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COMBINING INTERNAL AND EXTERNAL PERSPECTIVES: THE ADOPTION OF VOIP IN ITALY¹

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Abstract

The present research considers simultaneously the institutional, management fashion, and efficient-choice perspectives for understanding the drivers of VoIP adoption process. A theoretical model is developed and tested through structural equation modelling on 620 Italian firms. We hypothesize that both external and internal factors affect the intention to adopt VoIP. Results underscore both the importance of coercive and fashion setters' pressure (i.e. external factors), and the pivotal role of perceived internal benefits (i.e. internal factors) in shaping intention to adopt.

Keywords: technology adoption, intention to adopt, institutional perspective, management fashion, efficient-choice, VoIP.

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COMBINING INTERNAL AND EXTERNAL PERSPECTIVES: THE ADOPTION OF VOIP IN ITALY

1. INTRODUCTION

Many organizations operate in a hyper-competitive environment (D'Aveni, 1995) that requires the capacity to quickly respond to new technology opportunities offered by the Information and communication technologies (ICT) market. Indeed the organizational capacity to interact with technology innovation represents a condition for survival and success (Ahuja and Thatcher, 2005). In order to exploit strategic and organizational change opportunities related to innovations (Orlikowski, 1992), it is necessary to understand which factors influence the adoption process of such innovations (Fichman, 2000).

The interest generated by the ICT adoption field has driven academic and managerial communities to develop several theoretical and empirical models in order to understand the main drivers underlying such adoption processes (Robertson and Gatignon, 1986; Chengular-Smith and Duchessi, 1999; Teo et al., 2003). Influencing factors have been analyzed in the literature following two different perspectives: the first one is oriented to the study of intra-organizational factors, and it is based on the efficiency-choice stream of research (Abrahamson, 1991; Fichman, 2000); the second perspective is focused on environmental factors and it is based on new institutional and management fashion theories (Fichman, 2004).

Recent studies have developed diffusion and adoption models with the objective to join together the two different perspectives (e.g. Fichman, 2000). These studies are based neither on robust theoretical models nor on a solid empirical support (Carson et al., 2000). Therefore, the aim of our study is twofold: firstly, we would like to combine intra-organizational and environmental perspectives; secondly, we aim to point out the main drivers of ICT adoption by relying on empirical evidence.

In order to reach these objectives, we chose to analyze the diffusion and adoption process of Voice over IP (VoIP) by Italian firms. VoIP is a collection of hardware, software and network infrastructures for voice communications using Internet Protocol. It can be considered a new communication technology. According to Rogers (1986, p. 2) a communication technology is "*the hardware equipment, organizational structures, and social values by which individuals collect, process, and exchange information with other individuals*". In particular, VoIP represents an emerging communication technology that can be a source of competitive advantage and/or a trigger for organizational change.

By July 2006, 16% of Italian firms with more than 10 employees had adopted VoIP (IOSI, 2006). In Italy, VoIP has already involved two of the five adopter categories proposed by Rogers (2003), i.e. innovators and early adopters. This characteristic allows a better analysis of diffusion phenomenon and a more precise test of the research model. Indeed, previous literature shows that the adoption phenomenon can be better explored during the first stages of diffusion (Fichman, 2001; Teo et al., 2003).

In order to test our hypotheses we analyzed 1900 firms with more than 10 employees, which are a representative sample of Italian firms. Research hypotheses have been tested through structural equation modeling technique (Chin, 1998).

The remainder of this paper is structured as follows. The next section describes the theoretical framework deriving the research hypotheses. Then, we will present the methodology used to test the model, including the study context and sample, measurement, and results. The last section discusses results, providing theoretical and practical implications.

2. THEORETICAL FRAMEWORK

2.1 The concept of adoption

The adoption of innovation is the decision to adopt an innovation by specific actors (individuals, organizations, etc.) (Rogers, 2003). Some authors distinguish the concept of “primary adoption” from the concept of “secondary adoption”. Primary adoption is the organizational decision to adopt the innovation, while secondary adoption is the individual innovation adoption by users inside the organization (Leonard-Barton and Deschamps, 1988; Gallivan, 2001). Fichman (2000) distinguishes between the concept of “formal organizational decision to adopt” and “post-formal adoption process”. The former corresponds to the physical acquisition or purchase of the innovation by the organization, the latter refers to the extent to which the IT innovation is accepted and used by employees.

