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Keywords: Dynamic Capability View, Pakistan, Social Capital, Supply Chain Adaptability.

Authors:

Ghulam Haider: (Corresponding Author)
PhD Scholar, Department of Business Administration, Air University, Islamabad, Pakistan.
ORCID: http://orcid.org/0009-0001-7735-171X
Email: (gccmhs@gmail.com)

Liaqut Ali: PhD Scholar, Department of Business Administration, Air University, Islamabad, Pakistan.
ORCID: http://orcid.org/0000-0003-1576-9368

Ashiq Ali Chandio: PhD Scholar, Department of Business Administration, Air University, Islamabad, Pakistan.

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This study examines the impact social capital exerts on supply chain adaptability in Pakistan's manufacturing sector under the Dynamic Capability View, offering theoretical and managerial implications. Social capital was conceptualized through internal collaboration among employees and external collaboration, and its impact on supply chain adaptability. The measurements were gathered within manufacturing companies and analyzed with PLS-SEM. The results indicate that internal and external collaboration is remarkable and positively affects all dimensions of Supply chain adaptability ($p < 0.005$), and R^2 values of 0.691 (CSCA), 0.669 (ISCA), and 0.571 (SSCA), demonstrating strong explanatory power. Model fit indices further confirmed robustness. Theoretically, findings extend DCV by showing how relational resources act as dynamic capabilities, enabling firms to reconfigure processes in volatile environments. For managers, the study underscores the strategic importance of cultivating trust-based relationships and fostering knowledge exchange both within and beyond organizational boundaries to enhance adaptability and responsiveness to market shifts.

Keywords: Dynamic Capability View, Social Capital, Supply Chain Adaptability

Authors:

Ghulam Haider: (Corresponding Author)
PhD Scholar, Department of Business Administration, Air University, Islamabad, Pakistan.
ORCID: http://orcid.org/0009-0001-7735-171X
Email: (gccmhs@gmail.com)

Liaqut Ali: PhD Scholar, Department of Business Administration, Air University, Islamabad, Pakistan.
ORCID: http://orcid.org/0000-0003-1576-9368

Ashiq Ali Chandio: PhD Scholar, Department of Business Administration, Air University, Islamabad, Pakistan.

Contents

Introduction

The capability of supply chains to adapt to an ever-more-volatile and interconnected world economy has been met with increasing appreciation. Swiftly responding to disruptions has become a decisive factor in sustaining competitive advantage. Events such as geopolitical conflicts, climate-induced uncertainties, and shifting consumer preferences have highlighted the susceptibility of orthodox supply chain models. The Dynamic Capability View (DCV) emphasizes that firms must continuously sense, seize, and reconfigure resources to respond effectively to

such changes. Within this framework, social capital—defined as the trust, shared norms, and reciprocal obligations embedded within relationships emerges as a vital relational resource that can enhance coordination and adaptability across supply chain networks.

Strong social capital enables partners to communicate openly, exchange timely and accurate information, and develop mutual understanding, which collectively contribute to faster and more effective responses during periods of uncertainty. (Ali et al., 2021).This relational cohesion allows firms to integrate new knowledge from suppliers, customers, and other stakeholders into operational processes, thereby reducing the time lag between market signals and organizational action. For manufacturing firms operating under volatile conditions, these qualities can mean the difference between maintaining market relevance and suffering performance setbacks.

Although prior studies have acknowledged the value of social capital in promoting collaboration and performance, its explicit role in shaping supply chain adaptability remains underexplored. Much of the existing evidence is drawn from developed economies, where institutional stability and resource availability differ significantly from those of emerging markets. As a result, the transferability of these insights to contexts

with resource constraints, infrastructural gaps, and greater environmental turbulence remains uncertain. Despite the recognized role of social capital in enabling collaborative advantage, empirical studies directly linking social capital to supply chain adaptability are limited, particularly in emerging economy contexts. Prior research is predominantly situated in developed markets.

Literature Review:

Theoretical Framework

Supply Chain Adaptability (SCA)

Intelligence received from upstream partners along the Supply Chain can help companies forecast change and plan to lessen the impact of operational disruption (Wang et al., 2019). Reduced response times allow firms to adopt a business process reengineering approach. Knowledge acquisition and learning from customers help companies influence development strategies and utilize market opportunities (Dahlmann & Roehrich, 2019). Collaborative learning among firms, customers, and suppliers can result in the establishment of a shared knowledge repository within the industry.

SCA means the capability of managing and empowering supply chains to modify their tactics, products, procedures, and technologies to meet operational changes in the market (Arana-Solares et al., 2019).

Dimensions of Supply Chain Adaptability:

Authors classified SCA into individual but related dimensions according to the relationship between SCM stakeholders (Yang et al., 2020).

1. ISCA (Internal Supply Chain Adaptability)
2. SSCA (Supplier Supply Chain Adaptability)
3. CSCA (Customer Supply Chain Adaptability)

ISCA represents competencies residing in a focal firm based on internal routines of cooperation, reorganization, and adaptation of practices in a firm. These are functions that allow adjusting and managing to variations throughout a long-time span (Acevedo-Amaya & Ortega-Jimenez, 2022) CSCA pertains to customer-centric capabilities of the focal firm, involving redefinition and modification of resources, practices, and procedures to adapt over the long term to meet customer needs.

SSCA refers to the capabilities of a firm related to its suppliers. The Firm redefines and adjusts resources, practices, and procedures related to suppliers to effectively respond to long-term variations.

Social Capital

Social capital, also termed as relational capital, encompasses embedded knowledge acquired through interactions with stakeholders, including customers, suppliers, and both internal and external partners (Marr & Roos, 2012).

