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Can Information Technologies Affect Social Capital?

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Can Information Technologies affect social capital?

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Abstract. The ability of employees to interact and work together as a team is essential for the functioning and survival of organizations. Social capital, as a social network, has the propensity to enhance the quality of interactive relationships within organizations but physical interaction was defined as a crucial requirement for the development of generalized trust and other pro-social attitudes and behaviours. The introduction of IT (Information Technologies) change the way of information flow using innovative means of communication. The purpose of this paper is to examine the possible influence of IT on social capital. Through a qualitative approach, we collected data from a survey involving 63 employees, users of LinkedIn, working at banking and telecommunications companies in Italy. The findings show that IT can either support or hurt existing social capital within organizations and the variety of its influence depends on social network perspectives such as bonding, bridging, and linking social capital. IT develop and improve bonding social capital because the common backgrounds in IT capabilities perform to handle accordingly and for the right reasons the new information systems and means of communication. In contrast, IT hinder bridging and linking social capital because of weak trust, egocentric attitudes, perceived indifference to teamwork and fear of mistakes to interact online with a high-level member of the team. We discuss the theoretical and practical implications of this research and provide suggestions for future research.

Keywords: IT, social capital, social network perspective, team, banking and telecommunications companies.

1 Introduction

Recent research trends in Social sciences are focused to know about the factors, which can enhance or deteriorate human cooperation and collaboration. The ability of employees to work together as a team is essential for the functioning and survival of organizations [1], [2]. Without social interaction and exchange, employees could not work together [3]. Scholars have argued the importance of social capital highlighting that it enhances tacit and explicit knowledge-sharing intentions, influences the formation of values, increases the competitive advantage and affects the performance of organizations [3]–[11].

Despite the importance of the social capital concept, some studies have suggested the maturation or even the approaching decline of the concept based on their specific

field of research [12], [13]. The social capital has lost some consideration in some areas of research, although it continues to be perceived as the concept that is capable to provide answers to a range of phenomena beyond organizational studies, social sciences, business and management, and other academic literature. The concept is probably the best example of a sociological construct being shared with other areas of research and its continuing application as a considerable topic in social science research evidences its vitality [14]. According to [11], the first direct advantage of social capital is sharing information as it facilitates access to broader sources of information and improves information quality, relevance, and timeliness.

Therefore, [15] notified that Information Systems scholars were becoming increasingly interested in social network approaches after a relational perspective of the two independent fields of research: IT (Information Technologies) and social capital introduced by [16]. They globally highlighted the relationship and showed how social creativity could be supported by innovative computer applications. A recent study stipulated that the role of social capital in knowledge transfer effectiveness can be complemented by the high use of new information systems such as social media[17]. Thereafter, to develop the issues about the two fields, [18] proposed numerous directions for future research within information systems on networks and one of the suggested research questions consisted of how different IT-enabled capabilities are changing the structure and dynamics of networks within organizations. This study seeks to offer a response to this research direction. Moreover, future generations of collaborative systems that wish to improve social creativity can benefit from increased research on numerous aspects that affect social capital [16]. Then, various studies were conducted to examine what factors can influence the social capital. The rise of the internet was outlined to affect social interaction declining civic and social participation [19]. [20] analyzed the impact of online communities on social capital for older adults exploring that it is a catalyst for increasing social capital. Personality traits shapes also individuals' ability to create social capital [21]. Recently, [22] investigate the impact of media technologies on social capital, focused on a simple model of information and collective action. In general, technology has three relevant impacts on social interaction: facilitating, inviting and encouraging, as [23] identified in a literature review exploiting emergent research on this topic.

All cited factors have been demonstrated to have a possible influence on social capital in different sociological phenomena analyses. The relationship between social capital and IT use was explored by analyzing empirical data through students and it was shown that innovative information systems have different contexts involving different degrees of confidence in the network [24]. Lately, [25] assess the impact of information and communication technology on team social capital and project performance in the construction domain. Despite social capital being one of the most studied and debated topics within the study of new information systems [26], scholars have not paid attention to the possible influence of the new information systems on the social capital within high technology companies. This paper intends to fill in this gap in the literature.