The present study is mainly focused on primary adoption, even if we recognize that individual adoption may have an influence in shaping the organizational decision process for the formal adoption (Kettinger and Lee, 2002). Moreover, our study focuses on intention to adopt rather than focusing on already occurred adoption process. This choice is twofold: on one hand, intention allows to develop a predictive model (Teo et al., 2003); on the other hand, the theory of reasoned action posits a strong relationship between intentions and performed behavior (Fishbein and Ajzen, 1975).

Consistent with this conceptualization, we propose a theoretical model that integrates three different perspectives to predict intention to adopt: institutional, management fashion, and efficient-choice perspective. The first two perspectives focus on environmental factors, while the last perspective focuses on internal factors. Figure 1 depicts our research model.

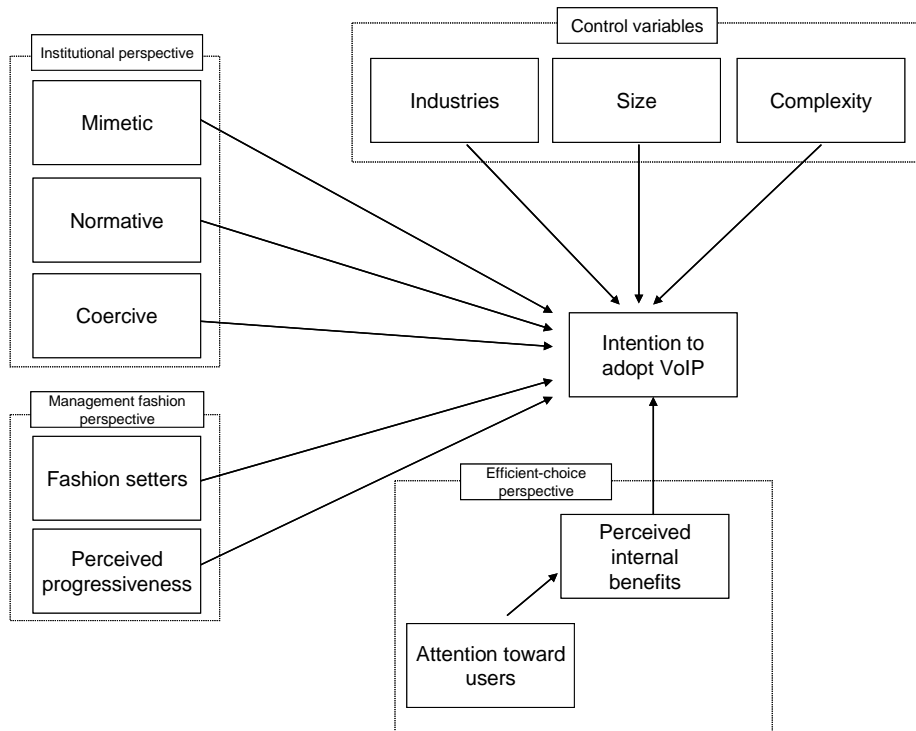


Figure 1: Theoretical model

2.2 Institutional perspective

The New Institutional Theory points out the importance of institutional environments for shaping organizational actions (Meyer and Rowan, 1977; Scott and Meyer, 1994; DiMaggio and Powell, 1991). Firms residing in an organizational field are more likely to resemble each other, showing institutional isomorphism (Tingling and Parent, 2002). DiMaggio and Powell (1983) distinguish among three types of institutional pressures: mimetic, coercive, and normative.

Mimetic pressure may lead an organization to change over time to become more similar to other organizations in the same institutional environment (DiMaggio and Powell, 1983), generating conformity with competitors (Westphal, et al. 1997). The mimetic pressure exerts its influence mostly when innovations are uncertain and ambiguous (DiMaggio and Powell, 1983; March and Olsen, 1976) which characterizes the early adoption stage (Rogers, 2003). For example, firms are more likely to comply with mimetic pressure in order to reduce research costs (Cyert and March, 1963), or to minimize experimentation costs (Levitt and March, 1988). Since VoIP, as a new ICT, can be characterized by uncertainty and ambiguity, then, we argue that the intention to adopt is shaped by the behavior of competitors that have already adopted VoIP. Formally,

Hypothesis 1a: Greater mimetic pressure, will lead to greater intent to adopt VoIP.