Dimensions of Social Capital

While researchers have branded social capital into diverse dimensions, for this study, we use two dimensions of Social Capital:

1. Employee Internal Collaboration
2. Employee external collaboration (Subramaniam & Youndt, 2005)

Employee internal collaboration refers to a dynamic process involving the interaction and cooperation of employees within an organization to achieve shared goals. It encompasses a broad spectrum of activities, from informal knowledge sharing to structured teamwork.

Employee external collaboration refers to the interaction and cooperation between employees of

an organization and external stakeholders to achieve mutual goals. This involves building relationships and working together with individuals or groups outside the company's boundaries (Zhong et al., 2023).

The definition of employee collaboration is the integration of two or more companies (or departments within an organization) working and coordinating by exchanging information (Anthony, 2000). Good collaboration is not only regarded as an engine for successful supply chain management but also as a core competency of supply chain (Yu et al., 2022). Recent supply chain distractions have emphasized the prominence of collaboration even further, as this allows firms to react to a dynamic market situation faster and recover more easily in case of disruptions. It is facilitated via rapider lead times and customer facility improvement, thus enabling them to respond to changes of a dynamic milieu (Duong & Chong, 2020).

External collaboration and internal collaboration have a strong relationship that results in supply chain adaptability (Shukor et al., 2021). Effective internal collaboration enhances the capacity to respond to information generated outside the firm. External cooperation facilitates the coordination of the activities as well as resolving issues, increases the quality of the product, shortens the lead time, and enables the firm to operate in a changing environment and deliver (Schoenherr & Swink, 2012). Internal and external cooperation is regarded as a dynamic capability that helps the members of the supply chain to learn about one another, recognize the value of the customers, and reinforce the internal routines and the supplier relationship (Zhong et al., 2023).

Dynamic Capability View

Internal collaboration may be regarded as the dynamic capability of an entity. In the scope of a dynamic capability framework, internal collaboration is the capability of an organization to employ and coordinate its internal forces efficiently (Internal adaptability) along with knowledge to adapt and thrive according to customer needs and supplier approaches in a changing environment.

Employee Collaborative ability enables employees to share insights, market intelligence, and emerging trends across the organization. This collective knowledge helps in identifying new opportunities and potential challenges more effectively. The Cross-functional teams are able to ensure that when those personalities representing the various functional areas and work experience come together in making joint efforts, they are able to ensure cooperation. They have diverse viewpoints that can improve the firm's ability to sense and interpret external changes (Vartiainen, 2023).

External collaboration is a key element of DCV, which spotlights a firm's proficiency to integrate, shape, and reconstruct internal and external resources to adapt to fluctuating environments.

External collaboration entails relationships, associations, and networks with external organizations. Externals include suppliers, customers, and other competitors, hence making the customer and supplier adaptable (Petricevic & Verbeke, 2019).

Examples and Case Studies

1. Google: Google's internal collaboration through cross-functional teams and knowledge-sharing platforms contributes to social capital. Its external cooperation with educational and technological companies enhances its internal adaptability and brings in new innovations.
2. IBM: IBM's internal collaboration initiatives, including its knowledge management system and internal innovation labs, enhance its human, social, and structural capital. Its external collaborations bolster its supplier and customer adaptability to respond to technological advancements.

Hypothesis Development

Impact of Employee Internal & External Collaboration on Supplier Supply Chain Adaptability

Internal collaboration significantly improves supplier SCA by enhancing communication, fostering innovation, and enabling more adaptive responses to market changes (Tarigan et al., 2021). Internal collaboration within organizations, particularly between different departments, streamlines communication channels. This facilitates real-time information sharing with suppliers, allowing for better coordination and quicker response to supply chain disruptions. Improved communication ensures that suppliers are informed of fluctuations in demand and can fine-tune their production schedules, consequently, thereby increasing the adaptability of the supply chain (Rupcic, 2023). Internal cooperation increases a firm's adaptability regarding cross-functional integration and expertise exploitation. Internal cooperation enables better resource management, and suppliers can work together to ensure that materials, resources, and labor are used efficiently. Workers can provide suppliers with timely and accurate data. This minimizes potential mistakes, confusion, and obstacles. This maximization reduces waste and improves SCA with respect to changes.

Exchange of experience and resources between two parties can enable more efficient, flexible, and adaptable supply chain solutions by increasing the overall adaptive capacity (Chughtai et al., 2023).

Internal partnerships with suppliers lead to supplier SCA, while sharing of information, goals, learning, adaptation, shared problem solving, and Resource sharing with suppliers are features of this relationship. Supplier-partner cooperation leads to greater availability of information between partners. This aids in forecasting, demand planning, and inventory planning in a much better manner. In practice, external cooperation with suppliers may result in more flexible and responsive supply chains (Ye et al., 2023). Good partnerships facilitate better demand prediction, shared risk, and faster responses to shifts in supply and demand.

By working with suppliers and customers, employees can also build internal adaptability, enabling an organization to become a more integrated, end-to-end, responsive supply chain. Cooperation with the outside world allows the use of specialized know-how and experts that cannot be found in the firm. For example, if a company has partnerships with logistics or technology companies, it can improve the proficiency and adaptability of its supply chain.

Partnerships with suppliers should encourage early warnings of possible disruptions or market condition changes so that suppliers have time to react and adjust to the situation.

If suppliers' adaptability and their external integration help improve their adaptability, then this orientation will further help improve supplier adaptability. Such adaptability is essential for companies to keep pace with an ever-evolving market.

So, we hypothesize that:

H1a: Employee Internal collaboration positively and significantly impacts SSCA.

$H_{2a:}$ Employee External collaboration has a positive and significant impact on SSCA

Impact of employee Internal & External collaboration on internal supply chain adaptability:

Internal collaboration significantly improves supplier SCA by enhancing communication, fostering innovation, and enabling more adaptive responses to market changes (Tarigan et al., 2021)

Moreover, firms that encourage internal collaboration often develop a more unified and adaptive organizational structure. This adaptability is critical for everlasting success in a dynamic world (Feizabadi & Alibakhshi, 2022).

