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Impact of Social Capital on Innovation Performance: The Mediating Role of Learning and Strategic Orientations

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ABSTRACT

Taking into consideration the Resource Based View (RBV) Theory and the Social Capital Theory (SCT), this research investigates how the software industry utilizes strategic resources to surpass innovative performance. This study adopted survey questionnaires to gather particulars from 780 mamagers and owners employing in the software industry in Pakistan. The accumulated information was assessed by employing SPSS and structural equation modeling (SEM) to probe designed hypotheses. We uncovered that social capital influences innovative performance. Furthermore, social capital also affects the technological and learning orientation of the software industry. Moreover, technological orientation and learning orientation both mediate the impact of social capital on innovative performance. The crucial beneficence of the research is to enrich and extend the RBV, SCT, and literature regarding innovation in the domain.

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1. Introduction

Innovative performance is one of the key objectives of economies all around the world. It denotes the degree to which all stakeholders intend to bring out, realize and promote unique ideas at the workplace. Firms demand employees who innovate while performing their assigned duties (Kahn, 2018). Innovative performance is used as a sign of the sustainable productive capacity of the industry (Singh, Mazzucchelli, Vessal, & Solidoro, 2021). According to previous research innovative performance is not only rely on technological and market determinants but also on social capital through learning and networks of interaction (Laužikas & Dailydaitė, 2015; Ouechtati, Masmoudi, & Slim, 2022). According to the (RBV) theory, (SC) is regarded as an imperative asset of the organization, by how organizations can achieve sustainable competitive advantage (Petter, Barber, & Barber, 2020). It is considered a vital intangible asset and lubricant that facilitates firms in carrying out their tasks (Chisholm & Nielsen, 2009; Collins, 2021; Roxas, Chadee, de Jesus, & Cosape, 2017). To attain the desired innovative performance, it is requisite to invest in the social capital (SC) of the industry (Ferraris, Devalle, Ciampi, & Couturier, 2019). Social capital embraces immersive knowledge assets that can be accessed through the firm's interior and exterior relationship system. These networks establish a base for the innovation of the firm (Carnabuci & Diószegi, 2015; Juca & Fishlow, 2022). According to the social capital perspective, SC is a crucial asset for organizations to attain sustainable competitive advantage and advanced innovative performance (Leana & Pil, 2006; Ortiz, Donate, & Guadamillas, 2018).

Among the most essential pillars that have vital inferences for a firm's policies, relations, networks, investment, performance and structure is the strategy (Klein, Spieth, & Heidenreich, 2021). Strategic orientations are the indications of the direction in which a particular industry or organization wants to progress or excel in the future (AlQershi, Saufi, Mokhtar, Muhammad, & Yusoff, 2022; Sarker & Palit, 2015). It denotes the patterns that the firm follows to synchronize with the firm's vision and targets (Abdulrab et al., 2021). A firm can only utilize its resources

(social capital) effectively to generate a productive outcome (innovative performance) if it adopts the best strategies (strategic orientations) (Gabbay, Talmud, & Raz, 2001; Khan, Majid, Yasir, Javed, & Shah, 2021; Sarker & Palit, 2015). The synchronization of strategic orientations with firms' resources and goals leads to the best possible outcomes (Valos & Bednall, 2010; Yu & Moon, 2021).

Strategic orientations cover two aspects; one is technological orientation and the second one is learning orientation (Yadav, Tripathi, & Goel, 2019). Technological orientation denotes the tendency of the firm toward the adoption of advanced technology. It shows how much an organization spends on R&D, obtaining the latest technology, and introducing new technology to the whole system (Ramírez-Solis, Llonch-Andreu, & Malpica-Romero, 2022; Yousaf et al., 2020). It reflects the firm's proactive behavior in developing new technology and utilization of sophisticated technologies in new products and service provision. It also shows the organization's resource allocation for the adoption, maintenance, and integration of new technologies (Mamduh & Pratikto, 2021; Rezazadeh, Karami, & Karami, 2016). Learning orientation displays the potential of the organization to encourage proactive learning and enhance the value of the learning process (Arshad et al., 2020). Learning-oriented firms develop a productive and pleasant environment where everyone feels free to share his thoughts and novel ideas. This technique lessens the communication gap between owner and subordinates (Martinez, Serna, & Montoya, 2020). Learning-oriented firms give rewards to employees for their learning-oriented outcomes. It significantly impacts the innovative performance of the organization (Phorncharoen, 2020).