Coercive pressure is defined as formal or informal pressure exerted on organizations by other organizations upon which they are dependent (DiMaggio and Powell, 1983). Organizations characterized by dependence in terms of resources controlled by a dominant actor are more likely to comply with decisions taken by the dominant actor (Teo et al., 2003; Pfeffer and Salancik, 1978; DiMaggio, 1988). Dominant actors could be the government, suppliers or customers, and parent corporations (DiMaggio and Powell, 1983; Teo et al., 2003). Following the reasoning of Teo et al. (2003) we argue that in the context of VoIP adoption the dominant actor is represented by the parent corporation. Indeed, subsidiaries are compelled to adopt organizational practices, and technologies that are compatible with practice and technologies with parent corporations (DiMaggio and Powell, 1983). Formally,

Hypothesis 1b: Greater coercive pressure, will lead to greater intent to adopt VoIP.

Normative pressure can be considered as the sharing of norms and values through relational channels among members of a network. These channels facilitate the agreement about the effectiveness of norms and values, which in turn influence the strength of these norms and values in conditioning the organizational behavior (DiMaggio and Powell, 1983). The literature takes into consideration different normative relational channels, such as, relational channels with suppliers, customers and organizational associations (DiMaggio and Powell, 1983; Burt, 1982). We follow Burt (1982) and Teo et al. (2003) in considering suppliers and customers as the main source of normative influence. Indeed, organizations having direct and frequent communication are more likely to show similar behaviors (Burt, 1982; Rogers, 2003). Thus, communication with customers and suppliers that have already adopted a new communication technology leads the focal organization to be exposed to the new technology. Therefore we hypothesize that VoIP fits with this assumption. Formally,

Hypothesis 1c: Greater normative pressure, will lead to greater intent to adopt VoIP.

2.3 Management fashion perspective

Management fashion perspective has its roots in New Institutional Theory (Meyer and Rowan, 1977; DiMaggio and Powell, 1991), and in the production of culture literature (Hirsch, 1972). Green (2004) defines management fashion theory as a variant of New Institutional Theory. Both institutional and

management fashion perspectives have in common the following assumption: the decision to adopt an innovation is not characterized by a rationalistic and independent assessment, but relies on the role played by the external environment in influencing the decision process (Fichman, 2004).

Management fashion theory is based on the following assumption: norms both of rationality (Meyer and Rowan, 1977) and progress govern managerial behavior. Norms of managerial rationality are societal expectations that managers will use management techniques that are the most efficient means to important ends (Meyer and Rowan, 1977). Norms of managerial progress are societal expectations that, over time, managers will use new and improved management techniques. Therefore, according to management fashion theory, it is important for managers to *cover* adoption decision with an *appearance* of economic rationality and progress. Such an objective can be achieved by adopting management techniques considered rational and progressive (Abrahamson, 1996). Decision makers use management fashion to communicate to organizational stakeholder that their organizations are consistent with institutional environment (i.e. norms of rationality and progress) (Meyer and Rowan, 1977). Therefore, through this mechanism firms develop a certain degree of perceived progressiveness.

According to the General Model of Management Fashion Setting (Abrahamson, 1996; Abrahamson and Fairchild, 2001), norms of rationality and progress create a management fashion market for management fashions. The management fashion market is the arena in which (1) management fashion setters supply management fashions, and (2) management fashion consumers demand management fashions. In the supply-side of fashion market, management fashion literature (Abrahamson and Fairchild, 2001) has distinguished a variety of knowledge organizations and “idea entrepreneurs” that create and disseminate new ideas, new knowledge, and new technologies (e.g. business press organizations, professional communities, etc.). In particular, management fashion suppliers create and disseminate management fashions in order to trigger the diffusion of certain innovations. Therefore, they exert pressure over potential adopters.

Following this approach, VoIP may be viewed as a new communication technology with a management fashion dimension. Indeed, VoIP may be considered a rational and progressive innovation. Moreover, potential adopters may be exposed to fashion setters’ pressure in the form of business press articles, conferences in which academics and consultants promote management fashion rhetoric, and meetings with colleagues (i.e. CIO community meetings). Formally,

Hypothesis 2a: Greater perceived progressiveness, will lead to greater intent to adopt VoIP.

Hypothesis 2b: Greater fashion setter pressure, will lead to greater intent to adopt VoIP.

