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# Stand by Me: The Quality of Intra-Organizational Relationships as Antecedent of IT Adoption

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# STAND BY ME: THE QUALITY OF INTRA-ORGANIZATIONAL RELATIONSHIPS AS ANTECEDENT OF IT ADOPTION

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## Abstract

*In this paper we analyze how the quality of relationships among individuals affects the users' adoption of technology. Departing from the existing literature, the theoretical model of this paper argues that users develop their beliefs toward a new technology on the basis of the quality of their relationship with peers, supervisor and the organization as a whole. We examine the effect of these variables through a quantitative analysis of a dataset collected on 109 call center operators organized in teams. General Linear Model results confirm the significant impact of the described variables on beliefs about technology. In particular, results point out that perceived usefulness is positively related to the quality of the relationship between individuals and team leaders, and individuals and the organization; while, ease of use is positively influenced by user-organization and user-team relationships.*

*Keywords: technology adoption, users' beliefs, quality of relationships.*

# STAND BY ME: THE QUALITY OF INTRA-ORGANIZATIONAL RELATIONSHIPS AS ANTECEDENT OF IT ADOPTION

## 1 INTRODUCTION

A common risk related to the introduction of a new technology can be traced back to the concept of productivity paradox (Sichel, 1997). In fact, despite IT investments are a potential device to increase productivity, the unwillingness of users to adopt the technology can threaten the returns on these investments. According to Agarwal et al. (2000), users' adoption is a critical issue in IS field because the strategic value of IT investments can be reached when users accept the new system and use it coherently with the organizational goals.

A burgeoning number of studies attempted to predict users' behaviours toward technology adopting different perspectives (Davis et al., 1989; Venkatesh and Davis, 2000; Davis et al. 1992; Taylor and Todd, 1995; Thompson et al., 1991; Moore and Benbasat, 1991; Compeau and Higgins, 1995; Venkatesh et al. 2003 for a literature review). Many of these investigations point out that intra-organizational factors are core concepts affecting users' behaviour. For example, Leonard-Barton (1987) explored the role of training; Lewis et al. (2003) pointed out the importance of top management commitment; others (Taylor and Todd, 1995; Venkatesh and Davis, 2000) have shown the significance of social norms.

Whereas previous research highlights the importance of intra-organizational factors determined by expectations among user and other organizational actors, they don't analyze the quality of the relationship among individuals and the organization. In fact, in previous models, "behaviours are explicitly or implicitly driven by the way in which users believe others will view them as a result of having used the technology" (Venkatesh et al, 2003). Besides this instrumental view, technology acceptance can be also traced back to the quality of relationship among users and other organizational actors. In fact, relationships are seen as a critical determinant of individual actions in organizations, affecting the connection between objective characteristic of a definite organizational situation and individuals' behaviours (Brief and Weiss, 2002). The critical role of IT and the lack of studies concerning the quality of relationships in IT adoption field, reveal the need for further work. For this reason, we consider the influence of intra-organizational factors on IT acceptance as one important aspect of users' adoption of technology, which is ultimately influenced by the quality of the relationship among individuals and organizational entities at different levels.

In particular the present study addresses the following questions: Why and how the quality of the relationship dimension is connected to individual acceptance of technology? How strong this liaison is? What are its implications in IT implementation processes, in order to maximize the effectiveness of IT investments?

The remainder of this paper is structured as follows. The next two sections describe the theoretical framework and the development of research hypotheses. Next we will focus on methodology, considering the study context, operationalization of variables and analysis of collected data. The final chapter provides discussion of findings and concluding remarks. Implication for research and practice are also provided.

## 2 THEORETICAL FRAMEWORK

### 2.1 Quality of relationships

Many theoretical and empirical studies suggest that the quality of relationships between employee and organization affect individuals' behaviour (Bolino et al, 2002).

Relationships among individual and organizational entities can be categorized on the basis of the level at which the relationship occurs. In fact, individuals interact with their peers, with their supervisor and with the institution as a whole. The quality of the relationship among individuals and different organizational actors can be captured analyzing different behaviours or psychological states manifested by an individual (Wayne et al., 1997). In particular, according with the extant literature, the quality of relationship among individual and other team members can be traced back to the construct of team identification (Brown, 2000). With reference to the quality of relationship between individual and supervisor, many researches adopt the Leader-Member Exchange construct (Sparrowe and Liden, 1997). Consistently with theoretical and empirical studies, we adopt perceived organizational support (Rhoades and Eisenberger, 2002) and affective commitment (Herscovitch and Meyer, 2002) to investigate the quality of relationship between individual and the organization as a whole.