To the extent that employees swap their expertise and experiences, they can help others learn new skills and gain additional perspectives from various parts of the business. This shared learning process strengthens organizational competence and adaptability, as more individuals can handle different kinds of tasks (Caridi et al., 2017). Internal teamwork enables the sharing of know-how within an organization. The process of coordination helps to optimize the supply chain and remove wastage in unnecessary processes, minimize lead time, and avoid stock accumulation (Turkulainen & Ketokivi, 2012).

Sharing and collaboration open up the flow of ideas, which lends itself to a more imaginative troubleshooting process and a more novel intelligent solution. As team members learn from the successes and failures of others, they can build upon others' ideas and generate new ways of addressing challenges, which in turn will make the organization more adaptive, agile, and responsive (Marjerison et al., 2022).

Knowledge contributed is learned by other members who then apply it to the organization, which helps the organization retain and diffuse it. This collective learning is instrumental in enabling organizations to rapidly operationalize best practices and adjust to new technologies or market demands (Osei & Asante-Darko, 2022).

Internal collaboration among employees is vital for improving internal adaptability. By creating a system in which employees can exchange and learn from each other, companies can generate adaptability. This adaptability is important for coping with transformations in the external environment (Xu et al., 2024).

Internal cooperation among workers contributes to creating a more flexible organizational architecture that is more responsive to market changes. When internal departments collaborate, they can create and execute a more comprehensive contingency plan; therefore, they will be better able to pivot to unforeseen fluctuations in market situations (Morita et al., 2024).

The result is that the organization can come together to co-create and deliver creative solutions and new product concepts. Using the combined know-how from a range of departments, firms can co-create products that are more suitable for their customers. This cocreation increases product offering quality and enhances the company's adaptability in

redesigning its supply chain operations according to different customer preferences (Zhong et al., 2023).

Internal cooperation among employees not only enables quick transfer of knowledge when going from inside information and culture that is inside the organization, so as to make the organization become flexible inside, but will also create an environment where continuous learning and becoming adaptive become a reality. This adaptability is vital for companies to remain agile in fast-paced market environments (Feizabadi & Alibakhshi, 2022). Exchanges with external suppliers and other partners can influence a company's internal adaptability.

Employees have access to accurate and timely information from both suppliers (vendors) and customers. The transparency accelerated how we could see shifts in market demand, supply chain issues, and other external concerns more quickly, for better decisions sooner (Rupcic, 2023).

By 'cooperating' outside the organizational boundaries, firms can access specialist knowledge or competencies not available in-house. For instance, collaboration with a logistics or technology company may improve the efficiency and adaptability of the supply chain.

Collaborative learning and practice sharing among organizations enable the rise of all boats in a supply chain (Joshi et al., 2023). Good partnerships with suppliers and customers create trust, understanding, and synergy. This stronger foundation results in better negotiation, conflict resolution, and cooperation that helps to adapt to unexpected challenges and opportunities (Setiawan et al., 2022). By forming interorganizational working relationships, firms can become more adaptable in responding to disruptions or changes in the market. When goals are consistent and resources are shared, firms can rapidly reconfigure activities in response to ongoing risks and new opportunities (Hsieh et al., 2023). A network of collaboration, including outside partners, makes it possible for an organization to be more flexible in adapting its strategy and operations.

The above discussion underscores the importance of internal collaboration in enhancing supplier SCA, making organizations more competitive and adaptive in a volatile business environment.

Our hypothesis next states the following:

$H_{1b:}$ Employee Internal collaboration has a positive and significant impact on ISCA

$H_{2b:}$ Employee External collaboration has a positive and significant impact on ISCA

Impact of employee Internal & External collaboration and customer supply chain adaptability

Collaborating with external partners provides access to new information, technologies, and market insights that might not be available internally. This helps in identifying emerging trends and opportunities. Collaborations with external businesses can create an opportunity for state-of-the-art solutions and new business models, allowing the organization to capitalize on new opportunities in a changing environment by modifying product and process design (Zhong et al., 2023).

Collaboration today is also aided by digital technology, which facilitates seamless information sharing and coordination across different departments, helping to make quicker and more informed decisions.

Enhanced communication can mitigate misunderstandings to enhance transparency and create the trust and mutual understanding needed to adapt to changing market pressures (Adomako & Nguyen, 2023). Cross-functional teams enhance process efficiency and customer satisfaction, enabling a more comprehensive multi-angle view of performance.

Organizations can facilitate information sharing by promoting collaboration among internal departments. This results in improved alignment between production, sales, and marketing activities to ensure that consumer demands are accurately received and promptly relayed. Such coordination may enable firms to improve anticipation and react to customer demand, thus enhancing the sensitivity of the supply chain (Zhou et al., 2024).

Internal collaborative planning processes help companies maintain focus on the customer and the supply chain solutions they provide while responding to a dynamic marketplace. Internal collaboration within a company is an important example of enhancing customer SCA.

Workers' external collaboration capacity can greatly facilitate customer adaptability. When employees are good at co-innovation externally, they can respond to customer needs, predict shifts in the market, and change their tactics rapidly to serve their customers better.

Such adaptability allows organizations to assimilate various perspectives, stimulate innovation, and rapidly react to customer feedback(Chen et al., 2021).

Resource efficiency can be improved through external cooperation among companies. Integrated logistics, operations planning, and synchronized inventory management minimize waste and costs,

thereby enabling the supply chain to be adaptable to varying customer requirements (Singh et al., 2018).

External cooperation in the supply chain can significantly improve customer SCA to a large extent. Working closely with customers and supply chain partners enables employees to co-produce solutions and innovations that better target markets. Collaboration should result in launching new products and processes that enable the organization to be competitive and attuned to market trends (Chughtai et al., 2023).