The traditional way of communication needs physical interactions for exchange, meetings or social events. The exchanges of information centered on gathering or typical places where employees attended. Social capital theory, as it was developed in the 1990s, has early assumed that face-to-face interaction is a crucial requirement for the

development of generalized trust and other pro-social attitudes and behaviors [27]. Although, some studies suggest that despite the lack of face-to-face interaction, internet-based forms of communication and information flow can have strong social capital and networking effects [28]–[30]. The introduction of Internet use resulted in many digital pioneers viewing new information and communication technologies as a means to radically empower people through new global connections and extensive social capital [31]. The development of IT changed this way of information flow within organizations.

Since social capital is realized when people interact, how this interaction can be influenced without physical interactions? Why IT can influence social capital? This paper examines the possible influence of IT on social capital within high-technology organizations. We begin by developing a theoretical framework on IT and social networks before focusing on social capital from a network perspective. The qualitative methods used for the empirical investigation will then be described in the next section, followed by a presentation of the results. Finally, we will discuss the theoretical and practical implications of the findings and conclude the study.

2 Theoretical background

2.1 IT and social networks

Starting in the 1960s, employees started to install machine-machine data transfers to send each other messages and communication quickly crossed organizational boundaries, from the proliferation of electronic mail in the 1980s to its expansion into the Internet in the 1990s based on e-mail and Web [32]. [33] introduced some studies about social networks and its relationship with the development of IT. Any technology can become social networks when they connect people and provide access to information and social support within organizations or else. [34] distinguished between two types of the use of IT resources: internally oriented or externally oriented. This paper focuses on internally developed IT, based on the use of IT systems, to process the information on the internal operations of companies [35].

The introduction of IT changes organizations and employees need to learn to adapt to the change by accentuating their understanding of the new standards and procedures of IT systems. IT support new forms of interaction of teams involving the use of social software and are essential to support the coordination of teams [36]. Social networks may prove more effective in transmitting consistent information about the IT-induced change [37]. The social network has observable patterns of interaction and communication among people, groups and organizations and each employee represents a node in the network connections or ties among nodes vary widely technical: intensity, duration, and distance. [18] reviewed reasons for the increased interest in network analyses and information research in organization studies and observed the dramatic growth and change in the area of social networks based on information systems. IT tools need to be embedded in the social networks in order to influence knowledge-sharing supported information systems [38].

The significance of social networks is accentuated because of its proliferation and joint effect on organizational behaviour [39]. The social network analysis consists of

an approach that views society as a system of social actors: individuals, groups and organizations represented as a node and linked by several relationships [33], [40]. Some analysis reside in studying the presence or absence of the relationships between social actors as the social network analysis include a strategy for investigating social structures [41]–[43].

Therefore, the social networks were empirically demonstrated to help employees to adapt to the new technology [37], [44]. However, [45] found that it is important to have some grounding in what social capital is, and how social capital in presence of IT (online social capital) is both similar and different from it. In both directions, they involve social networks, but online social capital has the added dimension of residing within the structural ecosystem of digital networks. The digital networks upon whichever more social interaction occurs manifest a completely new host of opportunities and problems that are unique to the nature of online interaction. He added that online social capital is a product of online exchanges that may or may not be correlated with a perception of an online user's value in digital networks within organizations.

2.2 Social capital from a network perspective

Social capital has its origins in social interactions between actors belonging to an identified group. The notion of actors group is also studied in the network perspective theory. [45] distinguished two senses of networks: networks as structural (digital network architecture) and networks as social (human interaction, group dynamics, and social media computer-mediated communication). This study points to the second meaning of networks and considers that social network represents a potential reservoir for the deployment of digitized social capital [17].