### 2.2 Users' adoption of technology

The user adoption of technology can be traced back to the users' beliefs toward IT. In fact, many studies consider beliefs as crucial predictor for successful IS introduction (Agarwal and Prasad, 1999; Venkatesh and Davis, 1996; Agarwal and Karahanna, 2000). Beliefs represent the "cognitive structures that an individual develops after collecting, processing and synthesizing information about an information technology" (Agarwal, 2000). Since theoretical and empirical research recognizes that perceived usefulness and ease of use are the two key beliefs affecting users' behaviour toward technology (Lewis et al, 2003), we adopt these two constructs as dependent variables of the present study.

Figure 1 presents the theoretical framework and shows the relationship among perceived usefulness, ease of use, and quality of exchange constructs.

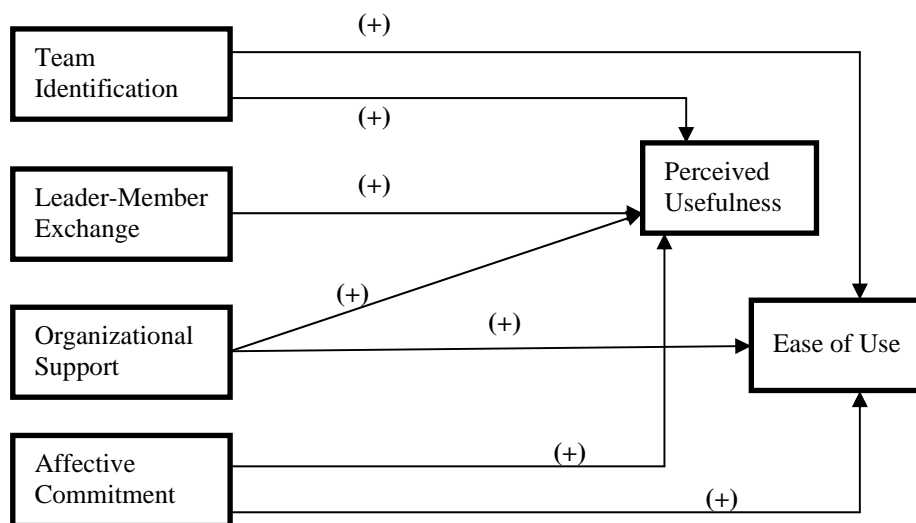


Figure 1: theoretical model

### **3 CONSTRUCTS AND HYPOTHESES**

#### **3.1 Perceived usefulness and ease of use**

The notion of belief is derived from the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975). In the IS field, one of the key models which adopts the TRA approach to explain users' acceptance is TAM (Technology Acceptance Model; Davis, 1989). Since the empirical robustness demonstrated by TAM, many researches use beliefs to investigate the usage intention (Venkatesh and Davis, 2000) and use of technology (Moore and Benbasat, 1991). However, few studies focus on the antecedent of beliefs (Lewis et al., 2003; Igbaria et al. 1997).

The two beliefs adopted in this study represent the dominant constructs in IS acceptance literature. In particular, the concept of perceived usefulness and ease of use are defined by Davis (1989). Perceived usefulness is considered as "the degree to which a person believes that using a particular system would enhance his or her job performance". Perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort". For example, ease of use reflects the capacity with which the individual is able to interact with a particular software artefact. It is well established that "individuals are more likely to interact with a new technology if they perceive that a relatively little effort is needed to interact with it" (Agarwal, 2000). According with previous research, we argue that if users perceive a technology easy to use and effective to enhance their job performance, they will manifest a positive behaviour toward the technology.

#### **3.2 Team identification**

Identification is the process through which individuals perceive themselves to be the member of the same social category (Tajfel, 1982). Many studies point out that behaviours can be seen as causally dependent on the functioning of such shared social identification (Turner, 1982). In particular, some scholars argue that a lack of group identity has negative effect on information sharing (Nahapiet and Ghoshal, 1998). Moreover, identification acts as a motivator to combine and exchange knowledge (Nahapiet and Ghoshal, 1998). Others, point out that communication and cooperation among members are positively associated with the level of group identification (Campion et al., 1996). Consistently with these results, Kramer et al. (1996) underline that identification with a group enhances collective outcome. In contrast, groups which have distinct and contradictory identities, manifest significant barriers to information sharing, learning and knowledge creation (Child and Rodrigues, 1996).