Collaboration (internal and external) makes the customer more adaptable (responsive, co-creation, innovation, and custom ability to deliver offers)

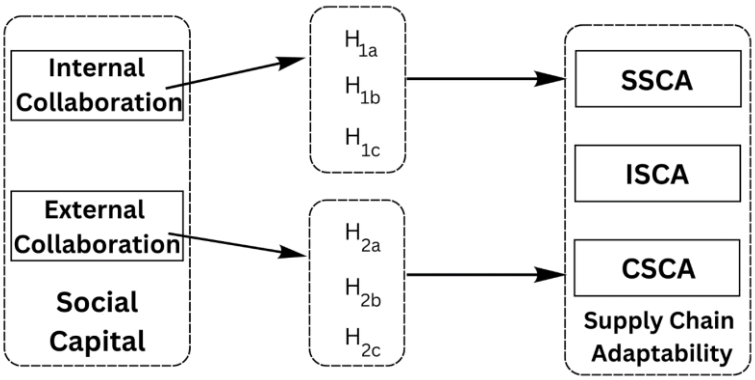
We hypothesize:

H1c: (Employee) Internal collaboration has a positive and significant impact on CSCA.

$H_{2c:}$ Employee External collaboration has a positive and significant impact on CSCA

Figure 1

Conceptual model of Social Capital and dimensions of SCA



Research Methodology:

Questionnaire Design

The formulation of the questionnaire was a multi-staged and systematic process to facilitate the development of the questionnaire, comprehensive coverage of research objectives, and to enhance the reliability and validity of data collected. The process commenced with an extensive review of relevant literature to pinpoint key constructs, dimensions, and variables pertinent to the study. This review formed the basis for establishing the theoretical framework and informed the initial pool of questionnaire items.

The present study investigates the influence exerted by Social Capital on dimensions of SCA, with a focus on firm-level analysis within Pakistan's manufacturing sector. A cross-sectional survey strategy was employed, consistent with the objective of capturing data on diverse perceptions and attitudes from a broad respondent base (Kerlinger & Lee, 2000).

The constructs were operationalized through established measurement items derived from prior empirical studies (Bougie & Sekaran, 2019). A structured, close-ended questionnaire format was adopted, incorporating dichotomous, multiple-choice, and rating-scale items to capture responses with clarity and precision (D. R. Cooper & Schindler, 2014)

The instrument was organized into clearly defined sections, each addressing a distinct construct or dimension, to maintain a logical flow and facilitate ease of completion for participants.

To enhance content validity, the draft questionnaire underwent expert review by three academics specializing in supply chain management and organizational studies. Then, a small sample pilot study was taken of manufacturing firms to assess the clarity, relevance, and comprehensibility of items. Feedback from this phase informed minor modifications in wording and sequencing. Reliability was preliminarily assessed through Cronbach's alpha during the pilot stage, ensuring internal consistency prior to full-scale data collection.

The final instrument comprised two primary constructs: Social Capital, encompassing two dimensions, and Supply Chain Adaptability, encompassing three dimensions. This structured and methodical development process ensured that the instrument was not only theoretically grounded but also empirically robust, enabling the collection of high-quality data pertinent to the study's research objectives.

The study employs a Likert scale as its measurement tool. As described by (Bougie & Sekaran, 2019), ranging from "1" for "Strongly Disagree" to "7" for Strongly Agree.

Intellectual Capital measurement items were adapted (Subramaniam & Youndt, 2005; Sharabati et al., 2010), and the scale of SCA was adapted (Yang et al., 2020).

Population & Sampling

The population of study encompasses the complete set of entities or individuals identified as the focus of a scientific inquiry (Hossan et al., 2023). In the present research, the population consists of manufacturing firms operating across Pakistan. The sampling frame was constructed from a comprehensive list of registered manufacturing firms, sourced from reliable national records, thereby ensuring an accurate representation of the sector (Bougie & Sekaran, 2019).

Distribution of firms in the sampling frame was consistent with the industrial segmentation reported by the Pakistan Bureau of Statistics (2022–2023). This alignment provided a sound basis for selecting a sample that captured the diversity of industries within the manufacturing sector. Given the study's objective to investigate firms directly linked through supply chain relationships, purposive sampling was adopted. This non-probability technique was selected due to its effectiveness in identifying participants who meet specific criteria.

Purposive sampling also offered practical advantages, including time efficiency and targeted respondent engagement, which are particularly valuable when studying specialized constructs such as Social Capital and SCA. By integrating a robust sampling frame with purposive selection, the study achieved a sample that was both representative of the manufacturing sector's structure and strategically aligned with the investigation's analytical focus.

Table 1

Population and Sampling Overview

Element	Description
Population	All manufacturing firms operating in Pakistan.
Sampling frame	Official list of registered manufacturing firms obtained from authoritative national records.
Reference source	Pakistan Bureau of Statistics (2022–2023) industry segmentation data.
Sampling technique	Purposive sampling (non-probability).
Inclusion criteria	Firms are actively engaged in supply chain networks and linked with other firms in the value chain.
Rationale for method	Ensures selection of firms directly pertinent to the study's focus on Social Capital and Supply Chain Adaptability, while reflecting sector diversity.
Unit of analysis	Firm-level.

Sample Size Determination

Determination of a suitable sample size is substantial for confirming statistical validity and representativeness of study findings. In this research, the sample size was established with reference to methodological recommendations for survey-based studies, which suggest that the minimum required number of observations should be as low as ten times the maximum number of structural paths pointing to a construct in the proposed research model (Hair et al., 2019).

Given model complexity and the inclusion of multiple latent variables, this criterion guided the identification of the minimum required sample size.

Furthermore, practical considerations, such as accessibility of respondents and alignment with the purposive sampling strategy, were taken into account.

Data was collected from 200 manufacturing firms, and respondents were employees engaged with the supply chain. Google Form and direct email were floated to collect data.

