SUMMARY

INTRODUCTION

The diffusion of information and communication technologies (ICT) has grown increasingly on the last decades, providing companies with new opportunities to support their own business activities.

Although the numerous potential benefits an information technology (IT) can bring into a firm, many systems fail or are underutilized, making vain the effort, time and money organizations have spent. In fact, adopting IT to support business needs is a necessary but not a sufficient condition for its effective use. Firms need to maximize ICT use, avoiding individual resistance to changes that obstructs performance improvements tied to IT introduction, thus reducing the gap between ICT potentials and its actual use.

Not surprisingly, in spite of the existence of mature research in social studies, covering many fields from information system, psychology, sociology to organization science, research on the determinants of individual IT acceptance in organizations continues to be a significant area of inquiry for information systems scholars (Lewis et al., 2003, Agarwal, 2000).

The aim of the present study is to analyze the variables that affect the individual attitudes towards technology by considering, on one side, the traditional perspective and, on the other, by introducing a new perspective, the relational one, whose premise is that individuals' attitudes towards IT may be influenced by the attitude of proximate sources of social information. In fact, in Technology Acceptance Model (TAM), in its referent theories and in its evolutions, it was included a variable called social influence. But this variable was only based on a construct called "subjective norms" that not only has received little attention in the context of TAM research, but also didn't explain in depth the real significance of the term social influence as it is conceived by researchers in social and organizational fields.

THEORETICAL BACKGROUND

The studies on the variables affecting the acceptance of technology by individuals started since IS introduction into organizations. In 1983 Rogers, with his theory of *Diffusion of Innovation,* was the first who tried to predict whether and how a new invention would have been successful. According to him the determinants that are correlated with the adoption of an innovation are relative advantage (the degree a new innovation surpasses current practices), compatibility (the extent that an innovation is perceived to be consistent with adopters' existing values, past experiences and needs), complexity (the perceived difficulty

of learning to use and understand a new system or technology), trialability (the degree to which an innovation can be experimented with or used on a trial basis) and observability (the extent to which results of an innovation are easily seen and understood).

In the innovation adoption and organisational science literature, Technology Acceptance Model, evolving from the Theory of Reasoned Action (Ajzen & Fishbein, 1975) and the Theory of Planned Behaviour (Ajzen, 1985), seems to be the most influential and most frequently discussed theory in predicting and explaining end user behaviour and system use in the information system field, perhaps because of its parsimony and the wealth of empirical support. It became a reference point for all the following studies, whose main objective was to introduce new variables and test them.

Theory of Reasoned Action (TRA) was developed by Ajzen and Fishbein's in 1975. It suggests that a person's behavioural intention depends on the person's attitude toward behaviour and subjective norms. Subjective norm (SN) is seen as a combination of perceived expectations from relevant individuals or groups along with intentions to comply with these expectations.

The *Theory of Planned Behaviour* was developed by Ajzen in 1985 as an extension of the Theory of Reasoned Action, because of limitations of the previous model in dealing with behaviours over which people have incomplete volitional control. As the TRA, this model considers the individual's intention as a central factor in performing a given behaviour. It also postulates three independent determinants of intention: attitude towards the behaviour, subjective norms, and perceived behavioural control. The attitude towards the behaviour refers to the degree to which a person has a favourable or an unfavourable evaluation or appraisal of the behaviour in question. Subjective norm refers to the perceived social pressure to perform or not to perform the behaviour. The third new variable, the perceived behavioural control, refers to the perceived ease or difficulty of performing the behaviour and it is assumed to reflect past experience as well as anticipated impediments and obstacles.

Technology acceptance model (TAM) was developed by Davis in 1989. While theorizing this model, Davis recognized the validity of two variables among the numerous that can influence system use. By identifying a striking convergence among a body of theoretical perspectives in the fields of expectancy theory, he considered perceived usefulness and perceived ease of use as fundamental determinants of user acceptance. According to him, people decide to use a system only if they believe it will help them to better perform their job. At the same time this benefit can be outweighed by the perception that the system is too hard to use. Davis defined perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her job performance", and perceived ease of use as "the degree to which a person believes that using a particular

system would be free of effort". He stated also that these two variable mediate the effect of external variables (e.g., system characteristics, development process, training) on intention to use and that perceived usefulness is also influenced by perceived ease of use because, other things being equal, the easier the system is to use the more useful it can be.

After the introduction period, researchers performed several TAM studies mainly focused on two streams: the first attempted to replicate TAM with other technologies, longitudinal situations, and research settings, to verify whether it is a parsimonious model; the other stream compared TAM and its origin, TRA and TPB, to investigate whether TAM can be differentiated from TRA/TPB, and whether TAM is superior to TRA/TPB.