The network approach takes into account the positive and negative outcomes that social capital can generate [46], being two very related concepts. With social capital, people share information, trust, and norms of reciprocity inhering in one's social network [47]. [11] noted that social capital constitutes the goodwill available to individuals and groups and its origin comes from the structure and content of the social relations of the actors. Its effect manifests itself in the form of information, influence and solidarity that accrue from individuals to organisations. [48] sustains that social capital consists of shared values, norms, and trust that produce mutual benefits, and facilitate coordination and cooperation when [49] considers it as the value that an individual can derive from social relations. Trust is an important aspect of a strong organizational network and firms looking to build and maintain strong relationships tend to be efficient and effective in their cooperative efforts with strategic collaborators, which increases the likelihood of successful interactions [50], [51]. According to [52], social capital consists of the resources embedded in a social network and represents the assets available in the network.

Therefore, the concept of network and the degree to which individuals in a community share common norms intend to link the scholar's definition of the social capital concept [53], even if social capital is expressed by its function [3]. Given the vastly different of social capital definitions, scholars have recently tended to default to expressions of homogeneity and conversely diversity [53]. Then, the network perspective seeks to characterize the homogeneity and heterogeneity of employees focusing on the

interactions between individuals within a team, teams within an organization and allowing a meaningful description and understanding of the activities of the organization [54].

[55] was the first to formalize the nature of relationship strength in social networks discussing that social networks consist of relationships ranging from very weak in strength to very strong ties. The weak and strong tie relationships afford access to different kinds of resources [56], [57] as the strength of weak ties lies in their capacity to connect people to novel information and resources that reside in and propagate across networks [58]. The nature of the relationships in social groups is expressed by the difference between bonding and bridging social capital although both bonding and bridging social capital are directly related to an individual's ability to understand the support and resources of others [20]. The concepts of bonding and bridging social capital are associated with the network theories of structural holes and network closure [11]. Lately, [25] found that the mediating effect of bonding is stronger than that of bridging social capital on project performance in the construction domain.

In one side, bonding social capital is described as the strong relationships that develop between employees of similar backgrounds, provide material and emotional support and have inward-looking reinforcing exclusive identities and promoting homogeneity [59]. It refers to networks with a high density of like-minded individuals and relationships between members, where most, if not all, individuals belonging to the network are interconnected because they know each other and interact frequently with each other [60].

In general, scholars tended to investigate the disadvantage of the strong ties and homogeneity of members in bonding views. The bonding social capital restricts the inflow of new information and ideas and it was discussed that as bonding social capital increases, the network will become more insulated as an information-processing unit [61] because the strong ties have an emotional rather than informational quality for the members of the network [60]. This type of social capital creates a dependency-oriented culture, leads to low network mobility, and inhibits the creation of new connections. Information flows beyond the focal network are restricted, failing to see networking [62].

However, [63] argued that, in an online social network experiment, when behaviours require social reinforcement, a network with more clustering may be more advantageous, even if the network as a whole has a larger diameter. The individuals with bonding social capital have little diversity in their backgrounds but have stronger personal connections and their continued reciprocity provides strong emotional and substantive support and enables mobilization [64]. In this context, with suitable structures and networks where people share ideas and goals, social exchanges are also developed, homogenizing the members' preferences, knowledge, attitudes and behaviour and strengthening the individual's bonds to group identity [65].

In other side, bridging social capital occurs when individuals from different backgrounds make connections between social networks, represent outward-looking promoting links between diverse individuals and have contact with a broader range of people with different backgrounds [59], [64]. It can describe social relationships of exchange, within organizations, between employees with shared goals but contrasting social identities due to heterogonous vertical ties. The bridging social capital is inclusive

and occurs through the formation of rather weak ties between people from different networks [60].

Scholars usually demonstrate the benefits of this kind of social capital in a network. The advantages of bridging structural holes emerge from an individual generating constituency for new ideas synthesized from the diverse information clusters to which a network has access [49]. The bridging views are far-reaching and can include an increased ability to gather information, the ability to gain access to power or better placement within the network, or the ability to better recognize new opportunities [11]. Weak ties provide access to direct vital information despite the trusted weak ties [66], where actors communicate infrequently and may not be equal in terms of emotional closeness and interest [67]. These boundaries tend to involve the increase of tolerance and acceptance of different people, values, and beliefs through contact with diverse others [26], [68]. Then, the bridging views allow heterogeneous members within groups to share and exchange information, ideas and innovation and build consensus among the groups representing different interests [69].

