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# Impact of Social Capital on Supply Chain Performance: The Role of Information Flow

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*The purpose of this paper is to understand how social capital from buyer and suppliers' perspective effect the performance of the supply chain when information (inflow & outflow) plays a critical role. How social capital enhances the perception of the buyer supplier relationship and their understanding while sharing both ways information inflow & outflow. This change in the perception and how it effects the performance of the supply chain. Also, how social capital plays its role in order to resolve this perceptual difference. With the help of literature review, the buildup of theoretical model and hypothesis was developed. Using the data from 150 respondents collected from many different Pakistani industry manufacturers especially in supply chains and people relate with service industry. For analysis we used structural equation modelling. All of the social capital facets are significant with relation to information inflow, however, with relation to information outflow, structural capital, and performance of the supply chain are not significant. It clearly shows that buyers are more efficient in collection of information, but more reluctant in sharing back (information outflow) with the suppliers. With our results, it shows that buyers should maintain strong social capital and should rely on sharing more information within organization and outside with suppliers, this will enhance, trust, efficacy and will promote performance of the supply chain. Paper develops a framework to test the effect of social capital dimensions on overall supply chain performance where information flow is used as a mechanism facilitating the supply chain performance. This framework has never been tested before. Contribution of the studies and future research has been discussed.*

## 1. Introduction

Supply chain performance (SCP) is a crucial factor in organizational performance and competition. The competition between supply chains is often more significant than the competition between individual firms (Sangari et al., 2015; Riquelme-Medina, et al., 2022). In today's volatile and uncertain market conditions, the dynamics of competition among firms and supply chains have changed. Every supply chain is focused on meeting customer expectations and satisfaction. SCP is the process of coordinating the extended supply chain to meet the needs of the final customers, such as having the products ready and delivering them on time, in a fast and efficient way.It involves the collaboration of various organizations beyond company boundaries to deliver products or services to end customers.

Strong relationships play a vital role in the globalized world and are the backbone of the socialization process within supply chains. Buyer-supplier relationships have gained significant emphasis in recent years (Shujaat et al., 2019). Supply chains serve to connect different business segments among partners to achieve common goals. However, various factors influence supply chain performance. This study aims to explore the role of cognitive capital (CC), relational capital (RC), and structural capital, as well as how information inflow and outflow affect supply chain performance. The inter-institutional perspective of information sharing among employees, including shared values, norms, goals, understanding, trust, and friendship, remains underexplored. Cognitive capital refers to the social norms, values, and goals that shape individuals' behavior within organizations (Yu et al., 2013, Yu et al., 2023). Cognitive capital, one of the three aspects of social capital, was first discussed firstly by Nahapiet and Ghoshal (1998).. Another important aspect is relational capital.

Relational capital (RC) plays a crucial role in achieving supply chain integration, and well-designed buyer-supplier relationships are essential for integrated supply chain management. The relationship between RC and supply chain performance, especially in terms of information flow, has not been extensively studied by scholars and has yielded inconsistent findings. (Mubarik et al., 2016). RC is defined as the relationships established between firms, institutions, and people based on a strong sense of belonging and a developed capacity for cooperation (Saengon et al., 2020). It represents the relationships of a business entity with its stakeholders and other entities that facilitate its survival and development in the market. The establishment of RC is based on the reputation and relationships a business has with its stakeholders, and most of the evidence regarding RC has been found in developed countries. However, in countries like Pakistan, textile firms often maintain arms-length relationships with suppliers, resulting in a lack of trust and information sharing and leading to supply chain inefficiencies (Tipu & Fantazy 2019).

Trust, trustworthiness, and reciprocity are key elements of relational capital that enable effective data sharing and collaboration among partners (Kale, Singh, & Perlmutter, 2000; Rindfleisch & Moorman, 2001; Kwon & Suh, 2004, Zhao et al., 2019). Studies have examined the impact of these relational aspects on collaboration, both within and between firms (Chang-Hun &

Byoung-Chun, 2018). The characteristics of trust, self-efficacy, and goodwill among employees contribute to supply chain performance. However, the success rate of collaborations is relatively low, with about 60% of collaborations ending in failure (Faems et al., 2005; Tukamuhabwa et al., 2017). Developing countries, in particular, face challenges in effectively implementing supply chains, often due to the absence of relational capital among members of firms (Fawcett et al., 2017; Tukamuhabwa et al., 2017).

Given the limited research on supply chain issues in developing countries such as Pakistan, this study aims to contribute to the literature by examining the relationships between different attributes of social capital in the context of a developing country. Organizations in developing country contexts face macroeconomic volatility, institutional instability, and domestic issues such as power shortages, political instability, and bureaucratic corruption. Understanding the role of social capital as a mechanism facilitating supply chain performance is crucial (Tipu & Fantazy, 2019).

Relational capital, characterized by buyer-supplier relationships, is a crucial element in achieving supply chain integration and improving supply chain performance. However, the literature on relational capital and its impact on supply chain performance, particularly in terms of information flow, is limited and has produced mixed results, leading to ambiguity (Mubarik et al., 2016). Relational capital encompasses various relationships established between firms, institutions, and individuals based on a strong sense of belonging and cooperation (Saengon et al., 2020). It involves the connections between a business entity and its stakeholders, which contribute to the entity's survival and development in the market.

In developing countries such as Pakistan, the lack of trust and information sharing often leads to opportunistic behavior and poor coordination between textile firms and their suppliers, resulting in supply chain disruptions and losses (Mubarik et al., 2016, Zhoa et al., 2019). The implementation of social capital and organizational factors play a significant role in addressing these challenges (Tipu & Fantazy, 2019). However, there is a limited body of literature that examines supply chain issues in developing countries, making it essential to explore the relationships among different attributes of social capital in such contexts (Tipu & Fantazy, 2019).