The extant literature considers Social capital is called the black box for generating innovation, but study on the inter-association betwixt social capital and innovative progress lacks an understanding of intermediary channels through which strategic orientations and social capital can generate innovative performance (Filieri & Alguezaui, 2014; Lyu, Peng, Yang, Li, & Gu, 2022; Weerakoon, McMurray, Rametse, & Arenius, 2019). Certain mediating factors affect the alliance between social capital and innovative performance. After extensively going through the literature on social capital and innovative performance Hemphälä and Magnusson (2012); Martínez-Pérez, Elche, García-Villaverde, and Parra-Requena (2019), it was noticed that literature on determinants of innovative performance and other intervening factors amid social capital and innovation is scarce (Allameh, 2018). The vacuum in the literature about the relationship between social capital and innovative performance as well as the mediating role of strategic orientations within that relationship in the Pakistani software sector still needs to be filled (Molina-Morales & Martínez-Fernández, 2010).

1.1. Research's Aim

With fast-changing technological advancements, it becomes crucial for all industries to give their full consideration to improve their innovative performance. Social capital is considered an asset and valuable resource for organizations. The software industry is one of the significant industries in Pakistan. Each field of human life whether it is our daily household commodities or it is our office life has become digital. The drastic shift from handcrafts and paperwork to advance machinery and digital equipment has compelled the software industry to put its full energy and resources into the research and development of the software industry. It has become the need of the hour to utilize their social capital and their full capabilities to improve the innovative performance of the software industry. None of the sectors can excel until they bring new and sustainable innovative outcomes into the market. It becomes possible when firms efficiently manage their strategic orientations. Social capital can be utilized well for innovative performance if the strategic orientations of the firms support the whole system. The study's goal is to investigate how social capital influences the development of innovative performance. Alongside, the study also examines the mediating function of strategic orientations among social capital and innovative performance. The combined effect of social capital and strategic orientations still needs to be interrogated in the software industry of Pakistan.

1.2. Research Hypothesis

The present research aspires to interrogate the perception that social capital affects the innovation capability of the software industry in Pakistan. This study also probes the moderation of strategic orientations betwixt social capital and innovative performance in the Software industry in Pakistan. This research intends to test the subsequent hypothesis:

H1: Social capital has a significant impact on innovation performance.
H2: Social capital has a significant impact on learning orientation.
H3: Social capital has a significant impact on technology orientation.
H4: Learning orientation impacts innovation performance.
H5: Technology orientation affects innovation performance.
H6: Learning orientation mediates the association between social capital and innovative performance.
H7: Technology orientation mediates the association between social capital and innovative performance.

2. Methodology

The study intended to examine the perception of stakeholders about the effect of social capital on the innovative performance of the organizations working in the Software industry in Pakistan. For this sake, this research has adopted the survey method as it is frequently employed for conducting quantitative research.

2.1. Study Design, Population, and Procedure

This research was carried out to interrogate the impact of social capital on the innovative performance of software companies located in Pakistan. This research is a quantitative and cross-sectional study as it took time for six months to gather the data.

2.2. Data Collection

Data was gathered via survey questionnaires which were designed to measure the variable used in the study.

2.3. Measures

The scale covering social capital was adopted from Chiu, Hsu, and Wang (2006), the scale for measuring learning orientation is adopted from Galer and Van Der Heijden (1992); Hult and Ferrell (1997); Sinkula, Baker, and Noordewier (1997), the scale for measuring technological orientation was adopted from Gatignon and Xuereb (1997) and innovation performance from (Jiménez-Jimenez, Sanz Valle, & Hernandez-Espallardo, 2008). were dispersed among respondents via email. Simple and inclusive language was used in the questionnaire for a better understanding of respondents. The questionnaire consisted of two portions; the initial part covers questions about demographic variables although the subsequent portion covers the main variables of the study. The Likert scale was adopted in the estimation of statements.