We argue that in the process of introducing a new technology, the exchange of information among individuals is a key concept for the acceptance of technology. Because team identification increases the quality of information flow among members, we propose that individuals easily exchange information concerning how to use a technology if they feel a sense of belonging to the group. The share of information concerning the new system enhances members to improve their knowledge and to diminish their negative behaviour toward the new technology. Thus,

*H1: perceived ease of use is positively related to team identification*

*H2: perceived usefulness is positively related to team identification*

#### **3.3 Leader member exchange**

The concept of leader member exchange (LMX) is derived from social exchange theories (Sparrowe and Liden, 1997) and it suggests that a relationship evolves between supervisor and subordinate in the organizational context (Graen and Cashman, 1975).

Some researches consider LMX as a purely contractual exchange based on formal reporting relationship between employee and supervisor (Cashman et al, 1976). However, other studies identify

LMX as a multidimensional concept, considering both the contractual and the informal social exchange (Dienesch and Liden, 1986, Sparrowe and Liden, 1997). The presence of an informal relationship contributes to the achievement of task-related goals (Ibarra, 1992). Adopting a broad definition of LMX (Sparrowe and Liden, 1997), we argue that the quality of the relationship affects both leader's and member's behaviours. Moreover, many researches suggest that a high quality of relationship addresses individuals to be more comfortable with uncertainty, less resistant to change, and more flexible (Krackhardt, 1992; Leana and Van Buren, 1999).

Throughout the introduction of a new technology, users' resistance to change represents one of the key factors of IT project failure (Sharma and Yetton, 2003). Since individuals who present a high level of LMX are less resistant to change, we argue that high level of LMX can enhance the individual's acceptance of a new technology. In particular, we propose that a good quality of relationship helps the leader to transmit the benefits derived from the adoption of the new technology. Formally,

*H3: perceived usefulness is positively related to Leader Member Exchange*

### **3.4 Organizational support**

The concept of perceived organizational support (POS) can be traced back to the "employees' perception concerning the extent to which the organization cares about their well being" (Eisenberger et al., 1986). The importance of POS concerns the behavioural outcome that can be achieved by individuals in the organizational context. In fact, previous research points out that employees with high level of POS reveal behaviours that are congruent with the organizational goals, generating a virtuous exchange process between organization and employee (Eisenberger et al. 1986). Other studies investigate the effect of POS on performance. For example, George et al. (1993) suggest that POS is positively related to employees' effort and outcome. In particular, employees with high level of POS perceive that the organization recognizes their effort to carry out the job effectively. The positive effect of POS is even more important in stressful situation because it helps to decrease employees' general level of stress (Viswesvaran et al., 1999), and it reduces adverse psychological reaction to a difficult situation (George et al., 1993; Robblee, 1998). Hence, the POS constitutes an important benefit both for employees and organization. On one hand the organization gains productivity and performance results, on the other hand individuals manifest a positive mood toward a certain situation (Rhoades and Eisenberger, 2002).

The introduction of a new technology can be considered a source of increased stress for employees (Korunka et al. 1997), who are required to change and adapt to a new situation, maintaining high level of performance. Nevertheless, since the presence of high level of POS can contribute to decrease the level of aversive reaction, we argue that the users' feeling to be supported and aided by the organization during the adoption of a new technology enhance they perception of usefulness and ease of use. Formally,

*H4: perceived ease of use is positively related to perceived organizational support*

*H5: perceived usefulness is positively related to perceived organizational support*

### **3.5 Affective commitment**

The first conceptualization of commitment refers to "a psychological state that increases the likelihood that an employee will maintain membership in an organization" (Meyer and Allen, 1991). Many researches investigate the behavioural consequences of commitment going beyond the traditional consequence of retention. For example Becker et al. (1996) point out that commitment is positively related to job performance, while Kuehn et al. (2002) suggest that commitment positively affect organizational citizenship behaviours. Moreover, it is possible to define three different kinds of commitment: affective commitment (desire to remain), continuance commitment (perceived cost of leaving), and normative commitment (perceived obligation to remain). In particular, previous research

highlights that affective commitment is related to cooperation and championing behaviours (Herscovitch and Meyer, 2002). In fact, affective and normative commitment enhance the willingness to work cooperatively with others, and improve the effort to achieve a change. Therefore, affective commitment is considered one of the most important factors involved in employees' support for change initiatives (Armenakis et al., 1999; Coetsee, 1999). For example Klein and Sorra (1996) have studied the influence of commitment in innovation implementation. Similarly Armenakis et al (1999) argue that commitment plays a key role in the study of organization readiness for change.

