The Effect of Big Data Analytics Capability and Budgeting & Forecasting Quality on Construction Supply Chain Management Performance and Construction Firm Value

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ABSTRACT

Construction firms play key role in economic development of an economy. Supply chains are vital for the success of construction firms. It is important to understand role of technology and finance to improve construction firm value. Therefore, this research analysed the effect of budgeting and Forecasting, big data analytics capability and construction supply chain management performance on construction firm value. The data was collected using questionnaire from the employees of construction firms in Iraq. Questionnaire was developed using Likert scale. Simple random sampling was used for data collection. Response rate of study was 67%. Collected data was analysed using PLS-SEM. Tool used for this purpose is Smart PLS 4. Results of the study revealed that construction supply chain management performance has positive effect on construction firm value. Moreover, budgeting and forecasting, and big data analytics has positive influence on supply chain management performance. Mediating hypotheses are also supported in the findings. This study is added to the body of knowledge by discussing construction supply chain management performance as mediating variable. These findings are helpful for policy makers and academicians.

Keywords: Forecasting Accuracy, construction supply chain, big data analytics, Project cost control, Construction Firm value

INTRODUCTION

Supply chain management performance is important driver of the organizational competitiveness and project success in construction industry (Abhulimen, 2024). Opposite to supply chains of traditional manufacturing, there exists high fragmentations in construction supply chains. Moreover, there are multiple stakeholders that are involved including material suppliers, subcontractors, contractors and clients. Effective supply chain management performance plays key role to ensure timely flow of financial resources, information resources and material resources (Anwar et al., 2025) that is essential to meet the deadlines of project, maintaining different standards of quality and cost controlling. Poor performance of supply

chain mostly results in coordination failures, material shortages, and cost overruns that impacts the outcomes of projects and confidence of stakeholders (Giri, 2025).

In the business environment that is increasingly volatile and competitive, construction firms face logistic complexities, demand uncertainty, and rising fluctuation of price (Alakaş et al., 2025). Therefore, enhancement of supply chain performance has become strategically vital to improve efficiency of operations, and reduction of risks (Anwar et al., 2025). Strong integration of supply chain and measurement of performance enables construction organizations to respond in proactive manner with purpose to support informed managerial decision making, and to optimize utilization of resources, thus provide strength to project performance (Al-Sabaawe et al., 2024; Shishehgarkhaneh et al., 2024).

The rapid expansion of technology has led to the emergence of big data analytics. This phenomenon was 1st time recognized in 1941 and was formally conceptualized later in 2008 (Iqbal et al., 2025). Since then, this concept is treated as base of digital economy. Presently, organizations operate in era that is characterized by diverse data stream, fast moving and massive that has significant effect on the operational and strategic decision making. In context of construction organizations, effective financial planning and supply chain management need effective coordination among all stakeholders, cost control and accurate forecasting (Elkliny et al., 2025). In such organizations, budget preparation involves several important steps including performance evaluation, expenditure estimation, revenue estimation and financial planning (Haileselassie et al., 2024). All of these statistics are dependent on market expectations and historical data. These processes are enhanced through big data analytics through integration of historical data from market environments, logistic systems, contractors, and suppliers, and large volume of real time data (Bahrami et al., 2022; Mansoor et al., 2025). As a result, construction managers are enabled to improve demand forecasting, management of supply chain risk, reduce cost overruns, optimize procurement decisions becomes more effective (Iyadunni Adewola et al., 2024). Furthermore, technologies related to big data provide support to financial forecasting by analysing performance patterns, and economic trends. Therefore, reliability of future projections is improved. These factors are important for the construction supply chain as they are highly sensitive, capital intensive and complex to market volatility. The ability to process data with variety, accuracy and high speed enhances transparency and provide support to informed decision making for financial stakeholders, investors and managers (Nguyen et al., 2025).