Trust, trustworthiness, and reciprocity are crucial for establishing relational capital and improving supply chain agility and responsiveness (Kale et al., 2000; Rindfleisch & Moorman, 2001; Kwon & Suh, 2004, Chowdhury et al., 2023). These aspects, along with self-efficacy and goodwill, contribute to the performance of the supply chain (Chang-Hun & Byoung-Chun, 2018). However, it is important to note that successful collaborations in supply chains are challenging, with a significant percentage resulting in failure, particularly in developing countries (Faems et al., 2005; Tukamuhabwa et al., 2017). The absence of relational capital among the members of firms is identified as one of the reasons for these failures (Tukamuhabwa et al., 2017).

Structural capital and relational capital are two dimensions of social capital. Structural capital refers to the resources available through the network of relationships possessed by an

individual or social unit, while relational capital focuses on the relationships among individuals and their commitment and respect (Autry & Griffis, 2008; Min et al., 2008, Alghababsheh & Gallear, 2021). The flow of information is essential for supply chain performance, and information sharing among employees and organizations is crucial for coordination and success in the supply chain (Adaryani et al.,2023, Frohlich & Westbrook, 2001; Cooper et al., 1997).

Relational capital plays a vital role in supply chain integration and performance. However, the literature lacks consensus on the outcomes of social capital, and there is a need to understand the interplay between antecedents, social capital, and outcomes. Additionally, the flow of information is critical for supply chain success, and the absence of information sharing can lead to poor performance. This study aims to explore the relationship between cognitive capital, relational capital, structural capital, and the flow of information in achieving supply chain performance. Studies have shown that higher levels of social capital within a supply chain can lead to various benefits. Social capital strengthens trust and cooperation among supply chain partners, enabling them to innovate and compete more effectively. This can lead to higher integration of processes, greater sharing of knowledge and resources, and improved performance in the supply chain (Hald and Kinra, 2019). Social capital facilitates the exchange of information and knowledge among supply chain partners. This can result in better demand forecasting, inventory management, and production planning, leading to reduced lead times, lower costs, and improved customer service (Inkpen & Tsang, 2005; Luo & Ye, 2019). Social capital encourages the flow of ideas and innovation within the supply chain. When partners trust and collaborate with each other, they are more willing to share new ideas, technologies, and best practices. This can promote innovation, adaptability, and agility within the supply chain, enabling it to respond more effectively to changing market conditions (Chang-Hun Lee & Byoung-Chun, 2017; Nahapiet & Ghoshal, 1998). Social capital enhances trust and collaboration among supply chain partners, enabling them to cope with uncertainties and disruptions more effectively. This can lead to better alignment of goals, higher quality of data and information, and greater resilience in the supply chain (Shishodia et al., 2023, Autry & Griffis, 2008; Tsai & Ghoshal, 1998). social capital has a positive impact on supply chain performance by facilitating collaboration, information sharing, innovation, and risk mitigation. By investing in building and nurturing social capital, supply chain managers can create a more efficient, responsive, and resilient supply chain.

## 2. Literature review

Supply chain performance is crucial for the survival and sustainability of firms in today's competitive environment (Stewart, 1995). An integrated supply chain structure is necessary to achieve effective supply chain management, as it enables responsiveness to customers and adds flexibility, resulting in cost reduction and improved bottom-line performance, ultimately leading to cost competitiveness. Changes in policies, practices, procedures, organizational structure, and systems are important for optimizing supply chain performance (Sangari et al., 2015; Cigolini et al., 2004). Cognitive capital plays a significant role in enhancing social interactions within

organizations and helps in achieving organizational goals (Yu et al., 2013; Gelderman et al., 2016). It facilitates the flow of information, supports employees' innovative behavior, and contributes to improved supply chain performance and organizational performance as a whole (Nieves et al., 2014; Yeşil & Doğan, 2019).

### 2.1 Cognitive Capital

Cognitive capital is an important component of social capital, which encompasses shared values, norms, and understanding among network members, facilitating communication, coordination, and the development of a common vision (Wasko & Faraj, 2005). It is considered a valuable resource that can contribute to a firm's competitive advantage (Barney, 1991). Cognitive capital fosters effective information flow within organizations, both internally and externally, and plays a crucial role in the dissemination of knowledge and the promotion of innovative behavior (Adler & Kwon, 2002; Nieves et al., 2014; Yeşil & Doğan, 2019). The positive effect of cognitive capital on information flow is hypothesized in this study.

***H1: There is a positive effect of Cognitive capital on information inflow***

***H2: There is a positive effect of Cognitive capital on information outflow***

These hypotheses highlight the importance of cognitive capital in facilitating the exchange and dissemination of information within and across organizational boundaries (Li et al., 2014; Wasko & Faraj, 2005).

### 2.2 Relational Capital

Relational capital, another dimension of social capital, emerges from the establishment of trust, obligations, respect, and friendship through past collaborations and interactions (Ireland & Bruce, 2000). It enables mutually beneficial relationships between suppliers and partners, leading to cost and efficiency improvements (Li et al., 2014). Relational capital reduces uncertainty in supply chain relationships and plays a critical role in balancing individual and supply chain benefits (Lawson et al., 2008). The importance of relational capital is reflected in its positive effect on information flow, as hypothesized in this study

***H3: There is a positive effect of Relational capital on information inflow***

***H4: There is a positive effect of Relational capital on information outflow***

Relational capital contributes to the flow of information and resources within a firm's network of relationships, and its development is crucial for accessing resources (Lawson et al., 2008). It fosters trust, knowledge sharing, collective learning, and open communication among partners and organizational members (Altay & Pal, 2014; Kale et al., 2000; Suseno & Ratten, 2007). Relational capital is particularly relevant in buyer-supplier relationships and inter-firm collaborations, where it facilitates positive relationships and builds goodwill over time (Blonska et al., 2013; Carey et al., 2011; Granovetter, 1992).