Since the implementation of a new technology could represent an important change within the organization, we argue that the affective commitment is positively related to user acceptance of technology. In particular, because individuals with high level of affective commitment tend to exert extra effort to change, we suggest that they exert more effort to understand the aim of the new technology and they exert more effort to understand its use. Thus,

*H6: perceived ease of use is positively related to affective commitment*

*H7: perceived usefulness is positively related to affective commitment*

## **4 METHODS**

### **4.1 Sample**

The hypotheses described above have been tested during the adoption process of a CRM (Customer Relationship Management) technology by call center operators in one of the major Italian TLC (telecommunication) firms. The technology analyzed concerns the main system which allows operators to interact with the customer using both voice and PC. In the examined organization, call center operators are organized in teams and each team has a team-leader who doesn't interact directly with customers, but is responsible to coordinate the members and to interface with the middle management.

The call-handling process can be synthesized as follows: when the customer calls, the call is switched to the first idle operator. As soon as the operator receives the call, on his/her pc monitor appears personal and contractual data of the customer. The operator has to absolve the need of the customer (efficacy) as soon as possible (effectiveness). In order to support the operators, the system includes also an intranet with a complex search engine which allows the operator to find the required information. Because all the process is mediated by the PC, it is fundamental that operators can manage the system in the best way. If the operator can interact effectively with the system, he/she will be able to concentrate the effort on the satisfaction of customer need, rather than on the use of the system. Therefore, the examined setting represents a sample which fits with the importance of users' beliefs toward technology.

A total of 109 operators have been involved in the study and received a paper copy of the questionnaire in an envelope with the brand of the university. They have been told that the study concerned the organizational factors affecting the user beliefs toward a technology. They have been asked to fill the questionnaire and send it back in the envelope. Of the 109 questionnaires distributed, 98 responses have been returned, 91 of which presented completed responses for a majority of the constructs. Hence, this set comprised the final set used for data analysis, yielding an effective response rate of 83%.

### **4.2 Measures**

Data have been gathered through individual data collection sessions using a fully standardized questionnaire (seven-point answer scale). The scales used in the questionnaire were validated in prior research studies. The measures related to perceived usefulness and ease of use were derived from

Venkatesh and Davis (2000). Team identification was adapted from (Van Der Vegt et al, 2003); while leader-member exchange scale was developed following Scandura and Graen (1984). Affective commitment was derived from (Meyer and Allen, 1990), and perceived organizational support was derived from Wayne et al. (1997).

### 4.3 Analysis

Table 1 reports means, standard deviations, correlations among the variables, and cronbach alpha coefficients. Before testing the theoretical model, the items comprising all the variables were submitted to a principal component analysis with varimax rotation (table2). According to Fornell and Bookstein (1981) acceptable item loadings are those that are .70 or higher. As reported in table 1 the adopted scales are consistent with this requirement. The only exceptions are two items related to ease of use. We decided to not exclude these items because they load strongly on their corresponding construct, rather than on the other constructs of the model (Chin, 1998).

Rather than adopting a traditional multiple regression, the hypothesized model was tested with a General Linear Model in order to check multiple dependent variables simultaneously. We used ease of use and perceived usefulness as dependent variables and team identification, leader member exchange, organizational support and affective commitment as independent variables. Moreover, the statistical test of hypothesis included the two control variables (time of service in the team and time of service in the firm). *Time of service in the firm* consists in the number of years that individual has spent working in that organization, while *time of service in the team* consists in the number of months that individual has spent working in the examined team.

Figure 2 reports significant coefficients and the explained variance for the model. The research model shows a good linear fit (Useful  $R^2 = .300$ ; ease of use  $R^2 = .301$ ).

Providing support for hypothesis 1, team identification is positively related to ease of use. Hypothesis 2 concerning the relationship between team identification and perceived usefulness is not supported. While, hypothesis 3 supports the positive relationship between leader member exchange and perceived usefulness. Organizational support is positively related both to ease of use and to perceived usefulness, providing support to hypotheses 4 and 5. Hypotheses 6 and 7, concerning affective commitment, are both partially supported. Moreover, results show that control variables don't affect users' beliefs. In fact, both time of service in team and time of service in the firm don't show any significant effects. Moreover, the two control variables didn't show any significant effect on perceived usefulness and ease of use.