Budgeting and forecasting quality is important factor of organizational performance, specifically in industries like construction sector that are characterized by complex supply chain structures and high uncertainty (Abbo Bacia, 2024). High quality budgeting and forecasting give a reliable foundation for performance evaluation, resource allocation and planning by making sure that financial estimates are timely, accurate, and aligned with the objectives of organization (Prakash et al., 2024). In construction organizations, long timelines are involved in the projects, prices if materials are fluctuating, and coordination among multiple contractors and suppliers can result in inefficient capital utilization, schedule delays and cost overruns (Sanusi, 2024).

Effective budgeting is mainly dependent on forward looking market indicators, current operational information, and historical financial data for the estimation of cash flows, costs and future revenues (Martinez et al., 2025). In turn, forecasting quality reflects the organizational ability to anticipate different changes in economic conditions, input process and demand with a reasonable degree of precision (Sifuentes-Domínguez et al., 2026). Advanced data driven approaches and analytical tools enhance accuracy of forecasting by minimizing reliance on

subjective judgement and improving consistency of financial projections. High quality budgeting and forecasting plays key role to support supply chain coordination and managerial decision making (Osho et al., 2024). With the help of accurate forecasting, construction organizations are enabled to optimize procurement planning, align financial plans with schedules of project execution and align financial plans. Moreover, reliable financial forecasting enhances credibility and transparency for lender, investors and stakeholders (Nadeem, 2024).

Firm value is construction shows the ability of the organization to deliver and complete projects efficiently by managing market uncertainty, operational complexity and financial risk (Didar et al., 2025). It shows the market assessment of construction firms' probability, execution capability, growth potential, cash flow stability and cash flow stability across projects. As construction organizations operate in a capital intensive and project-based environment, firm value is strongly influenced by effective coordination among clients, suppliers, and contractors, timely completion of project and cost control (Adham & Sukkar, 2024). Higher firm value strengthens competitive positioning, enhance access to funding and credibility in financial markets (Almashhadani & Almashhadani, 2023). It also shows long term sustainability to stakeholders and investors.

It is very important to understand the way construction supply chain firms utilize and manage the diverse and large volume of data that is generated from financial activities, project execution, logistics, and procurement and the way data us transformed into strategic value by using big data analytics (Huong et al., 2025). The role of budgeting and forecasting, and big data analytics is important in creating firm value of construction organization (Mustafa et al., 2024). The main aim of the present study is to examine the impact of supply chain management performance on firm value of construction firm, to investigate the effect of budgeting and forecasting quality on supply chain management performance and to expel the impact of big data analytics on supply chain performance of construction firms.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Construction Supply Chain and Management

Construction supply chain and procurement play key role to enhance value creation, cost control and project efficiency in terms of construction organization (Joseph Ozigi et al., 2022). The construction supply chain is based on coordinated flow of services, finances, information and materials among multiple subcontractors, contractors and suppliers (Zhang, 2025). Effective selection of supplier is basically emphasized in past studies as key factor of success of project with criteria extending beyond to sustainable practices, technology capability, reliability and quality (Pawallo & Fuk Jin, 2025).

Likewise contracting strategies including integrated project delivery, design and build and traditional significantly impact overall performance, collaboration and allocation (Al Fath et al., 2024). Strategic procurement planning make sure timely acquisition of different resources, enhances transparency and minimize delays across all phases of project. Furthermore, management of robust contractor improves productivity, reduce disputes and strengthen coordination on site. Overall, these factors contribute to long term competitive advantage, operational reliance, and supply chain performance in increasingly complex and dynamic project environment (Wang et al., 2025).

Construction cost forecasting & project controls

Project Controls and Construction cost forecasting develop a critical mechanism to ensure project success and financial discipline within the construction industry (Oyegoke et al., 2021). Past studies highlight cost overruns as external uncertainties, design modifications, scope changes and inaccurate estimates. Therefore, effective budget planning at the stage prior to construction for the allocation of resources is important (Chepng'eno & Kimutai, 2021). Studies mentioned that advanced analytical tools, risk assessment techniques and historic data analysis plays key role in the success of project.