2.4 Intra-organizational perspective

Institutional and management fashion perspectives focus on the external forces that influence the adoption decision. Other studies point out that organizations adopt innovations to improve their performance (Fichman, 2004). These studies are consistent with an efficiency-choice perspective (Tan and Fichman, 2002; Abrahamson, 1991). According to the efficiency-choice stream of research, the adoption of an innovation is influenced by factors within the organizational boundaries (Greve, 1995). In particular it is possible to point out two dimensions: one focused on the economic benefits for the organization as a whole (Saloner and Shepard, 1995; Tan and Fichman, 2002), and the other focused on the adoption by users within the organization (Leonard-Barton and Deschamps, 1988). Saloner and Shepard (1995) underscore that the propensity to adopt an innovation is positively related to the perceived benefits. Therefore, if firms perceive that VoIP can reduce costs and simplify the communication process, they will be more likely to adopt VoIP. Moreover, Leonard-Barton and Deschamps (1988) focus both on primary and secondary adoption process. Primary adoption refers to the adoption decision made by the organization, while secondary adoption is the individual innovation adoption by users (Leonard-Barton and Deschamps, 1988; Fichman, 2000). Users may play an

important role in influencing the adoption process of innovations (Kettinger and Lee, 2002). Indeed, users' informal and potential use of an innovation has an influence on the managers' beliefs about the internal benefits of the innovation (Leonard-Barton and Deschamps, 1988). Therefore, managers responsible for taking the decision about organizational adoption should develop a particular attention toward users. Attention toward users refers to organizational ability to satisfy their technological needs and to perceive their emergent behaviors (Fichman, 2000). According to that we predict the following:

Hypothesis 3a: Greater perceived internal benefits, will lead to greater intent to adopt VoIP.

Hypothesis 3b: Greater attention toward users, will lead to greater perceived internal benefits.

3. METHODS

3.1 Research context

Data were gathered through computer-assisted telephonic interviews (CATI method) based on a structured questionnaire (Singleton and Straits, 1999). We chose the telephonic interview because it allows clarifying or restating questions that respondent does not at first understand (Singleton and Straits, 1999).

The questionnaire was developed using a multi-stage iterative procedure. First, an initial set of items was constructed drawing upon prior work. Next, the questionnaire was tested on a sub-sample of 50 firms. Results of pilot test led to further refinement of the questionnaire.

A total of 1900 CIOs, or responsables for IT decisions, were interviewed. We created a stratified random sampling² for representing Italian firms with more than 10 employees. The definition and description of VoIP were communicated to respondents to improve the accuracy of responses. From the original sample, 537 individuals were not interviewed because declared to not have any cognizance of VoIP. In order to maintain a predictive value on adoption intention (Teo et al., 2003) 337 questionnaires were excluded from the analysis because they referred to organizations that had already adopted VoIP. Moreover, 406 questionnaires were excluded due to the high number of missing data. Analyses have been performed on 620 organizations' responses, yielding to a response rate of 33% which is consistent with previous research on adoption (e.g. Teo et al., 2003)

3.2 Measurement model

Mimetic Pressures

Relying on Teo et al. (2003), the mimetic pressure was operationalized through two sub-constructs measuring the extent of adoption by competitors (Cmp-adpt) and the perceived success of adoption by competitors. A seven-point scale was used to assess the perceived extent of adoption by competitors (1= zero extent; 7=100 percent extent). The success of adoption was operationalized by asking respondents to indicate on a seven-point scale the extent to which competitors have gained benefits from VoIP adoption. Due to the lack of archival data, the success of adoption by competitors was measured as perceptible (Teo et al., 2003).

We noticed that respondents were able to give estimation about the extent of adoption among competitors, but they did not have any perceptions about the success of competitors which already adopted VoIP (about 75% of respondents declared "don't know"). This issue can be traced back to the

² The stratification is based upon: industry (Social and public services, Retailing, Finance, Manufacturing, Defense and Government, Healthcare, Services, Utilities), size, and geographical location.

early stage of VoIP adoption on the market, requiring a greater lag of time to assess the benefits of adopting VoIP (Rogers, 2003). Since that, we did not include it in the structural model.

Coercive Pressures

Drawing on Teo et al. (2003) coercive pressure was measured by asking whether or not the parent organization adopted the VoIP (Parent) (1 = yes, 0 = no). However, differently than Teo et al. (2003) we did not assess the perceived dominance of customers and suppliers who have adopted a VoIP. This choice can be traced back to the fact that the study of Teo et al. (2003) analyzes EDI technology, which implies that actors of the same supply chain should adopt the same kind of technology. VoIP, conversely, is not strictly focused on the supply chain.

Normative Pressures

Following Teo et al. (2003), we operationalized the normative pressure as a formative construct formed by two sub-constructs: the extent of VoIP adoption by an organization's suppliers (S-adpt) and customers (C-adpt). The two sub-constructs were measured through a seven-point scale (1= zero extent; 7=100 percent extent).