Response rate was above 30 % which is considered good. Final sample size exceeded the statistical threshold, thereby enhancing the robustness of Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis and supporting the generalizability of findings within the context of Pakistan's manufacturing sector.

Analysis and Results

To test the proposed model, Smart PLS 4.01 was used with the PLS-SEM technique (Ringle et al., 2020). A popular approach for gathering more variation in the data is to use partial least squares path analysis (PLS-Path) rather than classical SEM when exploratory research of complex models is performed.

Smart PLS 4.01 was applied to empirically examine the projected model in this study using the PLS-SEM approach.PLS-SEM is especially useful for exploratory studies involving complicated models because it extracts considerably more variance from the data than traditional SEM methods.

Estimating the Measurement Model

Reliability & Validity

Table 2

Reliability and Validity

Construct	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Social Capital	0.933	0.933	0.882
SCA	0.924	0.926	0.868

Table 3

Discriminant Validity

Construct	
Social Capital <-> SCA	0.240

Table 4

Fornell and Lacker

	ISCA	CSCA	SSCA	Social Capital
ISCA	.866			
CSCA	.844	.892		
SSCA	.784	.780	0.882	
Social Capital	.818	.827	.755	0.8715

Since all values are well within and above threshold values, the reliability and validity of the construct are established.

This study employed PLS in the proposed relationships in the research model. More precisely, path coefficients were calculated by the PLS algorithm, and their significance was calculated by PLS bootstrapping at a 5 percent level ($p < 0.05$).

Evaluation of Measurement Model

Model Fit

Using PLS-CB for data and model, the following fit indices were found.

Table 5

Model Fit indices (Social Capital & SCA)

	Saturated model	Estimated model	Inference
SRMR	0.051	0.069	Slightly better fit
d_ULS	0.095	0.174	Better fit
d_G	0.112	0.201	Better fit
Chi-square	217.853	346.078	Better fit
NFI	0.893	0.831	Better fit

Conclusion

The saturated model fits the data better in all measures as compared to the estimated model.

Quality Criteria:

Table 6

Quality Criteria R^2(RCapital & SCA)

	R-square
CSCA	0.691
ISCA	0.669
SSCA	0.571

Interpretation

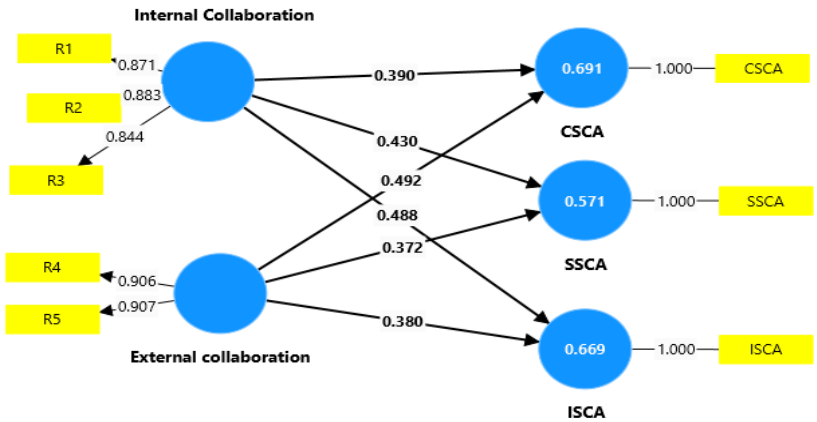
R-squared values for CSCA, ISCA, and SSCA are approximately 70 percent, 67 % and 57 %, all showing greater explanatory power of the independent variable.

Measurement Model

Impact of Social Capital on Different Dimensions of SCA

Figure 2

Model Study: Social Capital & SCA



Hypothesis Testing-Bootstrapping with P Values:

Figure 3

Bootstrapping study: Social capital & SCA

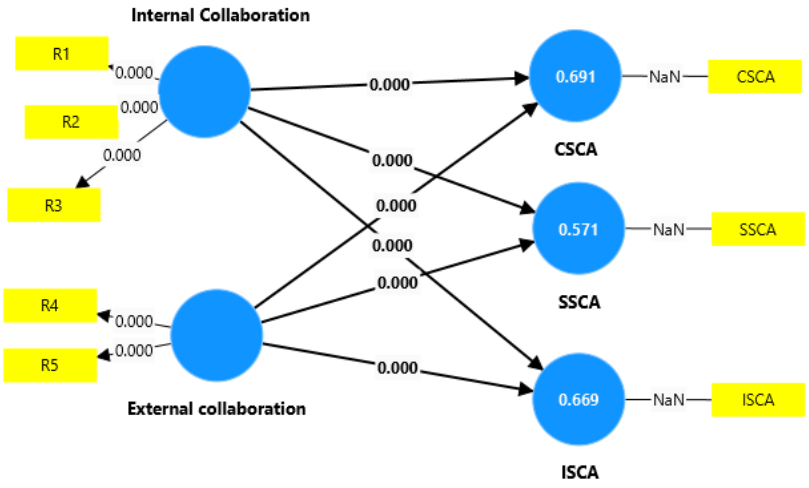


Table 7

Hypothesis testing (RCapital & SCA)

Hypothesis	Path coefficient	Original sample (O)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Decision
H_{1a}	Internal Collaboration -> SSCA	0.430	0.072	5.965	0.000	Supported
H_{1b}	Internal Collaboration -> ISCA	0.488	0.056	8.772	0.000	Supported
H_{1c}	Internal Collaboration -> CSCA	0.390	0.055	7.147	0.000	Supported
H_{2a}	External collaboration -> SSCA	0.372	0.070	5.289	0.000	Supported
H_{2b}	External collaboration -> ISCA	0.380	0.055	6.914	0.000	Supported
H_{2c}	External collaboration -> CSCA	0.492	0.052	9.501	0.000	Supported

Interpretations

Since, in all cases, the *t* values are greater than β values and in all cases $p<0.05$, therefore all hypothesis is accepted.