In 2000, Venkatesh and Davis developed an extension of TAM, referred to as *TAM2*, in which they include additional determinants of TAM's perceived usefulness and usage intention constructs. Among social forces they include subjective norms, voluntariness, and image. TAM2 encompasses three main theoretical mechanisms by which subjective norms can influence intention directly and indirectly through perceived usefulness: compliance, internalization and identification. Compliance refers to that mechanism by which people may choose to perform behaviour, even if they are not themselves favourable toward it, if they believe one or more important referents think they should, and they are sufficiently motivated to comply with the referents. Internalization refers to the process by which, when one perceived that an important referent thinks one should use a system, he incorporates the referent's belief into his own believe structure. Identification, in accordance with Kelman (1958), refers to a situation in which if important person's social group at work believes that he or she should perform behaviour, then performing it will tend to evaluate his or her standing within the group. This effect is captured in TAM2 by the effect of subjective norm on image, coupled with the effect of image on perceived usefulness. According to Venkatesh and Davis (2000), the direct effect of subjective norm on intentions and the indirect effect through perceived usefulness may subside over time with increased system experience. Beyond the social influence processes the authors theorise four cognitive determinants of perceived usefulness: job relevance, output quality, result demonstrability, and perceived ease of use.

Finally, in 2003 Venkatesh et al. formulated the *Unified Theory of Acceptance and Use of Technology* (UTAUT), based upon conceptual and empirical similarities across eight prominent models they had validated and compared, with the aim of integrating fragmented theory and research into a unified theoretical model that captures the essential elements considered in previous researches. This model were Theory of Reasoned Action, Technology Acceptance model, Motivational Model, Theory of Planned Behaviour, a combination of TAM and TPB, Model of PC Utilization, Innovation Diffusion Theory, an Social Cognitive Theory. This model theorized that four constructs play a significant role

as direct determinants of user acceptance and usage behaviour: performance expectancy, effort expectancy, social influence and facilitating conditions.

The literature review, discussed above, shows how previous studies investigating the influence of social determinants on individual beliefs take a *normative* framework for defining the relationship between the focal individual and the source of influence, considering others' expectations as the primary source of social influence. As stated by Magni & Pennarola (2008) prior research on acceptance has not adequately recognized the importance of those individuals' beliefs, which refer to the exchange *relationships* between users and other intra-organizational entities. According to Clarkson (1995), *relationships* are the first conditions of human being and represent critical determinants of individual actions in organizations, affecting the connection between objective characteristics of a definite organizational situation and individual behaviours (Brief & Weiss, 2002).

Several authors have addressed the impact of *social influence* on the development of attitudes and behaviours (Berger & Luckmann, 1967; Festinger, 1954; Salancik & Pfeffer, 1978; Burkhardt, 1994). But although research has established a relationship between attitudes and social influence, there is little empirical evidence to imply this causality, or that social context affects attitudes and behaviours. Through relationships with others, a focal employee may be exposed to new information and different points of view. Social influence occurs when an individual adapts his or her behaviour, attitudes or beliefs to the behaviour, attitudes or beliefs of others in the social system (Leenders, 1997). Influence does not necessarily require face-to-face interaction, but is based on information about other people.

Festinger (1954) developed a theory of *social comparison processes* to describe how individuals come to share attitudes, proposing that people have an innate drive to evaluate themselves and their attitudes and behaviours and that they select similar others with whom to compare themselves. He states that because of the absence of certain judgments and physical evidence, people are encouraged to communicate with others. He also suggests that they tend to relate to people similar to themselves so that "the more similar someone is, the more relevant his or her view for understanding one's own world".