Fashion setters' pressure

Relying on Abrahamson (1996) and Abrahamson and Fairchild (2001), respondents were asked whether they read columns on newspapers or magazines about VoIP (Pap), whether they attended conference about VoIP (Conf), and whether they participated to meetings about VoIP with other CIOs (Meet). Thus, fashion setters' pressure was assessed as a formative construct formed by the above mentioned sub-constructs. Each of the three sub-constructs was assessed with a dummy measure: 1 = yes, 0 = no.

Progressiveness

Drawing on Abrahamson (1996) and Abrahamson and Fairchild (1999), we assessed progressiveness through two sub-constructs: the extent to which VoIP is considered to be a practice that characterizes a modern, dynamic company (Mod), and the extent to which VoIP is considered a legitimated way to manage communication in its industry (Cons). Seven-point scales were used (1=strongly disagree; 7=strongly agree). Progressiveness has been assessed as a formative construct.

Perceived internal benefit

Perceived internal benefit was measured as a formative construct through two different sub-constructs: the extent to which VoIP allows to reduce costs (Cost); and the extent to which VoIP allows to reduce infrastructural complexity (Infr). Seven-point scales were used (1=strongly disagree; 7=strongly agree).

Attention toward users

Relying on the work of Kettinger and Lee (2002) we operationalized attention toward users as the extent to which VoIP offers new and useful services to users (Serv); and the extent to which VoIP is already adopted by users on informal basis (Inf). Seven-point scale was used (1=strongly disagree; 7=strongly agree). Attention toward users was assessed as a formative construct.

Intention to Adopt

Based on Fishbein and Ajzen (1975) we measured intention to adopt VoIP (Int) as a reflective construct based on two items 1) Our firm is contemplating VoIP adoption within a year; 2) We intend to adopt VoIP within one year. Seven-point scale was used (1=strongly disagree; 7=strongly agree).

Control Variables

We assessed perceived complexity (Comp) adopting two items from Teo et al. (2003). We asked respondents to indicate the level of difficulty in: 1) understanding the impact of VoIP on organizational processes; 2) understanding the VoIP from a technological point of view. Both items

were assessed on a seven-point scale (1=extremely simple; 7= extremely difficult). Organization size was measured using the total number of employees. The industry has been identified on the basis of the Italian industry code (SIC code).

Table 1 shows the weights of the sub-constructs used for formative constructs, while Table 2 shows the descriptive statistics and the correlations among constructs.

Construct	Description	Weight
Cmp-adpt	Extent of adoption by competitors	1.00
C-adpt	Extent of adoption by customers	.44*
S-adpt	Extent of adoption by suppliers	.71*
Parent	Conformity with parent corporation's practices	1.00
Pap	Exposition to newspaper or magazine articles	.48**
Conf	Participation to conferences	.35**
Meet	Meetings with other CIOs	.58**
Mod	Extent of modernity and dynamicity	.64**
Cons	Extent of legitimacy within industry	.56**
Cost	Extent of cost reductions	.22**
Infr	Extent of reductions in infrastructure complexity	.94**
Serv	Ability to offer new services to users	.83**
Inf	Degree of informal adoption by users	.64**

Table 1: Results of PLS analysis: weights for formative constructs

** $p < .01$

* $p < .05$

	Mean	Std. Dev.	Cmp-adpt	C-adpt	S-adpt	Parent	Pap	Conf	Meet	Mod	Cons	Cost	Infr	Serv	Inf	Int
Cmp-adpt	1.90	1.23														
C-adpt	1.96	1.25	0.62													
S-adpt	2.10	1.35	0.52	0.72												
Parent	0.09	0.29	0.24	0.06	0.17											
Pap	0.79	0.41	0.17	0.12	0.13	0.03										
Conf	0.21	0.41	0.12	0.11	0.14	-0.01	0.17									
Meet	0.36	0.48	0.15	0.05	0.09	0.06	0.13	0.42								
Mod	2.61	1.53	0.25	0.32	0.26	0.01	0.08	0.08	0.01							
Cons	3.84	1.76	0.11	0.21	0.16	0.06	0.04	0.03	-0.02	0.45						
Cost	5.76	1.51	-0.02	0.01	0.03	0.07	-0.03	-0.06	0.06	0.02	0.16					
Infr	4.20	1.70	0.02	0.04	0.06	-0.07	0.00	-0.03	-0.08	0.24	0.25	0.17				
Serv	4.60	1.65	0.00	0.03	0.08	-0.04	0.07	0.02	-0.02	0.18	0.32	0.21	0.52			
Inf	3.97	1.80	0.04	0.00	0.06	-0.03	0.04	-0.03	-0.04	0.23	0.33	0.16	0.33	0.36		
Int	2.90	1.99	0.29	0.26	0.27	0.24	0.12	0.16	0.19	0.15	0.16	0.12	0.07	0.09	0.03	
Com	3.39	1.34	0.00	0.14	0.17	-0.05	-0.05	0.05	-0.06	0.02	0.02	-0.08	-0.01	-0.03	-0.01	0.04