H_{1a} evaluates whether employee Internal collaboration has a significant impact on SSCA. The results showed that employee Internal collaboration has a significant effect on SSCA (β=.430), t= 5.956, and $p<0.05$. Therefore, H_{1a} is supported.

H_{1b} evaluates whether employee Internal collaboration has a significant impact on ISCA. The results showed that Internal collaboration has a significant effect on ISCA (β=.488), t= 8.772, and $p<0.05$. Therefore, H_{1b} is supported.

H_{1c} evaluates whether employee Internal collaboration has a significant impact on CSCA. The results showed that Internal collaboration has a significant effect on Supply CSCA (β=.390), t= 7.147, and $p<0.05$. Therefore, H_{1c} is supported.

H_{2a} evaluates whether employee external collaboration has a significant impact on SSCA. The results showed that employee external collaboration has a significant effect on SSCA (β=.372), t= 5.289, and $p<0.05$. Therefore, H_{2a} is supported.

H_{2b} evaluates whether employee external collaboration has a significant impact on ISCA. The results showed that employee external collaboration has an insignificant effect on ISCA (β=.380), t= 6.914, and $p>0.05$. Therefore, H_{2b} is not supported.

Discussion & Managerial Implications

Social capital is a vital element of ICapital and has a significant role in enhancing supply chains (Mubarik et al., 2022). SCA is an important dynamic capability that a company must have to compete and respond swiftly to disruptions. Research indicates that organizations with supply chains that incorporate robust social capital tend to be more adaptable to challenges (Liu et al., 2022).

Social capital contributes to a company's knowledge base, skills, and innovation potential, making it a vital catalyst of organizational triumph. In supply chain management, employee collaboration capabilities are invaluable for navigating complex

supply chains, managing risks, and implementing efficient processes. As companies encounter an increasingly volatile global market, the ability to adapt and pivot quickly becomes paramount. Integrating social capital with SCA enhances operative productivity and strengthens a firm's ability to encounter unforeseen events and market shifts.

Theoretical Implication

The model demonstrates a good fit and strong explanatory power for the variables CSCA, ISCA, and SSCA, SRMR Value of 0.051, d_ULS 0.095, d_G value of 0.112, NFI 0.893, and chi-square value is 217.853, while R Square value for CSCA is 0.625, ISCA 0.681, and SSCA is 0.557, and R-Square value shows a strong explanatory power of the independent variable. This study advances DCV by demonstrating that social capital functions as a relational dynamic capability in the context of Pakistan's manufacturing sector. Findings show that both internal and external collaboration significantly enhance supplier, internal, and customer supply chain adaptability, highlighting the multi-dimensional influence of social capital. This study extends discourse by showing its quantifiable impact on adaptability in an emerging economic setting. The results also suggest that, in environments with weaker institutional support, informal trust-based networks can compensate for formal mechanisms, thereby reinforcing the DCV proposition that intangible resources can be as critical as tangible assets in achieving adaptability.

Managerial Applications

For managers, the results underline the strategic importance of cultivating trust, reciprocity, and communication within the organization and with external supply chain allies. Internal collaboration can be enhanced through cross-functional teams, regular interdepartmental meetings, and shared performance goals, ensuring that information flows freely across functional boundaries. External collaboration should focus on surfacing enduring partnerships with raw material suppliers and customers, establishing joint problem-solving mechanisms, and sharing market intelligence to anticipate and respond to disruptions. By institutionalizing practices that strengthen both internal and external social capital, firms can reduce response times, improve coordination, and reconfigure resources more effectively in volatile markets. These practices not only enhance adaptability but also position the firm to sustain competitive advantage in dynamic business milieus.

Conclusion

The interaction between different aspects of social capital and SCA in the Pakistani manufacturing companies was investigated. Grounded in the Dynamic Capability framework, we conducted an empirical examination of these linkages through a survey of 319 supply chain experts.

By focusing on the practical implications of social capital as a strategic resource, this study aims to enhance SCA. In view of the existing literature, we extend the theory of DCV in the supply chain domain. The data collected from Pakistani manufacturing organizations gives much support for the model and highlights the significance of Social Capital development for achieving SCA.

Limitations and Future Research

Although the present research provides an interesting discussion on how social capital is used in manipulating supply chain adaptability in the Pakistan manufacturing industry, one must admit that there are limitations to the study. To begin with, the cross-sectional nature of the study constrains the establishment of causal inferences and precludes the examination of temporal shifts in the effects of social capital. Longitudinal studies could postulate a more nuanced way in which internal and external collaboration contribute to adaptability during different phases of disruption and recovery.

Second, the focus on a single national context means that the findings may reflect the specific institutional, cultural, and economic characteristics of Pakistan. Comparative research across countries with diverse governance structures and market conditions could help determine the extent to which these results are generalizable or context-dependent.

Finally, the study examined only two dimensions of social capital internal and external collaboration without considering other potential moderating or mediating factors such as technological capability, supply chain complexity, or environmental uncertainty. Integrating these variables could uncover additional mechanisms through which social capital fosters adaptability.

Employing mixed-methods approaches, combining quantitative models with qualitative interviews or case studies, could also yield richer insights into relational and behavioral processes that underpin adaptability in complex supply chain environments.