Social influence processes have also been termed contagion (Leenders, 1997). *Contagion theories* seek to explain networks as conduits for "infectious" attitude and behaviour (Monge & Contractor, 2003). These theories are based on the assumption that the opportunities for contact provided by communication networks serve as a mechanism that exposes people, group, and organizations to information, attitudinal messages, and the behaviour of others (Burt, 1980; Contractor & Eisenberg, 1990). This exposure increases the likelihood that network members will develop beliefs, assumptions, and attitudes that are similar to those of others (Carley, 1991; Carley and Kaufer, 1993).
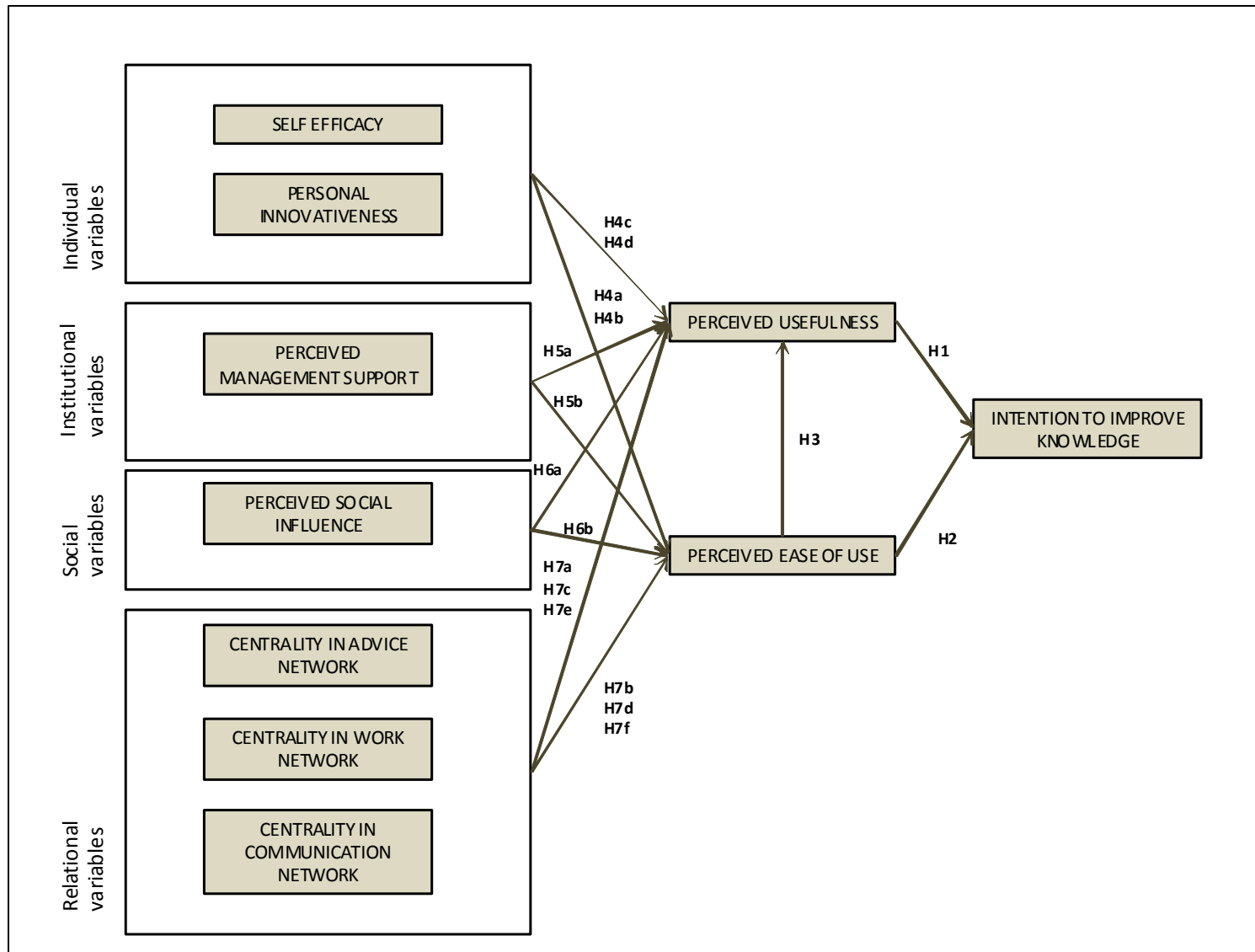
Theories that are premised on a contagion model include *social information processing* (Fulk et. al. 1987; Salancik and Pfeffer, 1978). The premise of this theory is that individuals, as complex adaptive systems, adapt their attitudes, behaviours, and beliefs to the social context and to the consequences of past experiences and actions. Therefore to study an individual behaviour it is necessary to understand the social environment and the setting in which he/she is involved. Individuals develop their needs and their opinions since the information they have at a given time. The social context has two effects on one's attitude and needs: on one hand, it provides a construction of meaning, through the development of common beliefs, needs and acceptable reasons of actions (the direct effects), on the other, it focuses an individual's attention on certain information, shading the others (the indirect effects). Therefore the environment is created by individual and by social processes.

According to Rice and Aydin (1991), central on the social information processing theory is the assumption that individuals must be proximate to the attitudes, information, or behaviour of others to be exposed to social information (Salancik and Pfeffer, 1978; Dean and Brass, 1985). Proximity is defined as the extent to which one could be exposed to social information in a given social system (Rice and Aydin, 1991). Because networks represent the mechanism through which individuals' are proximate to others' information and beliefs, much of empirical evidence of relational influence has been studied through the network perspective.

On the basis of these theoretical assumptions I developed a model, shown in Figure n° 1 that adapts and incorporates aspects of many theories/models of technology acceptance and of social influence. It shows the possible influence of four constructs (exogenous variables), individual factors, social factors, institutional factors, and relational factors, toward the perceived usefulness and the perceived ease of use of the system (endogenous variables), which, in turn, influence the dependent variable, intention to improve the system knowledge (endogenous variable). Perceived ease of use also influences perceived usefulness.

Individual variables include both the constructs "personal innovativeness" and "self-efficacy", while relational factors include measures of centrality of advice, work relations and ease of communication networks.