2.4. Sampling Technique

The study population comprised 780 owners of software firms in Pakistan, utilizing systematic random sampling. In the current study, SPSS and Structural Equation Modelling (SEM) were employed to scrutiny the data. The adoption of systematic random sampling in our research for a certain reason that aligns with our research goals. First off, it enables us to identify respondents who have the necessary comprehension of the research constructs and are capable of giving thoughtful comments, hence ensuring the accuracy of the data. Furthermore, due of its accessibility and suitability for particular research contexts, systematic random sampling is a well-established method that is frequently employed in social science and consumer behavior research. Additionally, our deliberate attempt to include respondents with a variety of demographic backgrounds guarantees that the sample is representative. Therefore, given the context of our research goals, systematic random sampling is a wise strategy that complements our emphasis on understanding conceptions and answers among a diverse group of respondents. Responses were to be given on a Likert scale with a maximum of seven points. There were 780 valid responses left after the questionnaire responses were screened.

It is critical to follow the rules established for estimating sample sizes. According to Klein et al. (2021), a sample size between 100 and 200 respondents is frequently referred to as medium, and a sample size exceeding 200 is thought to be large. It is crucial to realize that a sample's resilience depends not only on its size but also on how carefully it was picked, as Mooi et al. (2018) emphasized. As a result, the literature supports the idea that a well selected small sample of 150 respondents or above has considerably greater significance than a massive sample drawn at random of 300 or more.

According to Memon et al. (2020), Applying PLS-SEM and other multivariate statistical analysis techniques require a sample size of between 160 and 300 valid observations. The fact that this range is neither too narrow nor too wide allayes considerations regarding how it might affect study findings. We argue that the sample size we used is adequate for drawing conclusions about how social capital affects innovation performance without unreasonably limiting the generalizability of our findings to other industries. The recommended range is met by our sample size.

Table1: Descriptive Statistics of Participants (n=780)

Demographic information	Frequency	Percentage	Cumulative
Number of Employees			
1- 10	10	1.3	1.3
11-20	543	69.6	70.9
21-50	225	28.9	99.8
51-80	2	0.2	100
81-99	0	0	0
>100	0	0	0
Experience (years)	Frequency	Percentage	Cumulative
1-5	269	34.5	34.5
6-10	165	21.2	55.7
11-15	181	23.2	78.9
16-20	121	15.5	94.4
>20	44	5.6	100
Capital Invested (PKR) Million	Frequency	Percentage	Cumulative
<2	340	43.6	43.6
2-10	381	48.9	92.5
11-20	39	5	97.5
21-30	16	2.1	99.5
31-40	4	0.5	100
>40	0	0	0
Business Status	Frequency	Percentage	Cumulative
Growing	565	72.4	72.4
Stable	157	20.2	92.6
Declining	58	7.4	100
Business Scope	Frequency	Percentage	Cumulative
Exports	249	32	32
Local Sales	197	25.2	57.3
Both Exports and Local Sales	334	42.8	100

Table1 explains the demographic traits of all the respondents. It covers respondents' profiles ragarding number of employees, experience, capital invested, business status, and business scope. In case of the number of employees, the majority of the firms (99.8%) were having 1-50 employees. In case of experience, the majority of the firms (94.4%) were 1-20 years of experience whereas (5.6%) were having age more than 20 years. The amount of capital invested was less than 2 million Pakistan rupees ranged (43.6%) while (48.9%) ranged from 2-10 million. Only 5% invested up to 20 million Pakistan rupees. According to business status, (72.4%) of responding firms were growing, (20.2%) were stable and (7.4%) were declining. As per business scope, (32%) doing exports and (25.2%) doing their local business.