Moreover, capital budgeting in context of projects provides a strategic framework to evaluate feasibility of investment, assessing long-term returns and prioritizing resource allocation (Dahiwale & Khaire, 2025). Variance analysis, incorporating real-time monitoring and integrated project control systems further provide strength to cost governance. Collectively, project control practices and robust cost forecasting contribute to organizational sustainability, migrate risk exposure, and enhance financial transparency in construction firms.

Digital Construction Supply Chains

Digital Construction supply chains are regarded as an important approach to improve performance, responsiveness and transparency in projects of construction (Aziz et al., 2024). The integration of different digital technologies has enhanced coordination in all networks of supply chain that enables decision making on the basis of data. Particularly, big data analytics for the purpose of procurement allows organizations to identify cost saving opportunities, optimize sourcing decisions and supplier performance through real time data processing (Okpara et al., 2024). Studies also point out the role of predictive analytics in prediction of risk where real time and historical data are used for supplier disruptions, price volatility, and anticipation of delays.

Effective management of disruption is strengthened via monitoring of digital systems that support contingency planning and early warning signals. Furthermore, data driven demand planning for materials aligns procurement schedule, reduce waste and improves control with timelines of project. Studies also revealed that digital construction supply chains enhance strategic agility, operational resilience and forecasting accuracy (Cherian et al., 2022). Therefore, performance of overall supply chain is improved in construction sector.

Supply chain Management Performance and Firm value

Supply chain management performance (SCMP) is discipline for optimizing, analysing, and tracking of efficiency of the supply chain (Malokani et al., 2024). It develops the important aspect of supply chain management to ensure the processes of supply chain are aligned with wider objectives of business such as increasing operational efficiency, improving customer satisfaction, and reduction of costs. SCMP is the assessment of effectiveness and efficiency of supply chains to meet requirements of customers, encompass optimization of cost, reliability, inventory management and speed. Performance measurement is the system of measurement that able to examine the performance of supply chain (Putri et al., 2019). The function of organizational supply chain has the ability to gain visibility of organization and show the impact of resources utilization and supply chain decisions on the performance of organizational finances. For the development of effective models between organizational performance and supply chain decisions, it is important that supply chain organizations know the link between decisions and

actions in terms of financial components of organizations. Later, it must analyze the impact that its different components and actions have on financial performance (Akbay & Hafeez, 2025).

Organizations generate value of different resources in efficient way to develop information that is valuable. More value is given to customers; operation will become more lucrative. Value chain is based on different organizational activities with aim of developing value for the customers. Scholars introduced different concepts for the analysis of the value chain of an organization through scrutiny of different activities and their interconnections. They also identified different opportunities for reduction of cost and differentiation within activities that are interconnected, ultimately affecting different profits and providing insights regarding organizational value. The basic goal of every supply chain is to optimize the overall value. Within the cycle that is interconnected, different organizations operate within scopes that are distinct but share same objectives of efficiently distributing and procuring goods. With the help of such collaboration, value addition is provided for the products. Partnership in terms of proficient organizations provide value to the products that are marketed by improving different aspects such as repairs, ordering processes, and production speed (Kristiawan et al., 2022)Organizational performance is positively affected by this collaborative approach that impacts its value from the perspective of stakeholder. Scholars indicated in their studies that effective supply chain management performance has positive effect on the firm's value. Study by Esquivias et al. (2025) also revealed that SCMP has direct effect on the firm value that later enhance asset productivity, liquidity, and profitability.