Although the bridging form of social capital functions supports social lubricant and the potential to work as a social advantage providing mutual support, it is mostly inclusive and consists of attenuated trust in the light and ever-changing networks [65]. This interpersonal trust plays different roles in exchange performance [70], [71] relating to technology success within organizations[50]. Whilst trust amongst team members helps reduce uncertainty in interpersonal interactions, a lack of trust hinders effective team coordination and collaboration [72].

Apart from bonding and bridging social capital, other researchers were adding the concept of linking social capital to describe relationships among employees at different levels of the societal power hierarchy. Linking social capital differs from bridging social capital because the power differences between employees are a conscious part of the relationship [69]. It refers to an alliance with sympathetic individuals in positions of power [46]. In theory, linking social capital derived from bridging social capital and their dissimilarity appears in the power differences between members of the team as a conscious part of the relationship [11], [59]. The linking social capital allows unifying two approaches: one that considers only horizontal social relations and another that covers power relations.

3 Methodology

We used qualitative research methods due to its appropriate approach when the aim is to explore new phenomena and find settings that are not examined in the existing literature[73]. As we discussed in the previous sections, the literature correlating the IT and social capital has not focused on the possible impact of the new information systems on the interaction of employees at specific companies with in-depth use of IT.

We adopted a survey strategy to understand how and why IT could influence social capital. The purpose is not to provide a solutions list of the possible influence of the new technologies in social capital but to show and explain the possible impact of the information systems on the interaction of employees in banking and telecommunication

companies. The case studies of banking and telecommunication companies were undertaken because they allow for a deeper understanding of the phenomenon and in-depth examination of the problems, and it seems appropriate when 'how' or 'why' are asked as research questions about a contemporary set of events [74]. This approach is corresponding to theory elaboration [75], [76], which refers to the process of conceptualising and executing empirical studies by application of pre-existing conceptual ideas or antecedent studies as a basis for generating new theoretical insights.

Furthermore, existing measures of social capital are subject to criticism and successful assessment is difficult [53], [77]. Until now, there is neither a consensus measurement method for social capital nor a single underlying indicator commonly accepted by the literature [77], [78]. However, the social care evidence base reveals a distinct preference for qualitative methods covering a broad range of social care topics [79]. According to [80], social capital is a generic concept that includes multiform dimensions of human relationships and no significant number or set of numbers can measure this context. He suggested that qualitative methods tend to be suitable and create the best results for the social capital research context because it allows for the understanding of human relationship processes and the emergence of a rich picture. Then, we choose the qualitative research method to interpret and explain the issues of context, circumstances and conditions under which the social capital was influenced.

3.1 Samples

The data were collected from a purposive sample of 63 employees working at banking and telecommunications companies in Italy. We selected the two sectors of companies because various scholars have indicated the adoption of highly IT-intensive in these sectors [81], [82] and they need IT to coordinate enormous volumes of information [83]. In addition, the acquisition and the treatment of information is a central activity in banking and the impact of process innovation in IT is likely to have major importance than in other companies [84].

3.2 Data collection

Open and closed-ended survey questions were sent via LinkedIn Inmail and administered from 3 April to 12 May 2022. The sample frame started with over 81 users on LinkedIn and 63 users have responded. Each contacted user was solicited to invite their work colleagues to participate in the survey by answering to the questionnaire in a link. Data collection efforts were focused on inviting participants to answer the questionnaire about daily interactions of employees inside teamwork, social interactions between them using IT tools when they accomplished transmission of any information and when they assist difficulty inside the organization. The survey solicits also to indicate demographic information about the respondents such as gender, age, education level, and work experience. We describe the sample profiles of respondents in a table in appendix 1. Two-thirds of respondents were male LinkedIn users. All participants have between 36 to 54 years old and had acquired more than three years of work experience at the actual companies where they work. One-third of participants have not master's degree.