3. Results & Discussion

3.1. Assessment of Measurement Model

This model covers the subsequent steps: individual items' reliability verification, the determination of content validity, convergent validity with discriminant validity, and reliability of internal consistency (González-de-la-Flor et al., 2022; Hair, Black, Babin, & Anderson, 2014). We used a 2-Step Model assessment approach to gauge the validity of our research framework. A detailed review of crucial metrics, such as construct reliability and validity, convergent and discriminant validity, and construct reliability, is required in the first step, referred to as Measurement Model Assessment. In the framework of concept validity, we thoroughly investigate outer loadings and composite reliability. It is crucial to keep in mind that our research is validated by a systematic and planned technique of data analysis because we employed Smart PLS software. Additional understanding of statistical procedures, such as thorough measurement and structural model assessments, is crucial since it illustrates the rigor of our methodological process and adds to the transparency of our research activities. Furthermore, for a variety of reasons, Smart PLS is generally viewed as being extremely popular in contemporary research.

As it corresponds well for complicated models with latent variables, the areas of other business disciplines, social sciences, management and marketing are most suited for it. Additionally, Smart PLS is capable of handling reduced sample numbers, which is a regular occurrence in modern research, and yet delivers unmistakable results. Additionally, the program is frequently utilized in research disciplines due to its accessible and user-friendly interface.

Figure 1: Measurement Model

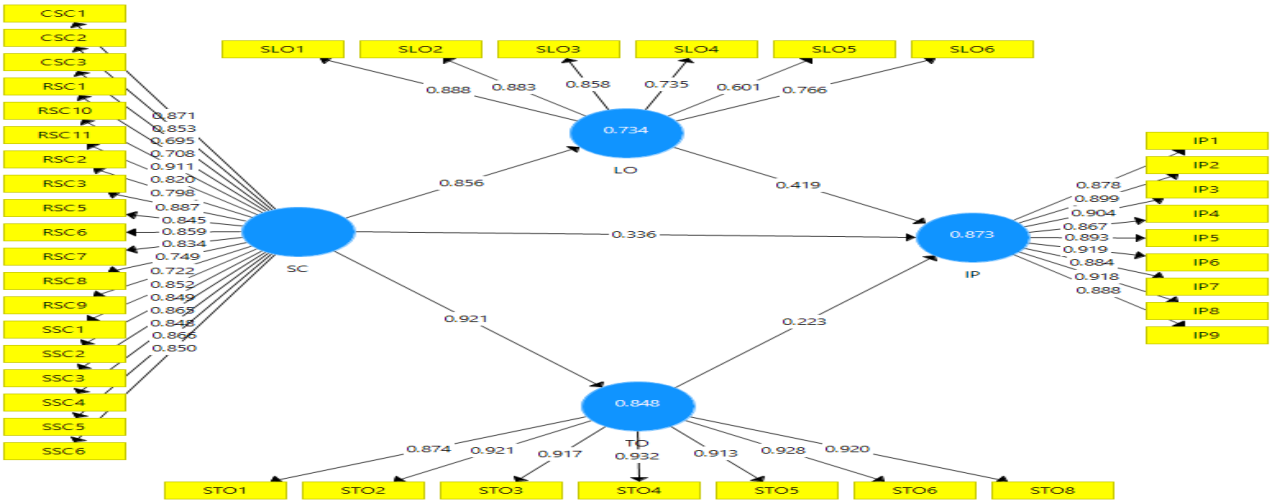


Table2: Convergent Validity

Indicators	Construct Loadings	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Social Capital		0.974	0.977	0.976	0.685
CSC1	0.871				
CSC2	0.853				
CSC3	0.695				
RSC1	0.708				
RSC2	0.911				
RSC3	0.820				
RSC5	0.798				
RSC6	0.887				
RSC7	0.845				
RSC8	0.859				
RSC9	0.834				
RSC10	0.749				
RSC11	0.722				
SSC1	0.852				
SSC2	0.849				
SSC3	0.865				
SSC4	0.848				
SSC5	0.866				
SSC6	0.850				
Learning Orientation		0.881	0.906	0.910	0.632
SLO1	0.888				
SLO2	0.883				
SLO3	0.858				
SLO4	0.735				
SLO5	0.601				
SLO6	0.766				
Technological Orientation		0.968	0.968	0.973	0.837
STO1	0.874				
STO2	0.921				
STO3	0.917				
STO4	0.932				
STO5	0.913				
STO6	0.928				
STO8	0.920				
Innovative Performance		0.969	0.969	0.973	0.800