Figure 1: The model

METHODOLOGY

The present study is conducted into a well known Italian telecommunication company, which offers integrated fixed, mobile and Internet services. The information system studied is an Enterprise Resource Planning tool, SAP R/3.

Because of the peculiarities of the methodology implemented for data collection, the social network method, and the consequent necessity of collecting sensitive-personal data the definition of the sample was preceded by a request of authorization to personal data processing.

This preliminary step let us to identify a sample of 97 SAP users, which best embodies the main features of the population.

This work is based on a survey research conducted into six departments of a multinational firm. To perform the survey I received an important help from the Human Resource department, which firstly provided a database with the attributional variables, such as gender, age, kind of academic education, and function and, then, helped me to develop the questionnaire with the aim at tailoring the questions according to the firm's peculiarity and environment.

Data analysis was splitted into two stages: the first stage involves the creation of network diagrams, the calculation of network indexes and the inter-network comparisons by using UCINET (Borgatti, Everett, and Freeman, 2002). The second stage involves descriptive statistics, factor analysis and correlation through the method of principal-component factors, and the regression analysis, by using the software STATA/SE 10.0.

The questionnaire contains multiple measurement items related to each of the constructs in the research model. Consistent with research literature in the area, multi-items self-report Likert type scales (ranging from 1 - strongly disagree - to 7 - strongly agree) were used to measure all variables.

Table n°1 summarizes all the scales and items used in this model, which was revised on the basis of previous research.

Table 1: Scale and items

VARIABLES	CODES	DEFINITIONS	SOURCE OF CONSTRUCT
Perceived usefulness	PU	The degree to which a user believes that using SAP will enhance performance.	Davis (1989) Venkatesh et al. (2003)
Perceived ease of use	PEOU	The degree to which a user believes that using SAP will be free of cognitive effort.	Venkatesh et al. (2003)
INDIVIDUAL VARIABLES			
Self efficacy	SE	One's confidence in his/her ability to perform a particular task.	Bandura (1977)
Personal innovativeness	PI	The willingness of an individual to try out any new information technology.	Rogers (1955) Agarwal e Prasad (1988)
SOCIAL VARIABLES			
Subjective norms	SV	The degree to which an individual perceives that important others believe he or she should use SAP.	Fishbein e Ajzen (1975)
INSTITUTIONAL VARIABLES			
Management support	IV	The degree to which organisational influences facilitate the PU/PEOU of SAP.	Yoon et al.(1995) Magni (2004)
RELATIONAL VARIABLES			
Prestige	FDAO, FDWO, FDEO	The number of link whose head is connected to a particular actor.	Freeman (1977, 1979)
Closeness	CECI, CECO, CAI, CAO, CWRI, CERO	How close an actor is to other actors in the network.	Freeman (1977, 1979)
Betweenness	BA, BEC, BWR	The extent to which a network member lies between others not directly connected.	Freeman (1977, 1979)

Table 2: Descriptive statistics

VARIABLE	OBS	MEAN	STD.DEV	MIN	MAX
AU	78	3,615385	0,8095336	1	4
I	78	5,602564	1,351668	2	7
PU	78	5,812179	1,058055	1,33	7
PEOU	78	5,333333	1,293507	2	7
SE	78	5,617949	0,6700928	3,8	7
PI	78	3,794872	1,282844	1	7
SV	78	5,064103	1,196203	1,5	7
IV	78	4,730769	1,491735	1	7
FDAO	78	1,230769	1,257942	0	5
FDAI	78	1,115385	1,865481	0	10
FDEO	78	0,9871795	1,050585	0	4
FDEI	78	0,8974359	1,583927	0	7
FDWO	78	0,9230769	1,113894	0	5
FDWI	78	0,8205128	1,336244	0	6
CECI	78	9,084539	0,5445918	6,942	9,312
CECO	78	9,073487	0,2697153	8,285	9,312
CAI	78	9,065667	0,538698	6,282	9,312

CAO	78	9,052154	0,3076398	9	9,312
CWRI	78	9,123423	0,3743274	7,714	9,312
CWRO	78	9,0919	0,313776	8,181	9,312
BWR	78	2,679487	8,676724	0	50
BA	78	2,326923	6,339849	0	37
BEC	78	2,730769	8,253568	0	42

pu = perceived usefulness; **peou** = perceived ease of use; **se** = self efficacy; **pi** = personal innovativeness; **sv** = social variables; **iv** = institutional variables; **fdao** = out-degree advice; **fdai** = in-degree advice; **fdeo** = out-degree ease of communication; **fdei** = in-degree ease of communication; **fdwo** = out-degree work relations; **fdwi** = in-degree work relations; **ceci** = inFarness ease of communication; **ceco** = outFarness ease of communication; **cai** = inFarness advice; **cao** = outFarness advice; **cwri** = inFarness work relations; **cwro** = outFarness work relations; **bwr** = betweenness work relations; **ba** = betweenness advice; **bec** = betweenness ease of communication.