References

Adomako, S., & Nguyen, N. P. (2023). Digitalization, inter-organizational collaboration, and technology transfer. *The Journal of Technology Transfer*, *49*(4), 1176–1202. https://doi.org/10.1007/s10961-023-10031-z
Google Scholar Worldcat Fulltext

Ali, M. H., Chung, L., Kumar, A., Zailani, S., & Tan, K. H. (2021). A sustainable Blockchain framework for the halal food supply chain: Lessons from Malaysia. *Technological Forecasting and Social Change*, *170*, 120870. https://doi.org/10.1016/j.techfore.2021.120870
Google Scholar Worldcat Fulltext

Anthony, T. (2000). Supply chain collaboration: success in the new internet economy. *Achieving Supply Chain Excellence through Technology*, *2*, 41–44.
Google Scholar Worldcat Fulltext

Arana-Solares, I. A., Ortega-Jiménez, C. H., Alfalla-Luque, R., & De Los Ríos, J. L. P. (2018). Contextual factors intervening in the manufacturing strategy and technology management-performance relationship. *International Journal of Production Economics*, *207*, 81–95. https://doi.org/10.1016/j.ijpe.2018.11.003
Google Scholar Worldcat Fulltext

Bougie, R., & Sekaran, U. (2019). *Research Methods for Business: A Skill-Building Approach*. John Wiley & Sons.
Google Scholar Worldcat Fulltext

Caridi, M., Pero, M., & Sianesi, A. (2017). Design chain visibility: How much information should you share with your partners during new product development projects? *Benchmarking: An International Journal*, *24*(5), 1337–1363. http://dx.doi.org/10.1108/BIJ-04-2016-0059
Google Scholar Worldcat Fulltext

Chen, Y.-C., Arnold, T., & Tsai, H.-T. (2021). Customer involvement, business capabilities, and new product performance. *European Journal of Marketing*, *55*(10), 2769–2793. https://doi.org/10.1108/EJM-01-2020-0034
Google Scholar Worldcat Fulltext

Chughtai, M. S., Syed, F., Naseer, S., et al. (2024). Role of adaptive leadership in learning organizations to boost organizational innovations with change self-efficacy. *Current Psychology, 43,* 27262–27281. https://doi.org/10.1007/s12144-023-04669-z
Google Scholar Worldcat Fulltext

Cooper, D. R., & Schindler, P. S. (2014). *Business research methods* (12th ed.). In *Proceedings of the Annual Reliability and Maintainability Symposium*.
Google Scholar Worldcat Fulltext

Dahlmann, F., & Roehrich, J. K. (2019). Sustainable supply chain management and partner engagement to manage climate change information. *Business Strategy and the Environment*, *28*(8), 1632–1647. https://psycnet.apa.org/doi/10.1002/bse.2392
Google Scholar Worldcat Fulltext

Duong, L. N. K., & Chong, J. (2020). Supply chain collaboration in the presence of disruptions: a literature review. *International Journal of Production Research*, *58*(11), 3488–3507. https://doi.org/10.1080/00207543.2020.1712491
Google Scholar Worldcat Fulltext

Feizabadi, J., & Alibakhshi, S. (2022). Synergistic effect of cooperation and coordination to enhance the firm's supply chain adaptability and performance. *Benchmarking: An International Journal*, *29*(1), 136–171. http://dx.doi.org/10.1108/BIJ-11-2020-0589
Google Scholar Worldcat Fulltext

Hair, J. F., Sarstedt, M., & Ringle, C. M. (2019). Rethinking some of the rethinking of partial least squares. *European Journal of Marketing*, *53*(4), 566–584. https://doi.org/10.1108/ejm-10-2018-0665
Google Scholar Worldcat Fulltext

Hossan, D., Dato' Mansor, Z., & Jaharuddin, N. S. (2023). Research Population and Sampling in Quantitative Study. *International Journal of Business and Technopreneurship (IJBT)*, *13*(3), 209–222. https://doi.org/10.58915/ijbt.v13i3.263
Google Scholar Worldcat Fulltext

Hsieh, C.-C., Chen, S.-L., & Huang, C.-C. (2023). Investigating the Role of Supply Chain Environmental Risk in Shaping the Nexus of Supply Chain Agility, Resilience, and Performance. *Sustainability*, *15*(20), 15003. http://dx.doi.org/10.3390/su152015003
Google Scholar Worldcat Fulltext

Joshi, S., Sharma, M., Ekren, B. Y., Kazancoglu, Y., Luthra, S., & Prasad, M. (2023). Assessing supply chain innovations for building resilient food supply chains: an emerging economy perspective. *Sustainability*, *15*(6), 4924. http://dx.doi.org/10.3390/su15064924
Google Scholar Worldcat Fulltext

Kerlinger, F. N., & Lee, H. B. (2000). Foundations of Behavioral Research: The Most Sustainable Popular Textbook. *Journal of Social Development*.
Google Scholar Worldcat Fulltext

Liu, H., Han, Y., & Zhu, A. (2022). Modeling supply chain viability and adaptation against underload cascading failure during the COVID-19 pandemic. *Nonlinear Dynamics*, *110*(3), 2931–2947. https://doi.org/10.1007/s11071-022-07741-8
Google Scholar Worldcat Fulltext

Marjerison, R. K., Andrews, M., & Kuan, G. (2022). Creating Sustainable Organizations through Knowledge Sharing and Organizational Agility: Empirical Evidence from China. *Sustainability*, *14*(8), 4531. https://doi.org/10.3390/su14084531
Google Scholar Worldcat Fulltext

Marr, B., & Roos, G. (2012). A strategy perspective on intellectual capital. In *Perspectives on intellectual capital* (pp. 28–41). Routledge.
Google Scholar Worldcat Fulltext

Morita, M., Machuca, J. a. D., Marin-Garcia, J. A., & Alfalla-Luque, R. (2024). Drivers of supply chain adaptability: insights into mobilizing supply chain processes. A multi-country and multi-sector empirical research. *Operations Management Research*. https://doi.org/10.1007/s12063-024-00474-4
Google Scholar Worldcat Fulltext

Mubarik, M. S., Bontis, N., Mubarik, M., & Mahmood, T. (2021). Intellectual capital and supply chain resilience. *Journal of Intellectual Capital*, *23*(3), 713–738. https://doi.org/10.1108/jic-06-2020-0206
Google Scholar Worldcat Fulltext