Table 2: Descriptive statistics of constructs and correlations

3.3 The structural model results

Testing our hypotheses we adopted PLS, a latent structural equations modeling technique which allows to use in a simultaneous fashion both formative and reflective variables³ (Chin, 1998). Moreover, since PLS is preferred for testing prediction-oriented models (Chin, 1998) it fits with the purposes of our study.

Figure 2 shows the path coefficients and the explained variance for the proposed structural model ($R^2 = .20$). Concerning the institutional perspective, the hypothesis 1a related to mimetic pressure is not supported. We found support for hypothesis 1b which underscores a positive influence of normative pressure on intention to adopt VoIP (coeff.= .11; $p < .05$). Hypothesis 1c, stating the positive influence of coercive pressure on intention to adopt is also strongly supported (coeff.= .20; $p < .01$).

Concerning the factors related to the management fashion perspective, both the variables present positive and significant impact on intention to adopt VoIP. Indeed, hypothesis 2a concerning fashion setters (coeff.= .18; $p < .001$) and hypothesis 2b related to progressiveness (coeff.= .08; $p < .05$) are both supported.

Hypothesis 3a concerning the influence of perceived internal benefits is strongly supported (coeff.= .12; $p < .05$). Hypothesis 3b stating the influence of attention toward users in shaping perceived internal benefits is also strongly supported (coeff.= .54; $p < .001$).

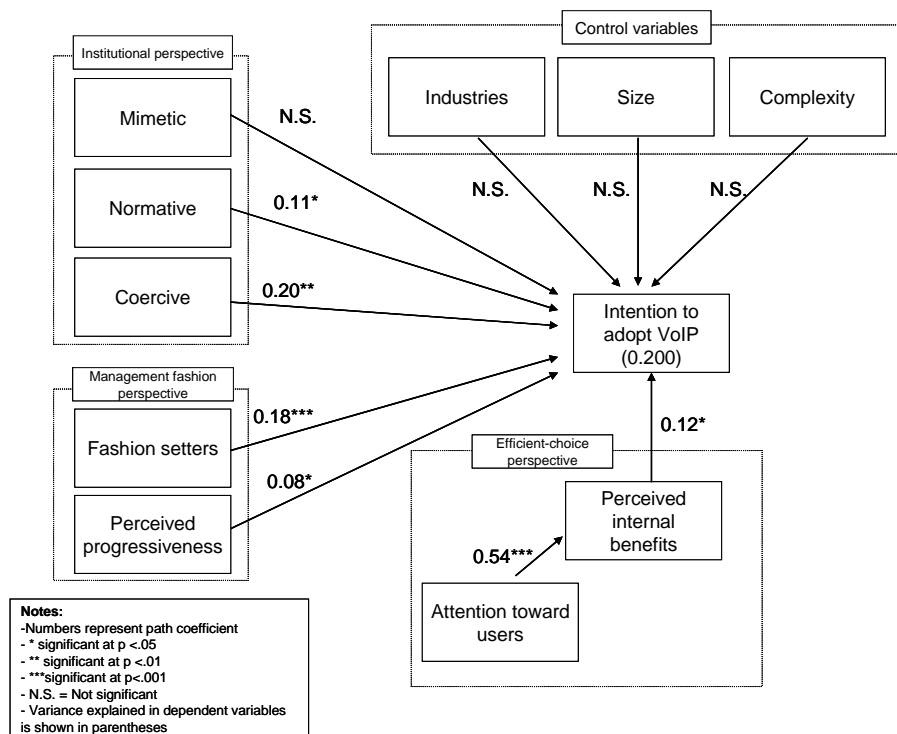


Figure 2: Results of PLS analysis for theoretical model

³ For a comprehensive discussion about formative and reflective measures see Jarvis et al. (2003).