As shown in the table respondents use SAP on average more than once a week. The mean shows a value of 3,6, strictly close to the observations maximum value which explains a daily use[1].

An important result is that the intention to improve SAP knowledge is very strong, the mean is 5,6 in a scale from 1 to 7. Moreover, no one strongly disagree with the same question probably because SAP is considered a useful tool for ones productivity (the minimum value is 2). This response shows that users perceive SAP not so difficult to use, while this value is lower than that referred to the perceived usefulness (mean = 5,8). The scales explaining individual variable show that a high percentage of respondents are very confident in their ability to perform a particular task (mean=5,6 and standard deviation=0,67) even if their rate of innovativeness is lower (mean=3,7). Moreover, the perception of external pressures to use the system is quite high, while the management support is perceived as moderate, but never absent.

Considering network variables, the table shows separately the indexes of centrality. For Freeman degree has been calculated in-degree and out-degree. Each network (advice, work and ease of communication) shows different values for in-degree and out-degree. On average the nodes show a higher propensity to nominate many others as trustworthy, as work referent, and people with whom is ease to communicate, than to receive many nominations or choices from others for the same reasons. Different results are shown by closeness measurement, in which inFarness[2] and outFarness are on average almost the same. This means that the distance anyone has to others and from others is almost the same. Finally, betweenness, even if on average is similar in each of the three networks, shows a higher maximum in workflow network while the lower is in advice one. This

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[1] The scale used for the item "actual use" is from 1=annually to 4=daily.
[2] The farness is the sum of the geodesic distances for each actor to others, and a geodesic distance is the number of steps in the shortest path from one node to another node.

means that agents play the role of gatekeeper or broker with a potential control on the others, not based on trust relations or on sharing mental models of communication but based on roles formally determined.

For the aim of the present study in the model I decided to include only in-degree centrality, although I test also the others, because it focuses solely on the actor as a recipient and then it let us understand possible influences ego can receive from alters in the network. On the contrary, on one hand closeness centrality shows only the nearness of one actor to others and the possibility to have access to certain information, on the other, betweenness centrality gives us a measure of who are intermediary nodes, data that are not so relevant for the aim of the present study.

A correlation analysis was performed to examine linkages between independent variables in the research model as well as their direction (positive and negative relationships) and strength of interrelations. In the table below is presented the correlation analysis of the independent variables. The cells with a grey background show that correlations exist between some items belonging to different constructs. Centrality indexes do correlate significantly with each other, while other variables don't show any kind of linkages.

Table 3: Correlation analysis

	PU	PEOU	SE	PI	SV	IV	FDAO	FDAI	FDEO	FDEI	FDWO	FDWI
PU	-											
PEOU	0,28	-										
SE	0,04	0,15	-									
PI	0,23	0,20	0,13	-								
SV	0,31	0,15	-0,15	0,04	-							
IV	0,37	0,03	-0,15	-0,04	0,04	-						
FDAO	0,05	0,03	0,30	-0,01	0,13	0,00	-					
FDAI	0,12	0,38	0,10	0,03	0,19	0,11	0,02	-				
FDEO	0,05	0,07	0,18	0,04	0,08	-0,07	0,58	0,17	-			
FDEI	0,05	0,35	0,04	0,05	0,19	0,19	0,00	0,83	0,19	-		
FDWO	0,11	0,08	0,26	-0,11	0,07	-0,08	0,51	0,05	0,59	0,13	-	
FDWI	0,03	0,35	0,00	0,08	0,18	0,07	0,00	0,73	0,23	0,84	0,12	-

pu = perceived usefulness; **peou** = perceived ease of use; **se** = self efficacy; **pi** = personal innovativeness; **sv** = social variables; **iv** = institutional variables; **fdao** = out-degree advice; **fdai** = in-degree advice; **fdeo** = out-degree ease of communication; **fdei** = in-degree ease of communication; **fdwo** = out-degree work relations; **fdwi** = in-degree work relations;

These results suggest that it is possible to compress and reduce the multiple items. This procedure, the so-called factor analysis, is the next step in the examination of the research model.

Factor analysis shows that four factors have an eigenvalue greater than 1, explaining together more than the 76% of the total variance, a positive result that well resumes the relationships among the observed variables.

Examining the coefficient making up the eigenvector, we can say that Factor 1 is strongly correlated with Freeman in-degree centrality measures of the three networks while Factor 2 with Freeman out-degree centrality measures of the three networks. Moreover, Factor 3 shows a high correlation with social variables and institutional variables and, finally, Factor 4 is strongly correlated with the variables "personal innovation" and "self efficacy". Factor 1 one can be considered as a representative factor of the degree of prestige of each individual, Factor 2 as representative of the degree a person can influence others. Factor 3 represents the perception of external pressures to the system use, supported by the management commitment. Finally, Factor 4 shows individual confidence on using the system (i.e. self-efficacy and the attitude to be innovative).

