate throughout the supply chain to improve manufacturing performance. Fourth, management is advised to develop product qualities that are more difficult to mimic, can add value to their products, and can satisfy more complex consumer requests, which are beneficial to building client trust.

The outcomes of this study might be helpful in the literature on supply chain management. It adds to our understanding of how industrial companies in Pakistan might reap the potential benefits of logistic integration. While it is well recognized that integrating supply chain members internally and externally can reduce the impact of supply chain disruptions caused by uncertainty, our study has revealed that such methods may only sometimes convert into manufacturing performance in emerging economies like Pakistan. This research bridged the information gap by demonstrating how product characteristics mediate the relationship between logistical integration, demand and supply uncertainty, and manufacturing performance.

5.3 Limitations

This research was based on user feedback. Furthermore, crowd attractiveness and business durability were utilized for nightclub success. A comparable study might be conducted again to obtain management's perspective and use a different variable as a mediator. The result of this study rejects all hypotheses, so future researchers can make further efforts to add on some supportive variables to make the hypothesis accepted by the responses. The research can also be carried out in various regions and sectors, and the success aspects can be compared. This research was carried out in Sindh (Karachi), but it might be carried out in other Pakistani cities and provinces.

5.4 Recommendations

It can be discovered by consumer interfusion, the total quality management method of buying, and knowledge exchange. Furthermore, many other mediating and modern factors may be employed for future analysis, such as customer convergence, TQM and JIT. Future studies could research other

modulators of varying factors, such as future levels of student participation on instructional quality/performance connections. According to this book, companies' strategies, including organizational culture, structural design, employee belief, technological availability, design of the company structure, and market climate, all of the business, are intricately connected regarding impact on growth.

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