IP1	0.878
IP2	0.899
IP3	0.904
IP4	0.867
IP5	0.893
IP6	0.919
IP7	0.884
IP8	0.978
IP9	0.888

Individual item reliabilities measure reliability. Composite reliability assists in calculating internal consistency reliability. The items having factors loading below 0.07 were cut out. The average variance extracted (AVE) is postulated to be more than 0.5 (Hair et al., 2014). So, values above 0.5 are viewed as appropriate convergent validity. Thus, this study examines the reliability of a construct concerning the composite reliability index (Leguina, 2015). The mentioned tables provide particulars of the values of constructs' convergent validity and internal consistent reliability. Moreover, Cronbach's Alpha, composite reliability and AVE are given in Table 2. AVE value ranged from 0.632 to 0.837 in this study which is more than 0.50. This qualifies the criteria of convergent validity. The composite reliability of each construct ranged from 0.91 to 0.976, which meets the standard value of 0.70 mentioned as an acceptable reliable value of internal consistency measures utilized in this research. Discriminant validity is also calculated to check the extent one construct varies from another. The criterion was adopted to measure the validity. Table 3 lists the square root of the average variance extracted. It distinctly portrays that AVE square is maximum in comparison to the correlations of each construct.

Table 3: Discriminant Validity – Fornell Larcker

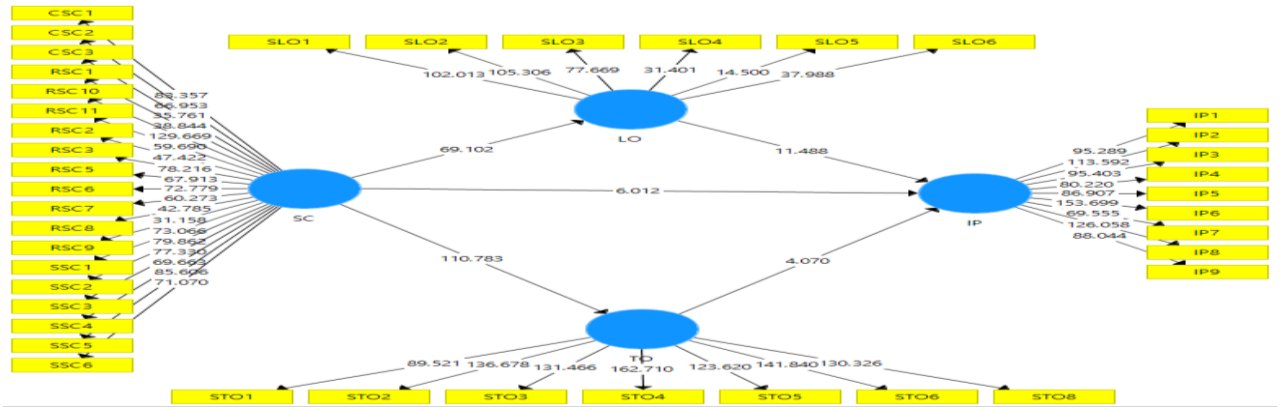
Constructs	IP	LO	SC	TO
Innovative Performance	0.895			
Learning Orientation	0.892	0.895		
Social Capital	0.901	0.856	0.928	
Technological Orientation	0.880	0.828	0.921	0.930

The relationships between the research's variables are shown in Table 3. It demonstrates the relationships between social capital, strategic orientations (learning and technological), and innovative performance.

3.2. Structural Model Assessment

The validation of the Measurement model lays the foundation for a further move which is to asses of the Structural Model (Hair et al., 2014; Herwin et al., 2022). The appraisal of the inner model or structure is carried out by measuring a direct association between the explanatory and explained variables. The structural model intends to testify to the developed hypotheses. Path coefficients were examined using PLS-SEM because of the cause.