H1: Supply chain management performance has positive effect on construction firm value

Big Data Analytics Capabilities and SCM Performance

Big Data Analytics Capability (BDAC) is explained in studies as model that is combination of management capabilities, human capabilities and infrastructure (Sultan et al., 2024). Some studies have defined BDAC as competence to provide business insights using talent capability, infrastructure, and data management for the transformation of business in to competitive one (Huynh et al., 2023). SCMP that is dependent on BDAC that enables integration of different factors in performance of supply chain. Researchers mentioned that BDAC has ability to develop positive changes in performance as it handles the problem of improving the optimization of efficiency, costs and processes. Studies also found that different organizations that practice BDAC have observed enhancement in the procedures of operations. Because of its ability to analyze and gather large amounts of data, organizations have ability to analyze and track production methods and processes, enhancing overall outputs and minimizing overheads. The generated information can help the organizations in production of different models that give response to the issues of supply chain, inventory, and changing demand. Therefore, operational flexibility is improved (Ngo et al., 2020).

Scholars established that dynamism and complexity in industry, like manufacturing industry is benefitted by BDAC for the enhancement of operational performance (Ferraris et al., 2019). Studies reported after analysis of information that implementation of BDAC enabled its decision makers to make relationships related to supply chain and reduce the amount of time that is spent on management of inventory. Therefore, overall expense is reduced and productivity is enhanced (Ngo et al., 2020). Organization get ability to adapt because of flexibility of the market in real time making huge contributions to the competitiveness , especially in market environments that is volatile (Dwivedi & Agarwal, 2024).

Additionally, scholars mentioned that emergence of ideas in the market like usage of BDAC has the ability to enhance supply chain performance. Organization is enabled through supply chain to monitor the movement of materials from certain nodes of supply chain on real time basis so it can deal with sub-optimality and adversity that is based on different steps of supply chain (Yasmin et al., 2020). Incorporation of BDAC in management of supply chain is important for firm as it has positive effect on supply chain management performance (Bahrami et al., 2022).

H2: Big data analytics capability has positive effect on construction supply chain management performance

Budgeting & Forecasting Quality and SCM Performance

In literature, budgeting and forecasting quality is referred as strategic alignment, responsiveness, and precision of processes of financial planning with operational realities (Abbo Bacia, 2024). High quality budgeting helps to ensure that project resource, revenue and costs allocation is closely linked to the actual performance. Whereas adaptive forecasting regularly updates regarding these projections on the basis of conditions of changing markers. In different projects of construction, risks are hight and margins are tight, the quality of budgeting and forecasting has measurable and direct effect on the supply chain management performance (Mäkiaho, 2019).

Procurement cost is significantly reduced through accurate budgeting (Majumder, 2025). The projects of construction are highly sensitive in terms of fluctuation of prices of materials such as fuel, cement and steel. When different forecasts are made on data analytics that is reliable, and according to the trends of market, better supportive contracts can be negotiated by the supplier. It can also help in prevention of unexpected cost runs and lock in prices. As a result of this alignment between actual procurement costs and projected costs, project profitability and financial stability is enhanced. Forecasting quality and budgeting improves reliability of suppliers (Prakash et al., 2024). It is ensured by timely financial planning that contract commitments, order volumes and payment schedules are sustainable and realistic. Suppliers are more dependable in case of getting timely payments and accurate demand forecast, that lead to reduced supply chain uncertainty and stringer collaboration. Strategic alignment in terms of alignment between operational activities and financial plan provide support to long term partnership of suppliers (Majumder, 2025).

Lead time reduction is caused by adaptive forecasting. Moreover, rolling forecasting allows managers of projects to anticipate requirements of materials in advance and adjust schedule of procurement as per requirements (Bari, 2025). This approach proactively minimizes delays that are caused by late deliveries and enhances workflow on continuous basis across all phases of project. Likewise, forecasting of high quality enhances visibility of disruption risk by identifying operational and financial risks such as logistic bottlenecks, inflationary pressures and supplier instability before they can major disruptions (Ragab, 2024). Effective budgeting provides direct support to reduction of material and inventory shortage. With the help of accurate estimates of demand, organizations can optimize level of inventory by avoiding shortage and access of stock. Real-time monitoring further improves operational efficiency and cash flow management (Deshpande et al., 2024). Scholars have discussed that construction firms that adopts data driven budgeting and forecasting improves schedule performance and cost control, as a result enhancing supply chain performance (Majumder, 2025) . In other words, budgeting and forecasting play the role of strategic driver of SCMP (Pewdum et al., 2009).