## 2.3 Structural capital

When we talk about structural capital, it is considered to be one of the most important dimensions of not only social capital, but it is considered to be the competitive advantage for many firms. It includes supportive infrastructure, databases of the organizations, decision making processes, in order to make human capital working in a more efficient and effective way" (Kaplan, 2022, Maddocks, & Beaney 2002). It means, the intellectual, non-tangible, inimitable property or value of the organization that stays with the organization even when the employee leaves the organization. According to the (Khavandkar et al., 2016) structural capital refers to the capabilities, routines, processes, procedures, methodologies embedded in the organization. According to (Nahapiet & Ghoshal, 1998) structural capital is embedded in social interactions between employees and suppliers. It also defines the informal and formal interactions between them. (Tsai & Ghoshal, 1998). The close interaction between the employees, their close contacts that build overtime and create a goodwill of the organization. These contacts, closed loops could be used effectively to enhance the performance of the supply chain (Adler & Kwon, 2002, Schleper et al., 2021). This helps in developing our hypothesis that shows the positive effect of structural capital on information inflow.

***H5: There is a positive effect of Structural capital on information inflow***

***H6: There is a positive effect of Structural capital on information outflow***

## 2.3 Information Flow

The management of information is crucial for achieving excellence and integrating supply chains. Scholars and authors have emphasized the need for information due to its significant role in project implementation and decision-making. The decisions made based on provided information can lead to positive, negative, competent, or questionable outcomes (Titus & Bröchner, 2005). Effective management of information flow to and from suppliers is essential, and minimizing errors in information transformation is a critical aspect of this process. Security concerns, such as confidentiality and lack of coordination, pose additional challenges to information sharing in organizations, buyers, and suppliers (Fawcett et al., 2006). Establishing proper communication and trust between suppliers and buyers is vital for obtaining a robust supply chain. The hierarchical structure, values, norms, and individual security concerns of organizations also impact information sharing. Security concerns, particularly for individuals in key positions, can obstruct the flow of information within the supply chain competition (Titus & Bröchner, 2005).

The existing literature discusses various strategies in supply chain information management (SCIM). These strategies include developing long-term relationships with suppliers and partners (Buzell & Ortmeyer, 1995), reducing cycle times, coordinating with select suppliers, and enhancing inventory levels (Davis, 1994). While the measures and methods may differ, collaboration, significance, and communication are common underlying factors. The sharing of information serves as a foundational element that facilitates communication and collaboration. However, information sharing alone is insufficient if the shared information is incomplete or

inconclusive. Therefore, the development of the fourth and fifth hypotheses becomes possible with an understanding of the importance of conclusive information (Lee & Whang, 2000; Cooper & Kleinschmidt, 1994).

Solid supply chain performance relies on the availability of reliable information, as a lack of information negatively impacts supply chain performance (Monczka et al., 1998). Supply chain managers utilize various information sharing tools to assist in supply chain performance within the manufacturing industry, particularly in large manufacturers, retailers, and industrial firms with stable supply chains. However, the overall process is critical, time-consuming, and complex (Titus & Bröchner, 2005). Larson and Kulchitsky (2000) discuss the positive relationship between the quality of shared information among buyers and suppliers and the overall performance of the supply chain. Collaborative communication built on trust, mutual collaboration, friendship, and goodwill enhances the completeness and accuracy of shared information.

***H7: There is a positive effect of Information inflow on SCP***

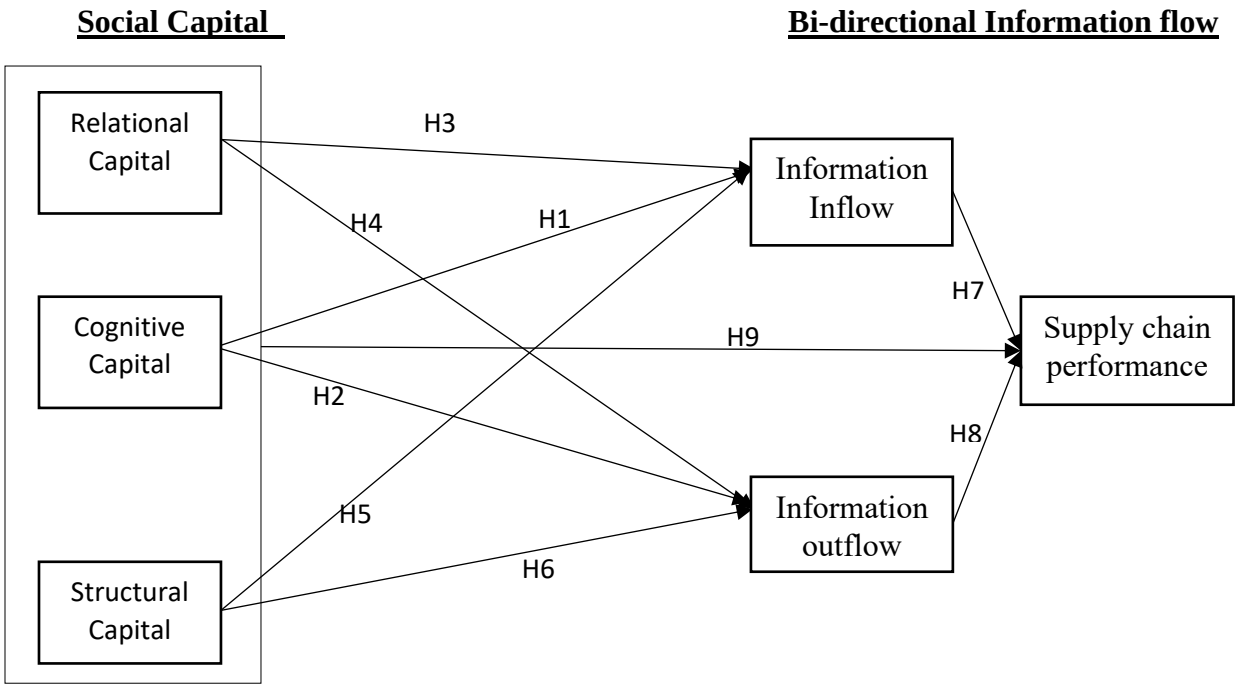
***H8: There is a positive effect of Information outflow on SCP***