Figure 2: Structural Model



To evaluate the significance of the association between hypotheses, the bootstrapping method is used. When performing bootstrapping, data from 5000 samples were picked for the structural model.

Table 4: Hypothesis Testing (Direct Relationship)

Hypothesis	Relationship	Std.Beta	Std.Error	t-value	p-value	Decision
	SC→IP	0.337	0.056	6.012	0.000	Supported
	SC→LO	0.857	0.012	69.102	0.000	Supported
	SC→TO	0.921	0.008	110.783	0.000	Supported
	LO→IP	0.418	0.036	11.488	0.000	Supported
	TO→IP	0.223	0.055	4.07	0.000	Supported

Table 5: Hypothesis Testing (Mediating Relationship)

Hypothesis	Relationship	Std.Beta	Std.Error	t-value	p-value	Decision
	SC→LO→IP	0.358	0.032	11.294	0.000	Supported
	SC→TO→IP	0.205	0.051	4.073	0.000	Supported

H1 is supported by the findings in Table 4 that demonstrate a positive relationship between social capital and innovative performance (β = 0.337; t= 6.012; p<0.01). The findings of (Hasanov, Muysinaliyev, & Aktamov, 2014; Huang & Chen, 2017) who also discovered a favorable relationship between social capital and innovative performance, are consistent with this outcome. Similarly, social capital significantly improves learning orientation outcomes as (β = 0.857; t= 69.102; p<0.01). This confirms the second hypothesis H2. According to the third hypothesis H3, social capital has a notable impact on technological orientation and the results confirm this relationship (β= 0.921; t= 110.783; p<0.01). These results are synchronized with the outcomes of (Abidin, Jusoh, Amlus, & Osman, 2014). Learning orientation as well as a vital positive effect on innovative performance (β= 0.418; t= 11.488; p<0.01). This hypothesis H4 is also supported by the results. Technological orientation also has a remarkable effect on innovative performance (β= 0.223; t= 4.07; p<0.01). So, hypothesis H5 is also confirmed by the results. Hypothesis H6 is also supported and the results show that learning orientation mediates the association between social capital and innovative performance as (β= 0.358; t= 11.294; p<0.01) shown in Table 4. Similarly, hypothesis 7 is also approved and the findings reveal that technological orientation mediates the association between social capital and innovative performance (β= 0.205; t= 4.073; p<0.01).

3.3. Assessment of Variance Explained in the Endogenous Latent Variables

To evaluate the structural model in PLS-SEM, another x significant criterion is the value of R-squared which is also referred to as the coefficient of determination of endogenous latent constructs (Hair Jr, Sarstedt, Hopkins, & Kuppelwieser, 2014). The R-square value displays the variation in the dependent variable that is caused due to predictor variable (Elliott & Woodward, 2007). The acceptable R-square value is 0.10 (Hair et al., 2014). According to Table 6, the research model explains 87.3% concerning total variance in innovative performance. Similarly, 73.4% and 84.8% in the learning orientation and technological orientation respectively which is greater than 0.10.

Table 6: Variance Explained in the Endogenous Latent Variable

	R-Square	R-Square Adjusted
Innovative Performance	0.873	0.872
Learning Orientation	0.734	0.733
Technological Orientation	0.848	0.848

3.4. Assessment of Predictive Relevance

Estimation of predictive relevance is the other criterion for structural model extractions. Q-square value examines whether a model covers predictive relevance or not. Its value should be greater than zero which approves that our values are well-reestablished, moreover, the model has predictive relevance. Table 7 shows satisfactory fair relevance (0.673) for innovative performance, (0.443) for learning orientation, and (0.686) for technological orientation. These numbers indicate the high predictive relevance of the model.