H3: Budgeting and Forecasting quality has positive effect on construction supply chain management performance
H4: Construction Supply chain management performance mediates between big data analytics capability and construction firm value
H5: Construction Supply chain management performance mediates between budget and Forecasting quality and construction firm value.

Figure 1: Framework

METHODOLOGY

Present study used quantitative research approach to analyse the antecedents of construction firm value. Data was collected by self-managed survey, involving employees working in the construction firms of Iraq. Questionnaire was used as instrument to gather data from the employees. Questionnaire was developed in Likert scale from the past papers. This study develop questionnaire of construction firm value from (Tallon et al., 2000), scale of construction supply chain management performance from (Kabra & Ramesh, 2016), items of big data analaytics capability were adapted from (Raguseo & Vitari, 2018), and scale of Budgeting and Forecasting quality was adapted from (Zhou et al., 2025). The developed questionnaire had the good reliability and validity. This questionnaire was distributed among 300 employees. for this purpose, simple random sampling was used. 201 usable responses were used for the analysis of collected data. The usable response rate of study was 67%. This data was analysed using structural equation modelling. The tool used for the analysis was Smart PLS 4. Smart PLS is the abbreviation of Smart Partial Least squares. It is one of the statistical analysis methods that is employed in a number of empirical research used for the assessment of relation between different variables. Items adapted from past studies are listed in Table 1 below:

Table 1: items

S. No	Variable	Items
1	Construction Supply chain management performance	1. Our construction firm has the ability to responds quickly to unexpected disruptions in the supply chain 2. Our firm can ensures the availability of adequate technical and operational support required for smooth supply chain functioning. 3. Our construction firm can effectively manages construction materials 4. Our firm has the ability to maintains sufficient availability of construction materials to prevent project interruptions. 5. Our supply chain operations can contribute to improving the overall level of client service and project satisfaction.

Table 1(continued): items

S. No	Variable	1. Items
2	Big data analytics capability	2. Our construction firm often uses big data analytics to achieve measurable cost savings in procurement and logistics activities. 3. Big data analytics usage by our construction firm reduces operating costs in material sourcing, inventory management, and subcontractor coordination within our firm. 4. Big data analytics usage by our construction firm reduces communication costs among departments, project teams, suppliers, and subcontractors in our firm. 5. Big data analytics usage by our construction firm enhances employee productivity in supply chain planning, monitoring, and decision-making within our construction firm. 6. Big data analytics usage by our construction firm provides a competitive advantage to our construction firm. 7. Big data analytics usage by our construction firm enables our firm to respond quickly to changes in material demand, price volatility, and project schedules. 8. Big data analytics improves our firm's relationships with clients, suppliers, and subcontractors through greater information transparency.
3	Construction Firm Value	1. Our construction firm enhances the value of its projects and services by integrating digital technologies and IT systems into project processes. 2. The use of digital technologies by our firm reduces the cost of designing and planning new construction projects. 3. Digital integration enables our firm to reduce the time required to deliver new construction projects to clients. 4. The application of IT and data-driven systems enhances the quality of our construction projects and services. 5. Digital technologies support innovation in our construction methods, project delivery systems, and service offerings.
4	Budgeting and Forecasting quality	1. Budget planning and forecasting in our construction firm promote effective teamwork among project and finance teams. 2. budgeting and forecasting process enables continuous discussion, challenge, and evaluation of underlying data and action plans. 3. Budget planning and forecasting provide a shared and consistent view of financial priorities across teams within our construction firm. 4. Budget planning and forecasting activities are closely integrated across our construction firm, functioning as a coordinated budgeting effort. 5. Our budgeting and forecasting processes help our construction firm remain aligned with the overall strategic goals of the construction firm. 6. Budget planning and forecasting enable our construction firm to focus on critical success factors for project and organizational performance. 7. Through budgeting and forecasting, our construction firm develop clear and specific financial and operational goals.