Supply chain performance refers to the ability to effectively and efficiently deliver goods and services to the end customer while minimizing costs, resource utilization, and meeting specified time requirements. Beamon (1999) suggests that such performance can be measured based on criteria such as effectiveness, efficacy, and efficiency. Measurement of supply chain performance involves considering various aspects, ensuring inclusiveness, measurability of data, universality for comparison under different operating conditions, and uniformity aligned with organizational goals. This indicates that supply chain performance has different indicators, and the involvement of different partners plays a vital role in overall performance. A performance measurement system (PMS), as discussed by Leończuk (2016), helps quantify the efficiency and effectiveness of operations by using a set of indicators.

The dynamics of the market, as highlighted by Min (1994), present challenges for supply chains. Companies are increasingly seeking suppliers from various parts of the world, reducing reliance on specific partners and decreasing their monopoly power. This globalization introduces new risks and challenges in supplier selection. According to Stewart (1995), an integrated supply chain structure enhances responsiveness to customer needs and adds flexibility to the supply chain. This integrated structure allows for improved coordination and collaboration among supply chain partners.

***H9: There is a positive effect of social capital as a mechanism facilitating SCP***

**Figure 1:Theoretical path model with hypothesis**




## 3. Methodology

The research design of the study adopts a convenience sampling method. The survey instrument used in the study includes items that have been validated in prior research to measure each construct of the conceptual research model. The questionnaire utilizes a five-point Likert scale, ranging from "strongly disagree" to "strongly agree."

The population targeted for this study includes the textile industry in Karachi and Faisalabad, as well as the retail industry in Lahore, Peshawar, Karachi, Hyderabad, and selected areas of Baluchistan. The researchers approached regional sales managers and employees reporting to them to fill out the questionnaire. Government organizations were also targeted, and the researchers reached out to individuals involved in procurement and supplier management through the Chief Statistician at the Bureau of Statistics. A total of 20 respondents were reached physically, while others were contacted through telephonic calls, social media platforms, and email. The survey instrument is developed with items validated in prior research to measure each construct for our conceptual research model using a five-point Likert scale, ranging from “strongly disagree” (1) to “strongly agree” (5). Questionnaire has been taken for all variables. For Cognitive capital 4 item scale was adapted from (Griffith et al. (2006), Liu et al.(2013), Carey et al. (2011) scale, Relational capital was measured with 5 item developed by (Carey et al, 2011), for

Information inflow used 4 item scale adapted from (Zhou and Benton, 2007; Liu et al. (2013) scale, for Information outflow used 4 item scale was adapted from (Zhou and Benton, 2007; Liu et al. (2013) scale and for SCP was measured with 6 item developed by (Siyu et al., 2019).

The target audience for the study includes supply chain professionals from both the manufacturing and service sectors. Due to the challenging situation caused by the COVID-19 pandemic, the researchers aimed to reach 150 respondents, considering the importance of the supply chain across various sectors. Data collection procedures involved contacting respondents who were directly involved in supply chain activities, such as retail store staff, distributors, and warehouse personnel. The survey instrument was shared through various means, including self-visits, social media platforms, telephone calls, and emails. The researchers ensured that respondents understood the questionnaire and provided assistance if needed. Due to the limitations imposed by the pandemic, face-to-face meetings were not always possible, so technology-based means of communication were utilized. The data analysis for the study will initially involve regression analysis. Statistical software such as SPSS and Amos will be used for data analysis.

## 4. Results and Discussions

**Table No 1: Demographic**

| **Statistics** | **Frequency** | **Percent** |
|---|---|---|
| Number | 150 | 100 |
| Missing | 00 | |
| **Gender** | | |
| Male | 125 | 83 |
| Female | 24 | 16 |
| Prefer not to say | 1 | 0.7 |
| **Occupation** | | |
| Student | 22 | 14 |
| Employ | 108 | 72 |
| Entrepreneur | 20 | 13 |
| **Age** | | |
| 20-25 | 60 | 40.0 |
| 25-30 | 27 | 18.0 |
| 30-35 | 23 | 15.3 |
| 35-40 | 6 | 4.0 |
| 40-45 | 20 | 13.3 |
| 45-50 | 6 | 4.0 |
| 50 & above | 8 | 5.3 |

According to the table, we reached 150 targeted respondents. All these respondents belong to the occupation category and somehow relate with supply chain industry, as discussed in research methodology. The targeted respondents reached using different formats, mostly males' respondents. Females' respondents comprised of 24 out of 150. Males mostly represents our manufacturing/ services and supply chain industry. Also, it is easier to reach them for questionnaire responses. As the table shows, the respondents were largely relating with different industries, and all were employed. Total 86.7% targeted population is employed that clearly understands the idea. Entrepreneurs were also targeted, comprised of 13% of the targeted respondents. Students were also reached, those who relates with supply chain field working and studying as well and understand the concept and idea. The company in which I am employed, really helped in finding the right respondents. All the targeted respondents, mostly belong with the age bracket of 20-25. Young employees, and entrepreneurs/students. Majority of the age bracket come in 20-40 age brackets. Those who understands the idea and they are the users of social media and have easy access to technological means for better communication for the fulfilment of questionnaire.

