IT ADOPTION IN THE PUBLIC HEALTHCARE SECTOR: AN INSTITUTIONAL RESEARCH AGENDA

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ABSTRACT

The study of IT adoption is a recurrent topic in IS research. In the healthcare sector and hospitals, the adoption of IT is predominantly justified by the desire to prevent medical errors and increase patients' safety (Menachemi et al., 2007). However, researchers such as Mc Kee and Healy (2002) have observed that hospital reorganisations have received far less attention from researchers in Europe than is the case in the United-States. Therefore, the objective of this paper is to develop a research agenda focused on IT adoption in European healthcare organisations and to bring the new insights that can be gained from a more sociological, institutional view of the adoption process.

KEYWORDS

IT adoption, healthcare sector, institutional theory.

1. INTRODUCTION

The study of IT adoption is a recurrent topic in IS research. Numerous studies have been conducted seeking to identify and assess the role of different factors in influencing consumer adoption. Two main theoretical frameworks are usually mobilised. The first one pertains to the diffusion of innovation perspective based on the writings of Rogers (1995). The second one builds upon the organisational innovativeness perspective, with Wolfe (1994) being one of its salient contributors. As noted by Teo, Wei and Bensabat (2003), much of this literature suggests that IT adoption is mainly driven by rational factors such as technical criteria and performance or efficiency consideration.

In the healthcare sector and hospitals, the adoption of IT is predominantly justified by the desire to prevent medical errors and increase patients' safety (Menachemi et al., 2007). These arguments fall within the rational perspective. However, this view does not take into account social processes and interactions that are also at work in any decision-making process and which consequently render organisational processes less rational than could be expected. Institutional theory helps to conceptualize such aspects and enhance our understanding or organisations choices.

Researchers such as Mc Kee and Healy (2002) have observed that hospital reorganisations have received far less attention from researchers in Europe than is the case in the United-States. It is clear that there is a need to explore IT adoption in the European Healthcare sector. While classical theories of IT adoption can be used the highly complex institutional environment that surrounds IT decision in European hospitals has to be taken into account. Further investigation is all the more necessary as a number of dramatic changes are happening in the public sector. For instance, the Irish healthcare sector is coming to the end of its health sector restructuration resulting in a higher level of centralisation. The Health Service Executive regroups organisation and administration of budgets and manages the health services for the whole country including their strategic orientation (Health Act 2004) The Irish government is about to invest €490 million in the development of a health information system (e-health) with the goal of better service to Irish patients.

In France, the IT investment plan (Hôpital 2012) is currently being implemented with a global reconfiguration of the French healthcare system. The adoption of IS is one of the central stakes of this project. Public agencies are experimenting, comparing IT solutions and try to make the better choices. The regional health agencies are in place in order to coordinate actions and to identify and disseminate good practices.

Tools are in place to control a certain number of quantitative indicators (which is in line with traditional views of IT adoption). However, in both countries, preliminary interviews demonstrate that actors express the need for a deeper understanding of the role and influence of social processes (Authors, 2008).

Taking into account this different aspect, the objective of this paper is to develop a research agenda focused on IT adoption in European healthcare organisations and to bring the new insights that can be gained from a more sociological, institutional view of the adoption process.

The structure of this paper is as follows: firstly we first the classical arguments that are developed when studying IT adoption. Following this we present institutional theory and show how it encompasses and extends current analyses of IT adoption. We then, develop a series of research proposals in order to stimulate future researches on this undoubtedly critical topic for European hospitals.

2. IT DIFFUSION

The primary intellectual discipline for diffusion theory has been sociology (Rogers, 1983). However, the diffusion literature encompasses disciplines such as Information Systems (Swanson, 1974, 1987, 1988; Ives, Olsen and Baroudi, 1983; DeSanctis, 1983; Davis, 1986; Davis, Bagozzi and Warshaw, 1989), rural sociology (Rogers, 1983), medical sociology (Colman, Katz, and Menzel, 1957), cultural anthropology (Barnett, 1953), geography (Brown,

1981), and industrial economics (Mansfield, 1961). In addition, consumer behaviour researchers have shown interest in diffusion theory and contributed to the existing literature on this construct (Arndt, 1967; Frank, Massy, and Morrison, 1964; King, 1963; Robertson, 1967; Silk, 1966).