RESULTS

For the evaluation of reliability of variables, this research used two different assessment techniques. These techniques include discriminant validity and convergent validity. The assessment of convergent validity began with analysis of factor loading. Jr et al. (2017) proposed the loading value must be 0.70 for the retention of items of variable. Table 2 shows that all items retained have value of more than 0.70.

Table 2: Factor Loading

	B&FC	BDAC	CSCMP	FV
B&FC1	0.935			
B&FC2	0.928			
B&FC3	0.939			
B&FC4	0.939			
B&FC5	0.817			
BDAC1		0.777		
BDAC2		0.882		
BDAC3		0.847		
BDAC4		0.873		
BDAC5		0.860		
CSMP1			0.845	
CSMP2			0.851	
CSMP3			0.879	
CSMP4			0.880	
CSMP5			0.747	
FV1				0.893
FV2				0.884
FV3				0.878
FV4				0.729

Later, reliability and validity were evaluated through Cronbach Alpha and Composite reliability. The benchmark value for these assessments is 0.70, which is fulfilled in Table 3. Furthermore, AVE value is also examined for which minimum acceptable figure is 0.50 as propped by Fornell and Larcker (1981). Table 3 also shows the value of AVE stating all figures meeting the required benchmark.

Table 3: Reliability & Convergent Validity

	Cronbach's alpha	CR	AVE
B&FC	0.949	0.961	0.833
BDAC	0.903	0.928	0.720
CSCMP	0.897	0.924	0.709
FV	0.868	0.911	0.720

Later, discriminant validity was examined using HTMT technique for which all figures in the matrix must be less than 0.90. Table 4, show that all statistical values are less than 0.90, meeting the criteria.

Table 4: HTMT

	B&FC	BDAC	CSCMP	FV
B&FC				
BDAC	**0.059**			
CSCMP	**0.297**	**0.529**		
FV	**0.219**	**0.660**	**0.575**	

In the end of initial analysis, R square value was examined that shows construction firm value is impacted 26% and CSMP is affected 29.6% by the proposed variables.

Table 5: R^2

	R-square
CSCMP	0.296
FV	0.260

At this stage bootstrapping procedure was used for the analysis of proposed hypothesis. The significance of relationship was determined through Value of t. Table 6 shows the value of direct and indirect hypothesis. The results show that

Table 6: Results

	Beta	SD	T	P values
B&FC -> CSCMP	0.246	0.058	4.217	0.000
BDAC -> CSCMP	0.474	0.059	7.998	0.000
CSCMP -> FV	0.510	0.061	8.338	0.000
B&FC -> CSCMP -> FV	0.126	0.034	3.640	0.000
BDAC -> CSCMP -> FV	0.242	0.052	4.621	0.000

The values in Table 6 illustrate that B&FC has positive effect on CSMP with t=4.217. Moreover, BDAC has significant positive effect on CSMP having t=7.998. Furthermore, CSMP has positive influence on FV with t= 8.338. Thus, all proposed direct hypothesis is supported. In terms of mediating results, Table 5 values show that CSMP mediates between B&FC and FV, and between BDAC and FV with t= 3.640 and 4.621 respectively.

DISCUSSION AND CONCLUSION

The purpose of this study was to examine the effect of construction supply chain management performance, budgeting and forecasting quality, and big data analytics capability on construction firm value. Results illustrate that construction supply chain management performance have positive effect on construction firm value. These results show a positive and significant effect on firm value of construction firm. This relationship shows that firms that can effectively manage logistics operations, subcontractor integration, supplier coordinator and procurement processes are in better position to enhance their strategic and financial outcomes. Improved construction supply chain management performance contributes to minimized

disruptions, reduced material wastage, timely project completion and cost efficiency all of which has direct effect to strengthen competitive positioning and profitability.