3.3 Data analysis

After the data collection, we used grounded theory to analyse the accumulated qualitative data [73], [85]. The original questionnaire is in the Italian language, traduced and reported in the English language in appendix 2. According to [75], [76], the theory elaboration approach concepts concerning IT and social capital were consecutively generated and comprised into the analysis following some studies such as [7], [16], [18]. We create and assign three codes to transform collected data into a set of meaningful phenomenon, proceeding in three stages.

We initiated open coding to group all responses to the survey into meaningful categories. Open coding was conducted to define different codes relating to the type of social network perspectives developed in each response and capture how employees interact with online communications through email or other software, transmitting messages using other IT tools requiring access to the internet and specifically when they involved in engagement with IT systems.

Thereafter, we attempted axial coding to accumulate the procedures into next level categories, through inductive analyses, based on whether the practices included the syntactic, semantic or pragmatic boundaries [76]. For example, we applied axial coding to relate the interpretation of questions regarding the state of the reasons behind their answers because these actions compassed syntactic boundaries. Participants were asked to describe the social interactions between them using IT tools when they accomplished transmission of any information inside the organization or when they experienced a challenge such as a pressing deadline of an operation, misalignment of actions in coordination, and then to explain how they interact to solve the problems. This kind of challenge events emerged latent social capital problems, thus facilitating the identification of IT practices impact that would have been unexposed in collaborative work during daily social interactions. Thereafter, we begin to organize the codes that we developed in open coding and then draw connections of responses detailing the impact of IT for each code.

Finally, we used selective coding. We examined the influence of IT systems on the existing social network perspective considering that team members exchanged and seek to achieve the outcomes of the organization, at the core of a constantly evolving social and industrial network. We accomplished selective coding by iteratively categorising the responses to the questionnaire into meaningful interpretations. The data analysis approach is in line with [73] technical recommendations for case analysis. We traduced all responses in the English language to analyse and show the results.

4 Findings

IT can either strengthen or decrease an organization's current social capital within banking and telecommunications companies.

Thirty-nine respondents described the members of their team as homogeneous. Within homogeneous teams, IT build and enhance the social capital because of the strong ties, which reinforce the online social interactions. By being active in one of the adopted IT systems within organizations, employees can be more prone and productive

in the field of cooperation with their colleagues. The speed of information flow promotes social capital regardless of all employees' physical presence. Moreover, when an organization needs to share rapidly information, reports, piece of news and advice to all others or some of the employees of a specific team, the IT tools make it possible. Thus, the information is shared in parallel and it conforms to social networks, trust and values within the organization itself. The IT systems promote the social capital when a working team shared common skills and backgrounds because all employees can handle the new information systems and means of communication accordingly and for the right reasons. With strong enough common IT capabilities, they are allowed to carry out the information flow and develop productive online social interactions.

Other twenty-four respondents defined the heterogeneous member's views in team social capital. The social capital was influenced negatively because IT systems make employees feel less social, sharing and caring towards other employees inside the organization. It is expressed with weak trust, egocentric attitude and perceived indifference or exclusion. A serious misjudgement or misunderstanding can undermine long periods of trust building, destroying teamwork or even the reputation of the organization. The effect of IT on social capital occurs through the result of how communication is interpreted. For example, an employee sent an electronic mail well-intentioned but interpreted as negative because of the missing physical expression in online interactions. This misunderstanding appears when the employees have different backgrounds and the only aspect in common consists of teamwork goals.

In fact, many employees happen to fail to choose the right vocabulary and to transform accurately their emotional empathy and feelings into words. In addition, the online expression of various sentiments or certain kinds of information that are usually communicated in presence can be simply misinterpreted and the information tends to be neglected. This lack of online communication skills can result in an uncomfortable relationship amongst the organizational actors, and their social capital is generally affected once any reaction demeans the feelings of goodwill in networks. Some employees are also not utterly competent to engage in meaningful social connections by using the new information systems. As a result, various employees tend to restrain the widespread use of online interactions. They, therefore, use digital communication mainly because of a certain fear of rejection by the team, and this hesitation ended up creating obstacles to full engagement in social online interactions. In this case, the difficulties in the application of IT tools and language have some kind of influence on the understanding of the different non-written cultural and social shared rules, and eventually, affect the fundamental personal confidence and values needed for some employees to be fully participative within the organization.