4. DISCUSSIONS AND IMPLICATIONS

This study provides several theoretical and managerial implications. First, our findings support the need for an integrated view of the adoption phenomenon. Indeed, we found that, beside institutional and management fashion factors, a critical role is played by the perception of gaining internal benefits. Second, within institutional perspective it is possible to point out the strong influence of coercive and normative pressures while mimetic pressure does not exert any significant influence on intention to adopt. This result is consistent with the diffusion patterns of VoIP in Italy, which underlines that we are still in the early adoption stage. Therefore, organizations that have already adopted have not reached the critical mass yet (Rogers, 2003). Moreover, the fact of being in early adoption stages highlights the pivotal role of actors (i.e. fashion setters) devoted to disseminate rhetorical and technical information about ICT innovation. We can argue that, in order to move forward to the next diffusion step, an active intervention of fashion setters is required. According to this point of view, management fashion phenomenon can trigger the diffusion of ICT innovations. Third, our results underscore that, in the diffusion of ICT innovation, it is important not only the fashion dimension and the rhetorical perspective, but also the technical rational on which the innovation is based. In particular, observing perceived internal benefits effect we can state a real learning of connection between actions and outcomes (Levitt and March, 1988) is required during the initiation phase of the adoption process (Rogers, 2003). Real learning can be achieved through (1) the active role of external entities (Orlikowski, 1992), and (2) the decision makers' ability to read both users' needs and user informal behavior. Our results provide some insights both for VoIP suppliers and policy makers. Indeed, it seems necessary for suppliers to cooperate with the other fashion setters (e.g. media) in order to diffuse a better awareness of the VoIP and its benefits. Therefore, fashion setters may represent a critical leverage for the diffusion of ICT innovations knowledge. Policy makers should develop a fertile environment in which the different actors involved in the ICT market can operate collaboratively to achieve a good balance between the needs of offer and demand side. Therefore, policy makers should support the diffusion of awareness of VoIP, balancing the rhetoric of supply side actors with the technical and economic needs of the demand side actors.

As with any empirical field study, this work has limitations. First of all, since the research design is cross sectional, causality among variables should be inferred by theoretical reasoning rather than from over time responses. Moreover, to the extent that VoIP is a specific communication technology, our results and implications may not fully generalize to other technologies. However, as we explained above we believe that the characteristics of VoIP are consistent with a current trend of high malleability and flexibility in the ICT field. Thus we do not think that the effects of this single technology would affect the generalizability of our findings. Finally, the results are based on the Italian context suggesting to orient future research in other national and cultural settings.

Some issues for future research emerge from this study. In particular, future research should delve more deeply into the characteristics of the potential adopters and its context. Moreover, a cross-country analysis would be useful for understanding the cultural dimensions that can affect the adoption process. Finally, following Fichman's (2004) suggestion it would be interesting to integrate further theoretical perspectives in facing the study of innovation adoption process (e.g. mindfulness perspective).