After per the frequency table shown, 150 respondents in total were targeted and the data incorporated has been mentioned in the report. 16% female population and 83.3% male population reported, and .7% preferred not to mention. In occupation frequency, students comprised of 14.7%, employees had the major chunk 72.0% and entrepreneurs were 13.3%. That also clearly shows the targeted people to respond having experience in the field of supply chain management. In Age category, majority of the population are young employees ranging from 20-30 having frequency of 58% altogether. Many people either startups or experiences ranging from 5-6 years in the field of supply chain represents the respondent's population. Also, age ranging from 30-35 and 40-45 were 28.6% altogether. Majority of the targeted population are employees. These employees are professionals of the supply chain industry and were approached in a very selective manner.

**Table No 2: Reliability Statistics**

| Variables | Cronbach's Alpha | No of Item | CITC range | |
|---|---|---|---|---|
| Relational Capital | .718 | 5 | 0.410 | 0.510 |
| Cognitive Capital | .761 | 4 | 0.513 | 0.634 |
| Information Inflow | .718 | 5 | 0.442 | 0.510 |
| Information outflow | .694 | 4 | 0.453 | 0.507 |
| Supply chain performance | .850 | 6 | 0.538 | 0.727 |

First the widely accepted reliability indicator Cronbach's α, was applied to check the scale reliability. The results are shown in the above table. The Cronbach's α, for all of the constructs were greater than 0.70 which clearly showed that the measure of the constructs are reliable (Hair

et al., 1998). In the above table, all of the CITC (corrected item total correlation) is greater than 0.30 which is considered minimum acceptable standards.

During the test of the Cognitive capital variable, the Cronbach's α, for all of the constructs were 0.718 which clearly showed that the measure of the constructs is reliable (level of internal consistency) (Hair et al., 1998). In the above table, all of the CITC (corrected item total correlation) is greater than 0.30 which is considered minimum acceptable standards. During the test of the Relational capital variable, The Cronbach's α, for all of the constructs were .761 which is again greater than 0.70, which clearly showed that the measure of the constructs are reliable ((Hair et al., 1998). In the above table, all of the CITC (corrected item total correlation) is greater than 0.30 which is considered minimum acceptable standards.

During the test of the Information inflow variable, the Cronbach's α, for all of the constructs are .718 which is greater than the standard 0.70. That shows the level of internal consistency which is very significance in this case. During the reliability testing of Cronbach's α, the internal consistency of Information outflow for all of the constructs are .694, which is very close to the minimum mark of .70, & hence considered to be acceptable.

In another testing of SCP variable, the Cronbach's α, is .850, which is considered to be excellent in form of internal consistency. All of the variables show strong consistency and the results show conclusive relationship. One variable that showed the Cronbach's α value of .554 was dropped from the testing, hence the results has been mentioned in the Appendix. This was effecting the consistency.

**Table No 3: Regression**

| Model Summary | | | | |
|---|---|---|---|---|
| **Model** | **R** | **R Square** | **Adjusted R Square** | **Std. Error of the Estimate** |
| 1 | .236[a] | .056 | .036 | .72324 |

a. Predictors: (Constant), Age, Gender, Occupation

**Table No 4: Coefficients**

| | | **Unstandardized Coefficients** | | **Standardized Coefficients** | | |
|---|---|---|---|---|---|---|
| **Model** | | **B** | **Std. Error** | **Beta** | **t** | **Sig.** |
| 1 | (Constant) | 2.391 | .370 | | 6.457 | .000 |
| | Gender | -.279 | .158 | -.144 | -1.767 | .079 |
| | Occupation | .215 | .115 | .155 | 1.875 | .063 |
| | Age | .035 | .033 | .090 | 1.074 | .285 |

While testing the regression analysis to see the effect of Age, gender & Occupation on the dependent variable of SCP, the results were R.236 & R square.056. In our case, the R square value is 0.56 which means 56% is the variance. That does not affect the data.

Using AMOS software, the testing of the variables resulted in the following diagram. The relationship of RC with IO is also positive, giving the effect of .20. Hence both of these variables supports our hypothesis 1 & hypothesis 2. Proposed hypothesis suggested that there is a positive relationship between RC and II, and RC with IO, the same has been supported by these test results.

**Table No 5: Regression Weights (Group number 1 - Default model)**

| | | | Estimate | S.E. | C.R. | P | Label |
|---|---|---|---|---|---|---|---|
| II | <--- | RC | .206 | .087 | 2.363 | .018 | par_1 |
| IO | <--- | RC | .286 | .105 | 2.731 | .006 | par_2 |
| II | <--- | CC | .169 | .071 | 2.379 | .017 | par_3 |
| IO | <--- | CC | .245 | .086 | 2.836 | .005 | par_4 |
| II | <--- | SC | .406 | .086 | 4.747 | *** | par_5 |
| IO | <--- | SC | -.025 | .101 | -.246 | .805 | par_6 |
| SCP | <--- | II | .493 | .086 | 5.765 | *** | par_7 |
| SCP | <--- | IO | .203 | .078 | 2.592 | .010 | par_8 |

**Table No 6: Standardized Regression Weights: (Group number 1 - Default model)**

| | | | **Estimate** |
|---|---|---|---|
| II | <--- | RC | .200 |
| IO | <--- | RC | .243 |
| II | <--- | CC | .196 |
| IO | <--- | CC | .249 |
| II | <--- | SC | .408 |
| IO | <--- | SC | -.022 |
| SCP | <--- | II | .442 |
| SCP | <--- | IO | .207 |