Variables		Mean	Std. Dev.	1	2	3	4	5	6
1	Perceived Organizational Support	8.35	3.31	(.90)					
2	Leader-Member Exchange	19.76	4.71	.40	(.81)				
3	Team Identification	13.04	4.79	.26	.42	(.79)			
4	Affective commitment	24.63	7.16	.36	.31	.43	(.89)		
5	Perceived Usefulness	29.94	7.33	.41	.39	.25	.36	(.89)	
6	Ease of use	22.05	6.34	.38	.30	.41	.38	.53	(.80)

Table 2: descriptives, correlations and reliability analysis (Cronbach alphas are in parentheses). N=91; correlation above .26 are significant at .05 level



	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>	<b>Factor 4</b>	<b>Factor 5</b>	<b>Factor 6</b>
<b>ID 1</b>	-.03	-.05	.03	-.08	-.04	<b>.82</b>
<b>ID 2</b>	.11	.26	.30	.38	.09	<b>.72</b>
<b>ID 3</b>	.11	.37	.34	.29	.12	<b>.70</b>
<b>COM 1</b>	.06	<b>.84</b>	.06	.12	.02	-.08
<b>COM 2</b>	.21	<b>.81</b>	.10	.14	.01	-.17
<b>COM 3</b>	.02	<b>.72</b>	-.05	-.01	.11	.37
<b>COM 4</b>	.19	<b>.78</b>	.24	.20	.16	.24
<b>COM 5</b>	.17	<b>.79</b>	.15	.13	.19	.17
<b>LMX 1</b>	.13	.03	<b>.72</b>	.10	.17	.09
<b>LMX 2</b>	.25	.07	<b>.80</b>	-.07	-.01	.04
<b>LMX 3</b>	.00	.19	<b>.78</b>	.15	.09	.15
<b>LMX 4</b>	.24	.09	<b>.78</b>	.12	.19	.08
<b>POS 1</b>	.22	.14	.21	.08	<b>.87</b>	.02
<b>POS 2</b>	.20	.21	.21	.16	<b>.85</b>	.05
<b>EU 1</b>	.29	.06	.15	<b>.68</b>	.09	-.02
<b>EU 2</b>	.19	.12	-.00	<b>.68</b>	.13	.11
<b>EU 3</b>	.45	.15	.05	<b>.73</b>	.10	.09
<b>EU 4</b>	.03	.15	.10	<b>.82</b>	-.02	.05
<b>PU 1</b>	<b>.74</b>	.12	.02	.13	.18	.08
<b>PU 2</b>	<b>.73</b>	.05	.28	.28	.08	.06
<b>PU 3</b>	<b>.74</b>	.06	.12	.10	.24	.03
<b>PU 4</b>	<b>.80</b>	.14	.11	.17	-.03	.01
<b>PU 5</b>	<b>.74</b>	.28	.16	.27	-.17	.04
<b>PU 6</b>	<b>.82</b>	.07	.17	.07	.25	-.08

*Table 2 Results of factor analysis. ID=team identification; COM=affective commitment; LMX=leader-member exchange; POS=perceived organizational support; EU=ease of use; PU=perceived usefulness*

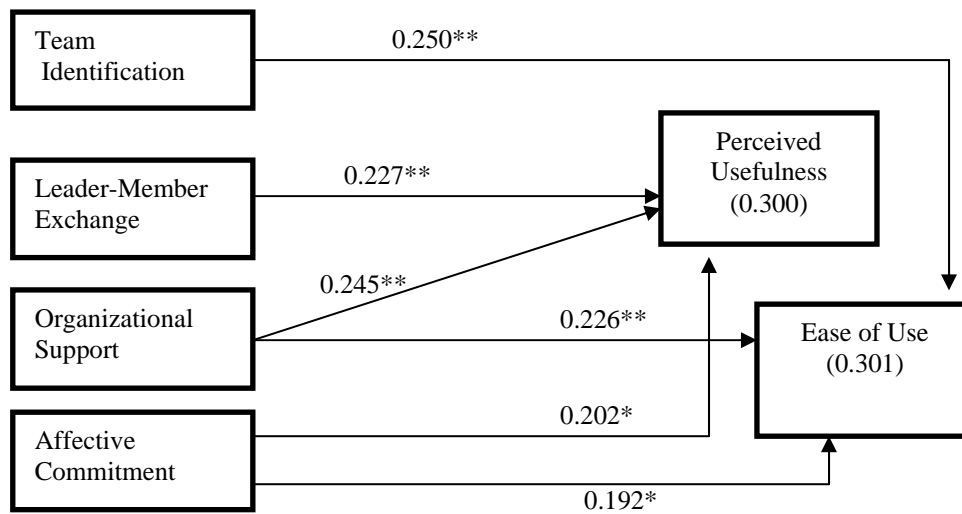


Figure 2 Results of statistical analysis. Only significant relationships are shown. \* significant at  $p < .1$ ; \*\*significant at  $p < .05$ . In the figure are indicated only significant relations