Osei, V., & Asante-Darko, D. (2022b). Collaboration within the supply chain. In *Springer eBooks* (pp. 1–30). https://doi.org/10.1007/978-3-030-89822-9_56-1
Google Scholar Worldcat Fulltext

Petricevic, O., & Verbeke, A. (2019). Unbundling dynamic capabilities for inter-organizational collaboration. *Cross-Cultural & Strategic Management*, *26*(3), 422–448. https://doi.org/10.1108/ccsm-02-2019-0044
Google Scholar Worldcat Fulltext

Ringle, C. M., Sarstedt, M., Mitchell, R., & Gudergan, S. P. (2018). Partial least squares structural equation modeling in HRM research. *The International Journal of Human Resource Management*, *31*(12), 1617–1643. https://doi.org/10.1080/09585192.2017.1416655
Google Scholar Worldcat Fulltext

Rupcic, N. (2023). Means to improve organizational learning capability. *The Learning Organization*, *30*(1), 101–109. https://doi.org/10.1108/tlo-01-2023-289
Google Scholar Worldcat Fulltext

Schoenherr, T., & Swink, M. (2012). Revisiting the arcs of integration: Cross-validations and extensions. *Journal of Operations Management*, *30*(1–2), 99–115. http://dx.doi.org/10.1016/j.jom.2011.09.001
Google Scholar Worldcat Fulltext

Setiawan, E. O., Tarigan, Z. J. H., & Siagian, H. (2022). Effect of Trust Supplier on Firm Performance through Information Sharing and Collaboration in Manufacturing Companies. *Petra International Journal of Business Studies*, *5*(1), 87–96. https://doi.org/10.9744/ijbs.5.1.87-96
Google Scholar Worldcat Fulltext

Sharabati, A. A., Jawad, S. N., & Bontis, N. (2010). Intellectual capital and business performance in the pharmaceutical sector of Jordan. *Management Decision*, *48*(1), 105–131. https://doi.org/10.1108/00251741011014481
Google Scholar Worldcat Fulltext

Shukor, A. A. A., Newaz, M. S., Rahman, M. K., & Taha, A. Z. (2021). Supply chain integration and its impact on supply chain agility and organizational flexibility in manufacturing firms. *International Journal of Emerging Markets*, *16*(8), 1721–1744. http://dx.doi.org/10.1108/IJOEM-04-2020-0418
Google Scholar Worldcat Fulltext

Singh, H., Garg, R. K., & Sachdeva, A. (2017). Supply chain collaboration: A state-of-the-art literature review. *Uncertain Supply Chain Management*, 149–180. https://doi.org/10.5267/j.uscm.2017.8.002
Google Scholar Worldcat Fulltext

Subramaniam, M., & Youndt, M. A. (2005). The Influence of Intellectual Capital on the Types of Innovative Capabilities. *Academy of Management Journal, 48*(3), 450–463. https://doi.org/10.5465/AMJ.2005.17407911
Google Scholar Worldcat Fulltext

Tarigan, Z. J. H., Siagian, H., & Jie, F. (2021). Impact of internal integration, supply chain partnership, supply chain agility, and supply chain resilience on sustainable advantage. *Sustainability*, *13*(10), 5460. https://doi.org/10.3390/su13105460
Google Scholar Worldcat Fulltext

Turkulainen, V., & Ketokivi, M. (2012). Cross-functional integration and performance: what are the real benefits? *International Journal of Operations & Production Management*, *32*(4), 447–467. http://dx.doi.org/10.1108/01443571211223095
Google Scholar Worldcat Fulltext

Vartiainen, K. (2023). Enabling Interpersonal Dynamic Capability: Four Emerging Collaborative Practices in Globally Distributed Software Development. *Journal of Information Technology Case and Application Research*, *25*(4), 368–405. https://doi.org/10.1080/15228053.2023.2228674
Google Scholar Worldcat Fulltext

Wang, Y., Wang, Z., Li, B., Liu, Z., Zhu, X., & Wang, Q. (2019). Closed-loop supply chain models with product recovery and donation. *Journal of Cleaner Production*, *227*, 861–876. https://doi.org/10.1016/j.jclepro.2019.04.236
Google Scholar Worldcat Fulltext

Xu, S., Yu, J., & Zhou, J. (2024). How knowledge sharing affects career adaptability: roles of knowledge depth, self-efficacy, and reflective thinking. *Career Development International*, *29*(2), 204–219. https://doi.org/10.1108/cdi-06-2023-0192
Google Scholar Worldcat Fulltext

Yang, L., Huo, B., & Gu, M. (2021). The impact of information sharing on supply chain adaptability and operational performance. *The International Journal of Logistics Management*, *33*(2), 590–619. https://doi.org/10.1108/ijlm-11-2020-0439
Google Scholar Worldcat Fulltext

Ye, Y., Yang, L., Huo, B., & Zhao, X. (2023). The impact of supply chain social capital on supply chain performance: a longitudinal analysis. *Journal of Business & Industrial Marketing*, *38*(5), 1176–1190. https://doi.org/10.1108/JBIM-09-2021-0423
Google Scholar Worldcat Fulltext

Zhong, J., Jia, F., Chen, X., Hong, Y., & Yu, Y. (2022). Internal and external collaboration and supply chain performance: a fit approach. *International Journal of Logistics Research and Applications*, *26*(10), 1267–1284. https://doi.org/10.1080/13675567.2022.2042226
Google Scholar Worldcat Fulltext

Zhou, J., Hu, L., Yu, Y., Zhang, J. Z., & Zheng, L. J. (2024). Impacts of IT capability and supply chain collaboration on supply chain resilience: empirical evidence from China in the COVID-19 pandemic. *Journal of Enterprise Information Management*, *37*(2), 777–803. https://doi.org/10.1108/JEIM-03-2022-0091
Google Scholar Worldcat Fulltext