Table 7: Construct Cross-Validated Redundancy (Predictive Relevance)

Total	SSO	SSE	Q^2 (=1-SSE/SSO)
Innovative Performance	7020.00	2294.42	0.673
Learning Orientation	4680.00	2608.61	0.443
Social Capital	14820.00	14820.00	
Technological Orientation	5460.00	1716.80	0.686

4. Discussion and Conclusion

This particular study aimed to test the effect of social capital (structural, relational and cognitive) on the innovation performance, along with examining the mediating effect of technological orientation and learning orientation. The social capital is found to have significant positive impact on innovation performance. Besides this, technological orientation and learning orienatation both mediates the relationship between social capital and innovation perforamance. The proposed study delivers significant contributions to SME managers/owners. By incorporating these contributions, managers/owners can upgrade and design strategies to enhance the innovative performance of the Software industry. SME owners can expedite the process of creativity by applying technological and learning-oriented strategies in the whole system of the firm. Social capital is granted as a valuable asset of the firm. Optimal utilization of the accessible resources is the requirement of the moment. This study endeavors to describe the contribution of (SC) to the innovation of the Software industry in Pakistan. It is already mentioned that in the last decade, the performance of SMEs is declining. Thus, there is an immense need of utilizing resources efficiently. This paper explains the contribution of (SC) to the improvement of innovative performance. Similarly, the participation of technology and learning orientation cannot be overlooked concerning innovative performance.

Three significant theoretical contributions are made by this study. First of all, this study individually examines the direct effect of social capital on innovation performance by following the assumptions of Social capital theory and thus availing the dynamic capabilities theory. Secondly, in the context of the Pakistani software sector, we next look at the direct, independent effects of technological orientation and learning orientation on innovation performance. The body of knowledge on the link between social capital and innovative performance is expanded by this study. Thirdly, by adhering to the tenets of Resource based theory, this study makes a significant addition by theorizing the integration of technology and learning orientation as a mediator for the relationship between social capital and innovation performance. To hypothesize the mediating effects of learning and technological orientation, the literature on strategic orientations and business environment in enhancing innovation performance is studied.

The study's conclusions have various managerial ramifications. First, software firms when undergoing technological shift or developing new products, need to give social capital specific consideration as it contributes in innovation performance. Second, there is a need to focus on each dimension of social capital as structural, relational and cognitive social capital have their diverse effect on innovation. Third, for the sake of enhancing innovation, firms should develop and maintain good relationships between all the stakeholders engaged in the business. Fourth, firms should enhance those technological and learning oriented strategies which are in accordance with the objectives of the fims. New ideas and strategies shoud be entertained. Lastly, a pleasant environment that provides learning opportunities and freedom of decision making is crucial in making business more innovative. Social capital is a crucial asset of the firm. It enhances the innovative capabilities of the firm by generating strong networks. These networks and relationships facilitate sharing of the necessary information. Social capital assists in building connections among the stakeholders so that they easily transfer confidential data which is required for innovative performance. The more stakeholders share a strong bond, the more they will feel at ease in sharing important information. So, it is the need of the hour to invest more in social capital by offering some career development opportunities, training programs, and skill enhancement techniques. Not only social capital but also strategic orientations (technological and learning) orientations are of foremost significance and can be taken as an important antecedent of innovative performance. The firm must allocate resources to Research and Development (R&D). The firm must give training and certain important education to the employees so that they must be able to use the new technology and new machinery. The introduction and commercialization of new technology will be fruitful if employees are willing and prone to use the new technology. Besides technological orientation, learning orientation contributes a lot to the innovative process of the firm. All the arrangements and endeavors will pay back if learning orientation is high. All stakeholders have the propensity to learn new things.

4.1. Limitation and Future Suggestions

For succeeding studies, the horizon of this research may be broadened in numerous means. This may be verified empirically. The qualitative approach could have provided better insights into social capital and innovation theories. The research model can be applied to some

other context and other sectors of (SMEs) performing different mechanisms e.g., servicing, trading, and manufacturing. Moreover, this can be implemented in some other countries. A thorough study of the literature review may highlight some more antecedents of innovative performance which should be examined. Most importantly other dimensions of strategic orientation must also be studied to see their impact on innovative performance. We chose cross-sectional research design while longitudinal approach could have generated better outcomes. To better understand the dynamics and determinants of innovation performance, future researchers might carry out qualitative research, choose a longitudinal research plan, apply non-probability sampling techniques, take into account other industries and adopt additional mediators and moderators.

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