**Figure No 2: Standard Estimates Using AMOS**

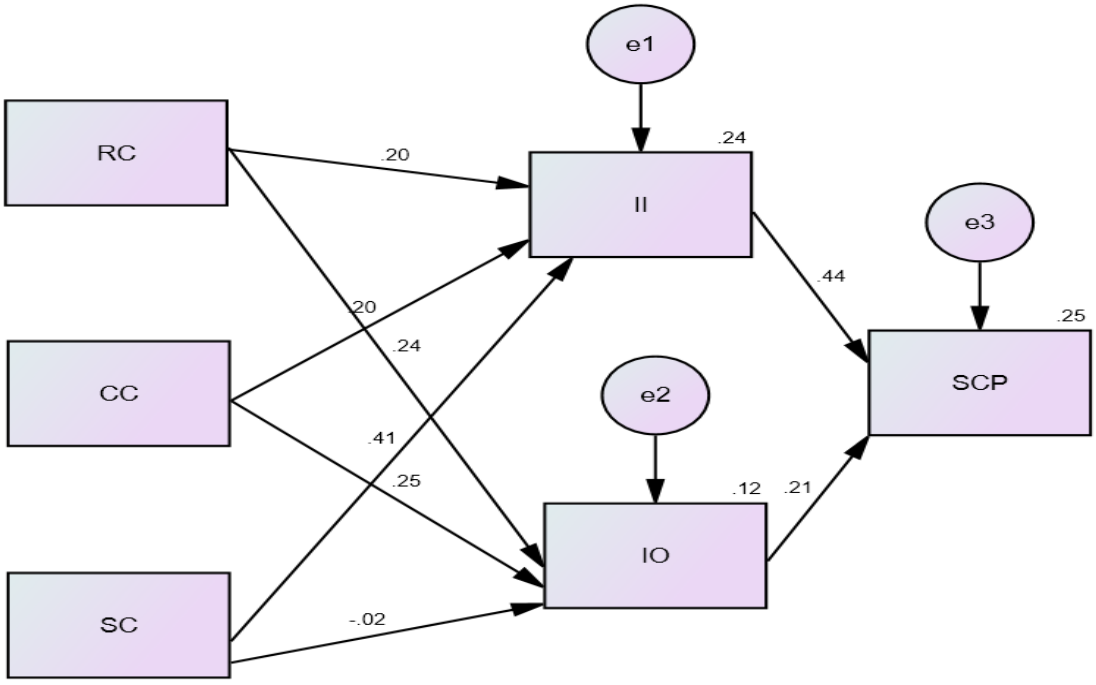


**Table No 7: Means (Group number 1 - Default model)**

| | Estimate | S.E. | C.R. | P | Label |
|---|---|---|---|---|---|
| RC | 2.152 | .049 | 43.502 | *** | par_9 |
| CC | 2.245 | .059 | 37.897 | *** | par_10 |
| SC | 1.970 | .055 | 35.946 | *** | par_11 |

**Table No 8: Squared Multiple Correlations: (Group number 1 - Default model)**

| | Estimate |
|---|---|
| IO | .122 |
| II | .245 |
| SCP | .255 |

**Table No 9: Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .497[a] | .247 | .228 | .62763 |

a. Predictors: (Constant), SC, CC, RC

In our testing, few findings have been noted, the dimensions of the social capital's individual significance were noted. CC giving significance value of .001 which is very significant. SC giving the value of .017, which is also significant.

While running the coefficient of correlation, the resulted values between cognitive capitals (CC) variable with information inflow (II) gives the overall effect of .20, and .25 with IO, which clearly shows that it positively effects the II & IO variables. These two values support our hypothesis 1 & hypothesis 2, that CC positively affect the II & IO. Hence proved by these results. The effect of structural capital (SC) variable with II gives the values of .41 which shows that there is a positive relationship between SC and II. That also supports the hypothesis H5, but while testing the relationship between SC & IO, the relationship shows the values of -0.2. That does not support the hypothesis 6. The R square values between the RC, CC & SC on II shows .24 effect. That means II relationship with these variables are positive.

The R square values between RC, CC, and SC with IO gives the values of .12. Hence, does not support the hypothesis H6. The values of II on SCP gives the values of .44, which is highly significant and support the hypothesis H7. It positively affect the performance of the supply chain. Supports the hypothesis 8. The values of IO with SCP gives the effect of .21 only. The hypothesis

8 is merely supported the relationship between IO and SCP. The R square values between II and IO on SCP gives .25. Hence, supports the hypothesis.

In Anova, variables were tested using regression analysis. The results are shown in the table above. The relation between II<---RC is .018 which is significant. In another relationship, the values between IO<---RC shows .006 which is also significant relationship. II<---CC showing the values of .017 which is again significant relationship. The value of .005 between IO<---CC also shows the significant relationship between them. A highly significant relationship shows between II<---SC. The interesting relationship was found between IO<---SC which the values of 0.805 which is insignificant. That shows structural capital of the organization does not form a strong relationship with the Information outflow. Another highly significant relationship has been shows between SCP<---II. The values between SCP<---IO also shows the significant relationship.

While testing all the control variables, the independent variables RC (relational capital), CC (cognitive capital), SC (structural capital) were tested with dependent variable of SCP (supply chain performance). The resulted values clearly shows that relationship between social capital and SCP is significant.

However, RC with respect to SCP, the value noted was .157, which is not significant. This table is mentioned in Appendix 4. Relational capital among employees of the firm does not affect the performance of the supply chain. These findings suggest that results do not affect the overall hypothesis and our theoretical model. The study aimed to investigate the effects of social capital dimensions, including relational capital, cognitive capital, and structural capital, on the performance of the supply chain. Social capital refers to the resources embedded in social networks, such as trust, norms, and shared understanding, which can have a significant impact on organizational outcomes. To examine the relationships between these variables, the researchers proposed and tested several hypotheses. Hypothesis H1 suggested that cognitive capital would have a positive effect on information inflow within the supply chain. The results supported this hypothesis, indicating that cognitive capital positively influenced the sharing of information among employees and with suppliers. This finding highlights the importance of knowledge, expertise, and cognitive abilities in facilitating effective information exchange.