Generally, almost all respondents outlined that the organization itself experiences uncertainty through a lack of proper education about the social norms and etiquette associated with IT systems. It happened particularly within the staff hierarchy. For example, in the past, adopting traditional communication it was usual, for the aim of different level staff in a team, to go for an informal coffee together discussing all sorts of topics. The human interaction results of this kind of approach are far more difficult to accomplish in online social interactions. The employees may eventually feel some degree of confusion as far as correct ways of mutual interactions are concerned and in which way or what kind of information are acceptable or not truly appropriate to be shared with others. Therefore, this fear of mistakes obstructs social comfort. There are

missing establishment of guidelines and limitations correlated to the existing new means of communication.

5 Discussion and limitations

The network perspectives (bonding, bridging and linking social capital) provide several insights into social capital and its outcomes within teams, between teams, and inside organizations. These network classifications show the different influence of IT on team social capital and their social interactions. As evident previously in theoretical background, scholars tend to highlight that bonding social capital evidence almost the negative outcomes of any factor into social capital [59]–[62], [69] as the strong ties have an emotional rather than informational quality for the members of the network. However, other scholars demonstrated that with stronger personal connections where people share ideas and goals, their continued reciprocity provides enables developed social exchanges [63]–[65]. The findings of this research show that IT develop and improve existing bonding social capital because the common backgrounds in IT capabilities perform to handle accordingly and for the right reasons the new information systems and means of communication. The strong ties empower the online social comfort and promote their continuing collaboration and cooperation despite the changing way of communication as [31] highlighted. Then, this research is in line with the scholars who demonstrated the possible positive aspects of bonding views in teamwork.

In the case of bridging social capital, scholars usually investigate the advantage of heterogeneous members' views in team social capital evidencing the diverse information clusters to which a network has access [11], [26], [49], [66]–[69]. They suggested that bridging views support social lubricant and the potential to work as a social advantage providing mutual support. However, the findings of this study show that IT hinder bridging social capital because of weak trust, egocentric attitude, and perceived indifference to teamwork. Social capital can be detracted much more easily and rapidly from any antisocial action. Therefore, the findings contrast with the previous literature on bridging social capital benefits because the weak ties of employees occur in the presence of misjudgement or misunderstanding in online interaction. It is rather in line with [72] as the strong trust amongst team members helps reduce misunderstanding and uncertainty in social interactions and weak ties hinder effective teamwork. This research agrees with the scholar's studies investigating the role of trust in the coordination and collaboration of employees within a team or organization such as [65], [70], [71]. Thus, it developed that trust represents an indicator of relational IT capability and indicates that a successful relationship has formed with a product of reliance, collaboration, and problem-solving among teamwork for mutual benefit [50]. This situation evidences also that social capital can have negative aspects, especially in groups of social networks that propagate hatred and deprivation [45].

The linking social capital, as it is almost similar to bridging social capital, shows the negative impact of IT on social teamwork. The power differences between members of the team represent the difference between bridging and linking forms of social capital [11], [59], [69]. This different power respectively to the employee staff did not permit all team members to interact without fear of mistakes. The new information systems

limit the open arguments among different staff. Then, managers should select different project team members to balance bonding, bridging and linking social capital [25].

This research provides an in-depth qualitative perspective of the mechanisms by which efficacy and outcome expectations of social capital are influenced by IT. We acknowledge that the social capital concept is, however, grounded in a long tradition of quantitative research by using measurement through Likert scales; for example [58], [66], [77], [81] especially to measure the social ties of people in a community. Likewise, scholars usually adopted quantitative methods to analyse the impact of IT on a phenomenon [86]. Although we have developed a qualitative analysis to show meaningful findings, it may be necessary to use well-established quantitative measures to investigate the same research objectives. In addition, more detailed insights into the development of the network perspectives could be gained through additional qualitative methods, in particular, through ethnographic research of collaborative IT development that captures the thoughts and feelings of respondents at regular intervals and after critical change due to the introduction of new information systems.