## 5 DISCUSSION AND CONCLUSIONS

This research attempts to analyze users' technology adoption from a relationship based point of view. In particular, the paper is focused on how employees-organization relationship affects the users' beliefs toward technology.

### 5.1 Theoretical implication

The present research highlights the strong link between ease of use and team identification and organizational support. In the case of team identification, results can be explained suggesting that individuals refer to their team to get information concerning how to manage the new technology. When users feel a strong identification with the team, in case of difficulties using the system, they activate formal and informal channels within the group to better understand the functioning of the technology. This result is consistent with Child and Rodrigues (1996) findings: a high level of identification allows an easy share of information and an enhanced knowledge sharing.

Another important result is revealed by the significant impact of organizational support on ease of use. Analysis shows that individuals need an institutional support for their effort to manage new technologies. For this reason, the role of organizational support is important to facilitate the change management process in which users are involved. This means that the ability of the organization to support individuals with the appropriate tools and an effective information exchange is fundamental during the introduction of a new technology.

Moreover, results highlight the lack of any influence of team identification on perceived usefulness. A possible explanation of this finding can be traced back to the role of organization in the change process. We suggest that individuals mentally represent the transmission of the benefits and the usefulness of the new technology as a duty of the organization. This theoretical speculation can be supported looking at the effects of organizational support on perceived usefulness. The existence of a good relationship with the organization brings individuals to perceive the benefits of the system. This result is consistent with the findings of Purvis et al (2001) suggesting a significant relationship between institution behaviours and users' acceptance of technology.

Furthermore, we found a significant impact of the leader-member exchange and the perceived usefulness of the system. This result confirms the role of supervisor as an interface between the institution and the team. Thus, a good quality of leader-member interaction allows the leader to become a catalyst of institutional messages concerning the benefits of the new system.

The weak impact of affective commitment on perceived usefulness and ease of use can be traced back to the distance between the psychological state of commitment and daily troubles concerning the use of the new system. The affective commitment seems to have a too abstract connotation, which can't directly help individuals to face with day by day technology-related difficulties.

In developing our thesis, we have noted some limitations to our approach. First, regarding the choice of independent variables, our analysis has concentrated on constructs which are the most adopted in the social exchange literature. However, we recognize that the inclusion of other theoretical constructs could enrich the explanation of the phenomenon. Second, the present paper has been solely focused on the quality of relationships and users' beliefs. Thus, in order to provide a better understanding of the user acceptance field, future research has to combine the relational dimensions with other constructs that are not strictly related to the quality of ties. Nevertheless, we argue that results of our study could represent a starting point to deeply understand users' acceptance of technology from a relational perspective.

Furthermore, it would be interesting to extend these findings to other firms in order to better explain the importance of intra-organizational relationships on users' acceptance in different organizational contexts. In particular, authors are currently working on the development of a wider model in different organizational settings.

## **5.2 Practical implications**

According to Venkatesh and Davis (2000) the investment in new information systems is inherently risky because potential performance gains are often obstructed by users' unwillingness to accept and use technology.

The present research offers a new perspective that is complementary to previous studies concerning individual acceptance of technology. First, we suggest an analysis of the context in which the new technology is going to be introduced. In fact, even with managers' decision to adopt the best technology on the market, it doesn't imply that the new technology will be accepted. In fact, consistently with established research findings, acceptance of technology is also related to the quality of social relationships. In other words, the acceptance of a new technology is developed upon the basis of a positive organizational environment. Second, when and if managers realize that the social context of their firm potentially obstructs the introduction of a new technology, they can recourse to organizational behaviour intervention in order to create a more adequate environment. A third important point highlighted by this research is related to the post-introduction period. In fact, because the strength of informal social exchange among individuals plays a fundamental role in the shape of users' beliefs, managers have to monitor and take into account *rumours* related to the new technology in order to isolate a possible negative domino effect. On the other side, managers have to be able to exploit high quality relationships within teams as leverage for the diffusion of positive beliefs toward technology.

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