Once reduced the number of factors and removed any kind of correlation among independent variables, a three stage regression analysis was performed with the purpose of examining the research model and its proposed hypotheses.

As stated above, the STATA command used to make the analysis is reg3, which estimates a system of structural equations, where some equations contain endogenous variables among the explanatory variables.

Regression results show that the intention to improve the knowledge about SAP estimated function is very good, as well as those of the other two endogenous variables, as shown by the p-values that is not ever lower than 0,01%.

Figure n° 8 shows a synthesis of the model variables, with their coefficients and the explained variance. For a better and clearer description only the significance relations are shown.

In the model it was assumed that the "intention to improve knowledge of SAP" is determined by "perceived usefulness" and "perceived ease of use". Only the first of these hypothesis is verified (coeff=1,62, $p<0,1$), while this impact is not true for the "perceived ease of use".

This result, contrasting with previous studies, could be due to the dependent variable that, as stated above, is different from the dependent variables chosen by other authors. The

intention to use SAP and the intention to improve knowledge of IT could be considered as good proxies of individual behaviour but can give different outputs. In this case, the dependent variable is affected only by the perception of usefulness, thus proving that the system is conceived as worthy of being studied in depth in all its functionality only if its usefulness is perceived, while it is irrelevant its user-friendliness perception.

As expected, perceived ease of use influences perceived usefulness together with Factor 4 that represents the perception of external pressures to the system use, supported by the management commitment. The influence of perceived ease of use on perceived usefulness confirms the hypothesis 3 and shows a coefficient of 0,30. This means that when individuals perceive the technology to be relatively free of cognitive effort, they will view it as releasing important cognitive resources that may be productively applied to other activities. In other words, they are more likely to perceive the technology to be useful in their work activities.
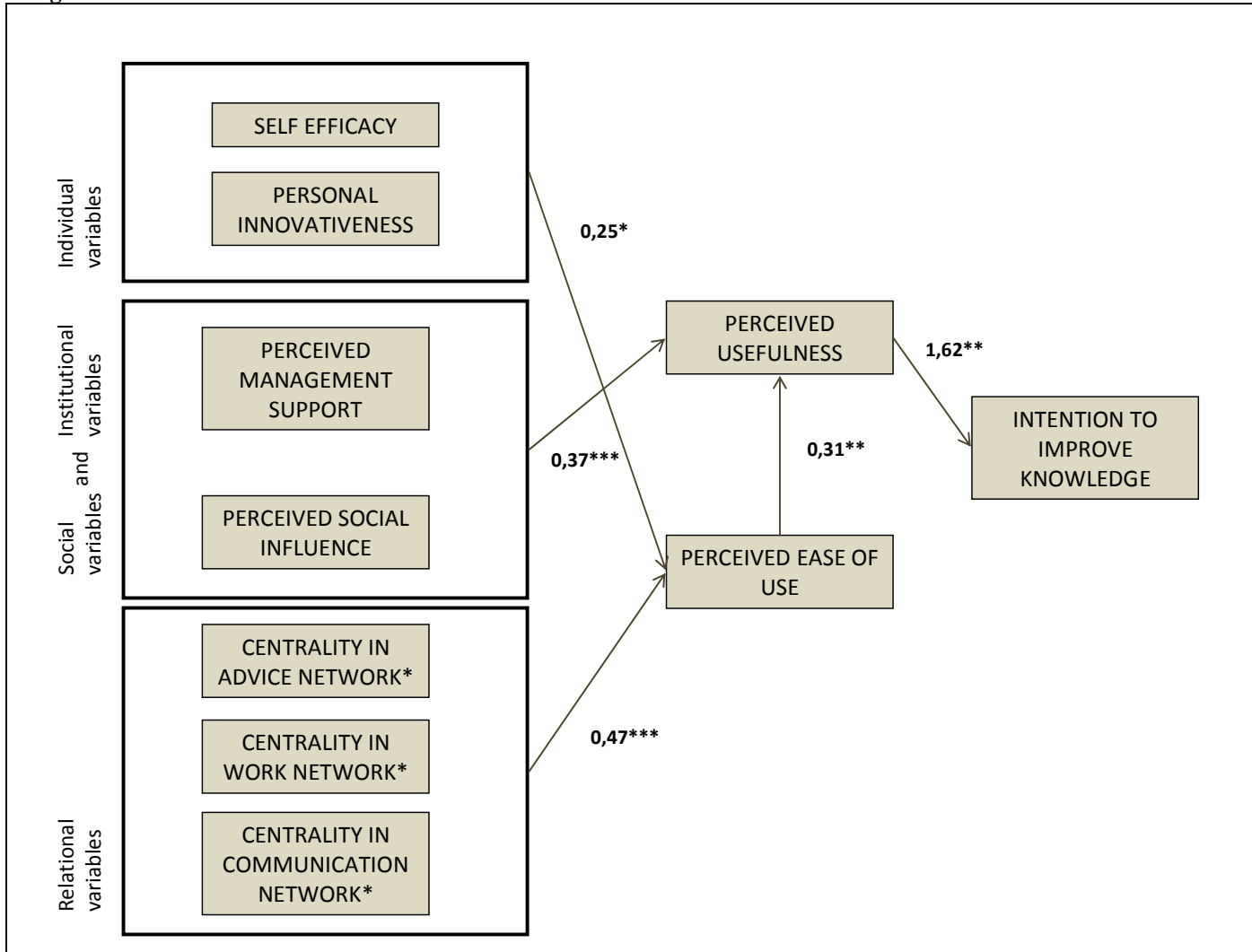
Social norms and management commitment are significantly associated with perceived usefulness (coeff = 0,26, p-value<0,05). This means that others, especially supervisors and mentors who can "press" workers in carrying out their tasks, affect individual's motivation to use the system but may not provide much support for how to use the system.