References

- Abrahamson, E. (1991). Managerial fads and fashions: The diffusion and rejection of innovations. *Academy of Management Review*, 16, 586-612.
- Abrahamson, E. (1996). Management fashion. *Academy of Management Review*, 21, 254-285.
- Abrahamson, E., & Fairchild, G. (1999). Management fashion: Lifecycles, triggers, and collective learning processes. *Administrative Science Quarterly*, 44, 708-740.
- Abrahamson, E., & Fairchild, G. (2001). Knowledge industries and idea entrepreneurs: New dimensions of innovative products, services, and organizations. In C. B. Schoonhoven & R. E. (Eds.), *The entrepreneurship dynamic: Origins of entrepreneurship and the evolution of industries*. Stanford: Stanford University Press.
- Ahuja, M. K., & Thatcher, J. B. (2005). Moving beyond intentions and toward the theory of trying: Effects of work environment and gender on post-adoption information technology use. *MIS Quarterly*, 29(3), 427-459.
- Burt, R. S. (1982). *Toward a structural theory of action*. New York: Academic Press.
- Carson, P. P., Lanier, P. A., & Carson, K. D. (2000). Clearing a path through the management fashion jungle: Some preliminary trailblazing. *Academy of Management Journal*, 43, 1143-1158.
- Chengular-Smith, I., & Duchessi, P. (1999). The initiation and adoption of client-server technology in organizations. *Information and Management*, 35, 77-88.
- Chin, W. (1998). Issues and opinions on structural equation modeling. *MIS Quarterly*, 22(1), 7,10.
- Cyert, R. M., & March, J. G. (1963). *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice Hall.
- D'Aveni, R. A. (1995). *Hypercompetition: Managing the dynamics of strategic maneuvering*. New York: Free Press.
- DiMaggio, P. J., & Powell, W. W. (1991). Introduction. In W. W. Powell & P. J. DiMaggio (Eds.), *The new institutionalism in organizational analysis*: University Of Chicago Press.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48: 147-160.
- DiMaggio, P. J. (1988). Interest and agency in institutional theory. In Lynne Zucker (Ed.), *Institutional patterns and organizational culture*, 3-22, Boston: Pitman.
- Fichman, R. G. (2000). The diffusion and assimilation of information technology innovations. In R. W. Zmud (Ed.), *Framing the domains of it management research: Glimpsing the future through the past*. Cincinnati: Pinnaflex Education Resources, Inc.
- Fichman, R. G. (2001). The role of aggregation in the measurement of it-related organizational innovation. *MIS Quarterly*, 25(4), 427-455.
- Fichman, R. G. (2004). Going beyond the dominant paradigm for information technology innovation research: Emerging concepts and methods. *Journal for the Association of Information Systems*, 5(8), 314-355.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley Publishing Company.
- Gallivan, M. J. (2001). Organizational adoption and assimilation of complex technological innovations: Development and application of a new framework. *The DATA BASE for Advances in Information Systems*, 32(3), 51-85.
- Green, G. (2004). Perceived control and the diffusion of software development innovations. *Journal of High Technology Management Research*, 15(1), 123-144.
- Greve, H. R. (1995). Jumping ship: the diffusion of strategy abandonment. *Administrative Science Quarterly*, 40: 444-473.
- Hirsch, P. M. (1972). Processing fads and fashions: An organization-set analysis of cultural industry systems. *American Journal of Sociology*, 77, 639-659.
- IOSI (2006). The Diffusion of VoIP in Italy. Università Bocconi Research Report.

- Jarvis, C.B., MacKenzie, S.B., Podsakoff, M. (2003). A Critical Review of Construct Indicators and Measurement Model Misspecification in Marketing and Consumer Research. *Journal of Consumer Research*, 30, 199–218
- Kettinger, W. J., & Lee, C. C. (2002). Understanding the is-user divide in it innovation. *Communications of the ACM*, 45(2), 79-84.
- Leonard-Barton, D., & Deschamps, I. (1988). Managerial influence in the implementation of new technology. *Management Science*, 34(10), 1214-1252.
- Levitt, B., & March, J. G. (1988). Organizational learning. *Annual Review of Sociology*, 14, 319-338.
- March, J., & Olsen, J. (1976). *Ambiguity and choice in organizations*. Bergen: Universitetsforlaget.
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structures and myth and ceremony. *American Journal of Sociology*, 340-363.
- Orlikowski, W. (1992). The duality of technology: Rethinking the concept of technology in organizations. *Organization Science*, 3(3), 398-427.
- Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. New York, NY: Harper & Row.
- Robertson, T. S., & Gatignon, H. (1986). Competitive effects on technology diffusion. *Journal of Marketing*, 50(July), 1-12.
- Rogers, E. M. (2003). *Diffusion of innovations*. New York: The Free Press.
- Rogers, E. M. (1986). *Communication technology: The new Media in society*. New York: The Free Press
- Saloner, G., & Shepard, A. (1995). Adoption of technologies with network effects: An empirical examination of the adoption of automated teller machines. *RAND Journal of Economics*, 26(3), 479-501.
- Scott, W. R., & Meyer, J. W. (1994). *Institutional environments and organizations: Structural complexity and individualism*. Newbury: Sage.
- Singleton, R. A. J., & Straits, B. C. (1999). *Approaches to social research*. Oxford: Oxford University Press.
- Tan, S. S. L., & Fichman, M. (2002). *Adoption of web-based transactional banking: Efficiency-choice and neo-institutionalism perspectives*. Paper presented at the Twenty-third International Conference on Information Systems, Barcellona.
- Teo, H. H., Wei, K. K., & Benbasat, I. (2003). Predicting intention to adopt interorganizational linkages: An institutional perspective. *MIS Quarterly*, 27(1), 19.
- Tingling, P. M., & Parent, M. (2002). Mimetic isomorphism & technology evaluation: Does imitation transcend judgment? *Journal for the Association of Information Systems*, 3(5), 113-143.
- Westphal, J. D., Gulati, R., & Shortell, S. M. (1997). Customization or conformity? An institutional and network perspective on the content and consequences of tqm adoption. *Administrative Science Quarterly*, 42, 366-394.