6 Conclusion

In this paper, we examined the possible impact of IT on social capital within banking and telecommunications companies in Italy. We considered the social network perspectives: bonding, bridging and linking social capital, in order to create a visual picture of how IT influence social capital by drawing the connections between employees and the characteristics of these connections. When team members have bonding views, IT point to improve the information flow and online social interactions. In contrast, when the team members have bridging views and work together only because of common goals, IT tend to hinder the full information flow and the collaboration in the team. In the cases of linking social capital, the positive or negative effect of IT in social capital depends on the establishment of meaningful guidelines to describe the social norms associated with the IT systems within the hierarchy of organizations. From a theoretical perspective, this study shows how social capital is important for organizations, and, at the same time, the introduction of new information systems can change the role of the team's social capital, and even its role in the performance of organizations. The findings of this study also highlight how information flow success is not only a consequence of the adoption of IT effort but also because of efficient social capital. Then, managers should pay attention to understanding how to select members of any team in order to balance bonding or bridging social capital. How companies operate introducing IT, is an interesting topic for future studies and we need studies focusing on social capital as a mediating factor in the relationship between IT and organizational performance. We acknowledged that numerous scholars have studied the indirect relationship between IT and organizational performance and this study shows the influence of IT on the interaction of organizational actors; social capital could be an important construct to mediate the two fields. As we determined the limitations of this study in the precedent section, future research could take several directions in terms of methodology. Several research used quantitative data to measure the IT field and social capital construct and then, we would encourage other scholars to investigate the phenomenon with quantita-

tive methods. In qualitative studies, exploring a similar study through focus group interviews would also be interesting. Moreover, future research should investigate the paradox of bonding, bridging and linking social capital outcomes in relation to innovative information systems. It could be important to capture when bonding, bridging or linking social capital developed positive or negative results from any factor. In addition, future research could consider the team's culture as a moderator/mediator factor in the relationship between IT and social capital. While some companies may implement ground rules for their online communications, others may have no restrictions on online interactions. Therefore, the organization's culture could have a broad impact on the IT and social capital. As employees may behave differently with remote interactions and companies may have contrasting outcomes from IT, scholars need to compare the impact of IT on social capital at numerous companies in which the use of information systems lies distinctive intensive. Overall, the relationship between IT and social capital, which should grow in importance, could provide numerous avenues for future research.

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APPENDIX 1

Table 1. Sample profiles

	Gender	Age	Level of education	Experiences
Male	42			
Female	21			
[36-40]		11		
[41-50]		35		
[50-54]		17		
High school diploma			06	
Bachelor’s degree			15	
Master’s degree			35	
Postgraduate			07	
[3-10]				31
[10-20]				25
>20				7

APPENDIX 2

QUESTIONNAIRE

1. Please indicate your gender
- Female
- Male

2. We invite you to write your age

3. Please indicate your level of education
- High school diploma
- Bachelor’s degree
- Master's degree
- Postgraduate

4. We invite you to indicate how many years of experience did you carry out at the company where you currently work.

5. Compared to the traditional means of communication where physical interaction between employees was necessary, do members of your team or organization communicate more or less during their daily work using information technologies? Please justify your answer.

6. In your teamwork, is there a feeling of unity and cohesion?

7. Thinking about the members of your teamwork, do you have the same background or level of education or other factors in common? Describes the factor in common.

8. Do employees interact in teamwork only because of similar organizational goals? Please state the reasons behind your answer.

9. Do you have confidence in the ability of employees to do their jobs using online social interaction with other team members? Please state the reasons behind your answer.

10. Is there a guideline for different levels of hierarchy about how all employees should use the new information systems introduced within the organization? If yes, please state a resume of the guideline. If no, please describe how the employees interact without guidelines.

11. Did employees interact positively and profitably with IT tools such as email, Microsoft Teams, WebEx or other software? Please disclaim the reasons behind your answer.

12. Suppose some difficulties or challenges, such as a tight deadline for an operation or misalignment of actions within the overall organization, have occurred within the team or organization. How would all affected employees interact to solve it using IT as means of interaction and data transmission?