In predicting perceived ease of use, both in-degree centrality (coeff = 0,47 p<0,01) and individual variables (coeff = 0,25 p<0,05) are significant, while out-degree and Factor 3 don't, thus confirming hypothesis H7b, H7d, H7f for centrality and H4a, H4c e H4b for personal innovativeness and self-efficacy.

The high impact of in-degree centrality on ease of use means that people, who are extensively involved in relationships with others, have higher potentialities to have access to resources and thus to perceive as user-friendly a certain technology.

As stated above, personal innovativeness and self-efficacy exhibit strong effects on perceived ease of use. This means that the belief that one has, about the capability to perform a particular behaviour, reduces the perception of effort expectancy. At the same time also the willingness to try any new technology is an important determinant because individuals, who have an innate propensity to be more innovative with information systems, are likely to be more inclined to experience hard circumstances.

Figure 2: Results

Using my data, I aimed also to assess whether and to what extent homophily drives social interaction. It has long been suggested that people who are similar are more likely to interact than people who have nothing in common (Monge and Contractor, 2003).

The aim of this analysis is to understand if relations of advice, work and ease of communication could be influenced by commonality among person based on their attributes.

Once created the clusters, a QAP (Quadratic Assignment Procedure) (Hubert & Schultz, 1976) correlation and regression have been used, computed in the UCINET program.

The correlation is significant with reference to advice, work relations and ease of communication, together with those of complementary attribute-based clusters as it was obvious. This means that those with whom everyone asks for advice are those with whom he has to relate to for work. Moreover, the probability to create ties based on shared mental models and thus the ease of communication is higher for people with whom everyone relates most.

To understand how these two networks influenced each other and test for alternative explanations, I run a regression analysis. As dependent variable I chose the advice network that is the variable that better explains individual's involvement in exchanging assistance with co-workers and engaging in mutual problem-solving. In fact, advice is usually given by more experienced actors to less experienced ones, a process that means the first affect the latter. Moreover I can't consider the workflow network as a dependent variable as these ties are formally predetermined. Therefore I assumed that the ease of communication network influences the advice network, stating that the higher the mutual understanding, the higher the individual tendency to relate to others for asking suggestions. The attribute-based clusters are considered as other independent variables.

As expected, advice ties are highly influenced both by work relations network (coeff=0,17, p-value < 0,0001) and ease of communication network (coeff=0,55, p-value<0,0001). This means that people tend most to relate to and to ask for advice to those with whom they work together. In fact, they are aware of their knowledge and capabilities, speak the same language and share the same or complementary tasks.

An interesting result is also that physical proximity of nodes (coeff=0.006, p-value<0,01), i.e. nodes that are in the same building, as well as the functional proximity (coeff=0.008, p-value<0,05), i.e. nodes that work in the same organizational function, have a high influence on the creation of advice relations. This result means that belonging to the same division can encourage the exchange of advice for the same reasons explaining for work relations that is the opportunity to communicate to people who share the same mental models and

similar tasks. Moreover, belonging to the same building can facilitate communication as well as informal meeting to exchange reciprocal suggestions.

DISCUSSION AND CONCLUSIONS

Based on the paradigm of technology acceptance of information systems, this doctoral thesis investigates which variables affect user acceptance.

However computer acceptance is considered a mature research field (Venkatesh et al. 2003), in this paper I attempted to analyze it from a new perspective. Researchers have long suggested that social factors are critical for explaining users' behaviour towards technology, however they limited their examination looking at a normative perspective while this study provides evidence that individual technology acceptance is influenced by the individual's relational beliefs.

Therefore, when studying the determinants of individual behaviour towards technology it must be taken into account the fact that individuals are embedded in a network of relations that could be a source of influence of their attitudes.