Similarly, hypothesis H2 proposed a positive effect of cognitive capital on information outflow. The results also supported this hypothesis, suggesting that organizations with higher cognitive capital were more likely to share information with their supply chain partners. This finding implies that organizations with greater cognitive capital have a better ability to convey and disseminate relevant information, leading to improved coordination and performance within the supply chain.

The study further examined the effects of relational capital on information inflow and outflow (hypotheses H3 and H4, respectively). The results supported both hypotheses, indicating

that relational capital positively influenced the sharing of information. This suggests that strong relationships, built on trust, reciprocity, and understanding, between buyers and suppliers can facilitate the free flow of information, contributing to enhanced supply chain performance. Organizations with high relational capital are more likely to engage in open and transparent communication, leading to better coordination and collaboration.

Hypotheses H5 and H6 investigated the effects of structural capital on information inflow and outflow, respectively. The results supported hypothesis H5, indicating a positive relationship between structural capital and information inflow. Structural capital refers to the resources embedded in organizational structures, processes, and systems. This finding suggests that organizations with well-developed structures and systems that facilitate the exchange of information are more likely to have improved information inflow within the supply chain.

However, hypothesis H6, which proposed a positive effect of structural capital on information outflow, was not supported. The study revealed that organizations tended to retain information within their boundaries and were reluctant to share detailed information with suppliers, considering it a competitive advantage. This finding implies that while organizations may have effective internal information-sharing mechanisms, they may be more cautious when it comes to sharing sensitive information with external partners.

The study further explored the relationships between information inflow, information outflow, and supply chain performance (SCP) through hypotheses H7 and H8, respectively. The results supported hypothesis H7, suggesting a positive effect of information inflow on SCP. This finding indicates that organizations that receive relevant and timely information from their supply chain partners are better equipped to make informed decisions and respond to market dynamics effectively, leading to improved supply chain performance.

However, hypothesis H8, which proposed a positive effect of information outflow on SCP, was not supported by the results. This finding implies that while information inflow plays a crucial role in supply chain performance, the impact of information shared with suppliers may be limited. Organizations may be hesitant to disclose detailed information to external partners due to concerns about maintaining a competitive edge.

Finally, hypothesis H9 examined the overall effect of social capital as a mechanism facilitating SCP. The results supported the positive influence of social capital dimensions on SCP, particularly through the mechanisms of information inflow. This finding highlights the significance of social capital in fostering effective relationships, trust, and information sharing within organizations, ultimately leading to improved supply chain performance.

### 4.1 Discussion

With respect to the dimensions of social capital, this study aims to explore the relationship between social capital and supply chain performance, with a focus on the contribution of

information flow. Many authors and researchers, such as Ireland and Bruce (2000), have discussed the crucial role of relational capital between buyers and sellers, particularly suppliers and buyers. The relationship between them is considered the core strength that enables smooth transactions. Trust is established through historic relationships and numerous transactions, creating a bond that facilitates the flow of resources between parties (Li et al., 2014).

Another dimension of social capital is structural capital, which encompasses the processes, databases, and supportive infrastructure of an organization. It represents the resources that remain embedded within the organization, regardless of the individuals involved. Maddocks and Beaney (2002) emphasize the non-physical infrastructure of the organization, including collaborations, decision-making policies, procedures, rules, regulations, routines, and capabilities. Structural capital provides the necessary support for the functioning of human capital within the organization. Cognitive capital, also known as human capital, is the dimension of social capital that is embedded in individuals within the organization. It encompasses shared values, understanding, empathy, and the sharing of feelings and emotions among employees (Wasko & Faraj, 2005). Cognitive capital reduces stress levels among employees, facilitates effective communication, and helps maintain the true nature of social capital.

## 5. Conclusion

The study demonstrates that social capital positively affects supply chain performance through its impact on information inflow and outflow. The results highlight the significance of strong relationships, shared values, and effective organizational structures in enhancing supply chain performance. One interesting finding is that while companies maintain strong relationships with suppliers, the information flow is primarily one-sided, with buyers holding the dominant position. Information received from suppliers is shared internally within the organization, leading to improvements in supply chain performance. However, when it comes to sharing information with suppliers (information outflow), the level of detail is limited, indicating a lack of transparency. This asymmetry in information sharing affects the overall performance of the supply chain.

The study reveals that firms consider their valuable information as a competitive advantage, leading to reluctance in sharing it with suppliers who may have relationships with multiple buyers. This poses a challenge to achieving effective supply chain integration. The findings emphasize the need for firms to enhance communication, strengthen relationships with suppliers, and promote transparency in information sharing. This can foster better supply chain integration in both the manufacturing and service industries.

The research underscores the importance of the quality and timeliness of shared information. Insufficient or low-quality information negatively impacts supply chain performance. Accurate and timely information sharing with suppliers is crucial for order processing, inventory management, and overall supply chain interaction. The study concludes that monitoring the flow

of information within and outside the organization is essential for achieving supply chain excellence. Firms should invest in enhancing social capital among employees, ensuring they have a clear understanding of its dimensions. This can be achieved through training programs and initiatives aimed at promoting shared values and knowledge within the organization.

### 5.1 Managerial Implications:

Importance of Information Flow: The study emphasizes the crucial role of information flow in supply chain management. Managers should recognize that effective information sharing, both inflow and outflow, is essential for enhancing supply chain performance. Strategies should be implemented to ensure the timely and accurate exchange of information with suppliers. This includes establishing robust information systems and monitoring the accuracy and transparency of shared information.