Furthermore, efficient supply chain coordination in construction firms enhance information sharing and transparency among all stakeholders leading to improved project control and better decision making. When construction firms develop alignment between their supply chain strategies and organizational objectives, they will be able to improve client satisfaction and optimize resource utilization that enhance long term value creation and market reputation. This positive linkage also shows collaborative contracting strategies, digitalization, and supply chain integration can generate sustainable value for construction organization. These results are aligned with the results of Esquivias et al. (2025) from Literature.

Findings also illustrate that big data analytics capability has positive effect on construction supply chain management performance as discussed by (Bahrami et al., 2022). The findings show that construction firms that are equipped with real time information systems, predictive analytics, and advanced data processing are in better position to manage uncertainties and supply chain complexities. Big data plays key role to improve forecasting accuracy that enables procurement team to align purchasing decision with project schedules, and plan material that demand more effectively project completion. Improved demand planning minimize project delays, overstocking, prevent material shortages and reduce cost variance. Therefore, supply chain efficiency of construction firms is strengthened.

Additionally, big data analytics plays very important role to enhance tax efficiency and fraud detection. These factors contribute to stronger governance mechanisms in terms of supply chain. Improved financial transactions and transparency, improves stakeholders trust and reduces opportunistic behavior. Through integration of analytical insights into performance monitoring, risk prediction and supplier selection, construction organizations can achieve operational control and higher coordination. Therefore, big data analytical capability is important predictor of construction supply chain management performance.

Results also revealed positive influence of Budgeting and forecasting quality on construction supply chain management performance as demonstrated by (Majumder, 2025). . These results show that reliable forecasting and accurate budget planning mechanisms enhance the coordination and efficiency of supply chain activities in terms of construction firms. High quality budgeting enables construction firms to allocate different financial resources across subcontracting functions, logistics and procurement. Therefore, reducing operational disruptions and financial uncertainty.

In presence of effective forecasting, visibility in terms of project timelines, cashflows, and future material requirements is improved that later strengthen supplier coordination and procurement planning. When forecasting of construction firms is data driven and realistic, construction firms are in better position to mitigate risks, manage price volatility and cost fluctuations that are associated with supply delays. As a result, improved forecasting and budgeting quality plays very important role to enhance schedule adherence and reduce cost over runs, that lead to stronger supply chain performance. This positive linkage shows the strategic role of financial planning capabilities in environment of construction firms, where uncertainty and project complexity is very high.

THEORETICAL AND MANAGERIAL CONTRIBUTION

Present study contributes theoretically by integrating supply chain management performance, budgeting and forecasting quality, and big data capability on construction firm value in a single framework. This research extends present literature by linking financial capabilities and technology with firm value of construction firm. This study is among few ones that has discussed budgeting and Forecasting quality as independent variable in context of construction firm. Moreover, this research add to the body of literature by discussing construction supply chain management performance as mediating variable. In past, most of the studies has used this variable as outcome variable, and in general context. Thus, it is a valuable addition. Furthermore, this study used big data analytics with perspective of construction firms. This is also a value addition in literature as well. Moreover, most of past studies analysing firm value has used qualitative approach. Present study is among pioneering ones that has used cross sectional and quantitative approach for the assessment of this variable.

From the perspective or managerial contribution, results of present study provide practical mechanism for construction firms to reduce supply disruption, minimize cost variance, and enhance procurement planning. In terms of policy contribution, present research highlights the importance of stronger governance mechanism in financing of supply chains, emphasizing credit risk assessment of supplier, and transparency in contracting. These results are helpful for policy makers of construction sector to develop policies for success of construction firms. Researchers can use these results for their future studies as well.

LIMITATIONS

There are few limitations of the study that are mentioned in this section. This research has two independent variables. It is proposed to add more variables in upcoming studies. Present research analysed mediating role of supply chain management performance of construction firm. It is suggested to add more supply chain related variables like supply chain agility in future studies. Moreover, there is no moderator in proposed framework. Studies in future should add moderating variables like supply chain adaptability in their study. In the end, analysis of the study is conducted through Smart PLS. It is proposed to use AMOS for analysis in future studies.

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