Based on this assumptions, I proposed a theoretical model in which dependent variable is the intention to improve the knowledge system. This choice and the rejection of the "classical" variable "intention to use" is due to the impossibility of managing a longitudinal study. Thus it seemed paradoxical to study the formation of attitude towards certain behaviour and the behaviour itself at the same time. Also the "traditional" "intention to use the system" seemed senseless because of the mandatory setting.

In the model I adopted the Davis' (Davis, 1989) core constructs, perceived usefulness and perceived ease of use, as direct determinants of intention to improve the system knowledge. Then I identified four classes of variables influencing these two constructs: individual, social, institutional and relational variables.

The model was tested by running a three stage least square regression, whose main relational-base results have been tested through the social network analysis support.

The findings show interesting implications. First, results highlight the strong link of individual perceived usefulness and the intention to improve the knowledge of SAP. Once the value and helpfulness of a system has been recognised, people tend to improve and refine the knowledge of its functions and every possible application both in terms of innovativeness and effectiveness. The influence of perceived ease of use seems to be irrelevant even if only from a direct viewpoint. In fact, results highlight the strong individuals link between perceived usefulness and ease of use, so practitioners, who might have been guided by previous TAM studies to underestimate the importance of perceived

ease of use, should reconsider the extent to which perceived ease of use indirectly affects the individual behaviour.

Second, another important result is revealed by the significant impact of social variables and institutional variables on perceived usefulness. Analyses show that individuals need an institutional support for their understanding of technology usefulness.

As stated above in this work, several theories suggest that social influence is crucial in shaping user behaviour. From social psychological and economic perspectives, the most common variable used to describe social influence is the so called "social norms". In the present study social influence, considered in the sense described above, i.e. as the perceived social pressure to perform or not perform the behaviour (Ajzen 1991; p. 188), shows a strong effect only on perceived usefulness while doesn't seems to affect perceived ease of use. In other words, the "stress" people have that other important to them expect they to use SAP, and the persuasion that using SAP improve their image and prestige, increase the perception of the system usefulness, without showing the practical implications that can derive from its use.

Third, practitioners also have to consider that perceived ease of use effects are dependent on individual features and social ties. Self efficacy and personal innovativeness are constructs of interest to both researchers and IT professionals because of their strength in motivating end-users as well as their ability to be enhanced, particularly through training and experience (Downey 2006). These variables have a direct impact on perceived ease of use thus confirming that when an individual is self confident but also an innovator, could perceive a technology as user-friendly more than anyone else who is more reluctant to change.

Moreover, it must be taken into account that, during the adoption of a technology, individuals identify their channels in order to understand the complex and misunderstood functions of the technology and how to manage it. In such situation, an actor who has a central position is more exposed to the organization's belief towards technology. Because of advice ties depend on work relations but also on spatial and "functional" proximity among nodes, it is important to facilitate spontaneous and informal face to face communication by arranging similar people close to one another. These patterns of communication encourage also the development of shared language that is a necessary condition to enhance the exchange process among individuals. In turn, the ability to exchange information among members allows sharing positive (or negative) beliefs about new systems. Therefore, these results confirm the central assumption of social information processing theory, according to which individuals must be proximate to the attitudes, information or behaviour of others to be exposed to social information and to their influence.

MANAGERIAL IMPLICATIONS

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

Given this context, my study offers several practical implications for firms that have to manage this issue and that are going to introduce a new information system.

In fact, implementation of a new technology is not only related to technical or project management issues, but also to social aspect that involves users. In particular, management has to monitor and take into account rumours related to technology in order to isolate a possible negative domino effect.

The results show that relational variables explain a high variance. Monitoring interactions in an organizational social system, especially during the early stages of a system implementation, makes early detection and correction of difficulties possible.

It must also be taken into account that when, for instance, advertising, marketing, or implementing new systems, IT providers might find it beneficial to address messages to pivotal people in the organizational network, that means addressing it to innovative and self confident individuals but also central nodes. Thus, specific attention must be devoted to fostering the development of profitable relationships in order to favour the introduction of a new technology. This issue can be achieved for instance by grouping people in work teams whose leaders are assigned supporting and fostering roles.

On the other side, managers have to be able to leverage on those dimensions of social capital which enhance the development of positive beliefs toward technology. So it must be taken into account that the role of organizational support is important to facilitate change management process in which users are involved.

LIMITATIONS

My data are cross-sectional, so future research should adopt a longitudinal research design in order to fully establish the causality relationship from independent to dependent variables. This approach could be interesting especially in reference with relational data thus to analyse how the evolution of relations may affect and change individual acceptance of technology.

Therefore, the present study adopts subjective measures, by asking individual perception to questionnaire recipients; although it is common in acceptance literature to assess both

perception of ease of use and usefulness and their antecedent, it should be considered more objective variables.

This work and its relational perspective are new in the field of technology acceptance theory and needs to be tested and validated.

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