Enhancing Relational Capital: Relational capital, characterized by trust and strong relationships between buyers and suppliers, is vital for smooth transactional flow. Managers should focus on building and nurturing long-term relationships with suppliers. By fostering trust, reciprocity, and openness, organizations can achieve better collaboration, innovation, and performance in the supply chain. Involving suppliers in decision-making processes and policy formulation can lead to tailored products and services that meet customer needs effectively.

Leveraging Structural Capital: Structural capital encompasses the non-physical infrastructure of the organization, including processes, databases, and supportive systems. Managers should recognize the value of structural capital in creating a competitive advantage that persists even when individuals leave the organization. By implementing effective collaboration mechanisms, decision-making policies, and routines, managers can enhance supply chain performance. This includes promoting transparency in information sharing and facilitating efficient communication channels within the organization and with suppliers.

Harnessing Cognitive Capital: Cognitive capital refers to the shared values, understanding, and empathy among employees. Managers should prioritize creating a supportive work environment that reduces stress levels and encourages effective communication. This can be achieved by promoting shared values, fostering a culture of knowledge sharing, and minimizing language barriers. By leveraging cognitive capital, organizations can maintain the true nature of social capital and enhance supply chain performance.

Information Tailoring and Transparency: The study reveals a lack of transparency in information sharing with suppliers, leading to suboptimal supply chain performance. Managers should ensure that detailed and informative information received from suppliers (information inflow) is appropriately tailored and shared with suppliers (information outflow). Transparent information sharing builds trust and facilitates effective resolution of supply chain challenges.

Monitoring and Policy Implementation: Managers need to continuously monitor the accuracy and quality of information flowing within and outside the organization. This includes implementing policies and practices to maintain information integrity. By closely monitoring the information exchange process, managers can identify and address any issues or bottlenecks that may hinder supply chain performance.

Collaboration and Innovation: Social capital dimensions provide opportunities for collaboration and innovation. Managers should consider involving suppliers in decision-making processes, policy formulation, and resource exchange. By leveraging the strengths of relational and structural capital, managers can tap into new opportunities and drive supply chain performance.

### 5.2 Limitations and future study

While this study provides valuable insights, it also has limitations. The survey responses could have been more diverse, and a larger sample size could have been reached to understand current supply chain practices in relation to social networks. Additionally, the complexity of social capital necessitates further exploration, including different situations and organizational responses. Longitudinal surveys could help understand how social capital evolves during different relationship phases. It would also be beneficial to study multiple relationships with multiple suppliers to gain a broader understanding of social capital in the context of the supply chain. Finally, future research could explore the perspective of suppliers to gain insights into their view of social capital and its impact.

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**Appendix 1**

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 129 | 86.0 |
| | Excluded[a] | 21 | 14.0 |
| | Total | 150 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Appendix 2**

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .554 | 3 |

**Appendix 3 Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| Partners in the supply chain have a strong network tie for the pattern of interactions between them | 4.0310 | 1.624 | .396 | .406 |

| | | | | |
|---|---|---|---|---|
| Partners in the supply chain heavily depend on the network structure to provide communication channels between them | 4.0930 | 1.663 | .417 | .380 |
| Partners in the supply chain have multiple connections across organizational hierarchical levels and functions between them | 3.9070 | 1.554 | .295 | .580 |

**Appendix 4**

**Coefficients**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | .942 | .244 | | 3.860 | .000 |
| | CC | .291 | .086 | .300 | 3.389 | .001 |
| | RC | .155 | .109 | .128 | 1.423 | .157 |
| | SC | .238 | .099 | .208 | 2.419 | .017 |

a. Dependent Variable: SCP

| Construct and key sources | Measurement |
|---|---|
| **Cognitive capital** Griffith et al. (2006), Liu et al.(2013), Carey et al. (2011) | Both parties often agree on what is in the best interest of the relationship<br>Both parties share the same business values |

| | |
|---|---|
| | Both parties share the goals for this business<br>Both parties share the same ambitions and vision |
| **Relational capital**<br>(Carey et al. (2011) | The relationship is characterized by mutual trust<br>The relationship is characterized by mutual friendship<br>The relationship is characterized by high levels of reciprocity<br>The relationship is characterized by mutual respect<br>The relationship is characterized by close interaction |
| **Structural Capital**<br>Robert et al. (2008), | Partners in the supply chain have a strong network tie for the pattern of interactions between them<br>Partners in the supply chain heavily depend on the network structure to provide communication channels between them<br>Partners in the supply chain have multiple connections across organizational hierarchical levels and functions between them |
| **Information inflow**<br>Zhou and Benton, 2007; Liu<br>et al. (2013) | Our major supplier shares their production capacity information with us<br>Our major supplier shares their order status information with us<br>Our major supplier shares their knowledge about the product and |

| | |
|---|---|
| | materials with us<br>Our major supplier shares changes in delivery schedule with us<br>Our major supplier shares their knowledge about the market with us |
| **Information outflow**<br>Zhou and Benton, 2007; Liu et al. (2013) | We share our production planning information with our major supplier<br>We share our future-demand forecasting information with our major supplier<br>We share our knowledge about the product and materials with our major supplier<br>We share our product design specifications with our major supplier |
| Supply chain Performance<br>**Siyu Li, Xiling Cui, Baofeng Huo, Xiande Zhao**<br>**Vol. 119 No. 5, 2019** | **Our supply chain has the ability to quickly modify products to meet customers' requirements**<br>**The length of our supply chain is getting shorter**<br>**We are satisfied with the speediness of our supply chain**<br>**Based on our knowledge of our supply chain process, we believe that it is short and efficient**<br>**Our supply chain has an outstanding record of on-time delivery**<br>**Our supply chain provides a high level of customer service** |