In the psychological literature (Cummings, 1965; Amabile, 1983; Angle, 1989) the innovation diffusion process has been comprehensively examined in terms of idea generation and creativity, while in the economic literature (Farrell and Saloner, 1985; Katz and Shapiro, 1986; Rosenberg, 1982; Thirtle and Ruttan, 1987) the focus has been the technology push[1] versus demand pull. Other contributions to understanding the diffusion of high-technology products have been provided by marketing researchers (Capon and Glazer, 1987; Gupta, Raj, and Wilemon, 1986; Shanklin and Ryans, 1984; Cooper, 1979). Examples of the best-known diffusion models in marketing include those of Bass (1969), Fourt and Woodlock (1960), and Mansfield (1961). Management scholars (Dewar and Dutton, 1986; Mamer and McCardle, 1987; Kanter, 1983; Tushman and Romanelli, 1985; Van de Ven, Angle, and Poole, 1989), and organisational behaviour researchers (Baldridge and Burnhan, 1975; Kimberly, 1981; Czepiel, 1974; Zaltman, Duncan, and Holbek, 1973) have also shown interest in the innovation diffusion process. Indeed Rogers (1983, 1986, 1992) suggests that few topics in the social sciences have received as much study as innovation diffusion and adoption. Although he overstates the situation, it is true that researchers from diverse disciplines have shown considerable interest in the construct.

Despite the intense attention from academia, research on the factors that predict or inhibit the diffusion of high-technology innovations[2] remains limited (Van de Ven, 1991). This is particularly evident in the case of adoption of technology within the healthcare sector. Moreover, due to the varying disciplines of diffusion researchers, studies on the diffusion of high technology innovations have widely varying objectives and often ignore the individuals who make the adoption decision. For example, industrial research on high technology products examines how to improve the organisational adoption rate (More, 1984). Marketing studies, on the other hand, tend to concentrate on specific marketing strategies for high-tech products (Moore, 2002; Mohr, 2001), or to examine the sales behaviour of successive generations of high technology products in terms of substitution (Nortan and Bass, 1987), whilst economists take a different approach and examine the adoption of high technology products within the parameters of how inequality (income disparity) affects economic growth (Gabrielsen, 2001).

2.1 Innovation Adoption

While there has been considerable research on the diffusion phenomenon, there has been far less research focusing on the adoption process. It is true that some researchers have touched on issues related to new product adoption when developing models of the diffusion process. However, these models tend to have a narrow focus and to be bound by specific parameters

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[1] The terms 'technology push' and 'demand pull' innovation can be traced back to Schmookler (1962). 'Demand pull' refers to user need for the technological innovation and 'technology push' signifies attempts to commercialise and increase diffusion of the innovation.
[2] High technology innovations are products with which customers are unfamiliar. Customers tend to high level of uncertainty regarding how to use and attain the full benefits of using such products.

(e.g. Myers and Marquis, 1969; Hagerstrand, 1969). As such they are applicable only in limited contexts and do not contribute to general understanding of the consumer adoption process.

The problem is exacerbated by the differing objectives of adoption and diffusion models. While adoption models stress the cognitive decision-making aspects of innovation adoption and attempt to analyse the influence of specific marketing mix variables on the potential adoption decision (Claycamp and Liddy, 1969; Pringle, Wilson and Brody, 1982), the objective of diffusion models is sales prognosis over a specific time period. Accordingly, diffusion models focus on accurate sales prediction or rate of adoption (Gatignon and Robertson, 1986). Adoption models, on the other hand, derive from an understanding of the behavioural communication literature. The situation is summarised by Van de Ven (1991: 135) who observes that many studies focus on the relationships between various input factors (such as characteristic of the innovation or characteristics of organisations) and rates of innovation adoption - leaving the adoption process itself least understood.

2.2 Characteristics of the Innovation

Diffusion researchers tend to regard all innovations as equivalent units from the viewpoint of study and analysis, but Rogers (1983) considers that this is a dangerous oversimplification as innovations differ in many ways - ways which affect how they are perceived and which affect their rate of adoption. He argues that *"It is the receivers' perceptions of the attributes of innovations, not the attributes as classified by experts or change agents, that affect their rate of adoption"* (1971: 19). He points to the fact that there has been little effort devoted to analysing how the properties of the innovation itself affect its rate of adoption and contends that 49 to 87 percent of the variance in rate of adoption of innovations can be explained by the adopter's perception of five conceptually distinct characteristics, by which innovations can be described. These five characteristics he defines as: (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability.

However, to consider that the five attributes of an innovation proposed by Rogers can explain the rate of adoption of every innovation is too simplistic an approach. For example, the weighting attributed to specific perceptions may differ according to each individual's unique disposition, according to their perception of risk, according to how much they are influenced by their peer group, and according to how the innovation is communicated to them. Moreover, Midgely (1977: 67) suggests that the five attributes proposed by Rogers may pull the consumer in different directions. He puts forward the example of a product that combines high relative advantage with equally high complexity. The former is positively related to innovativeness whilst the latter is negatively related to innovativeness. Other researchers such as Nooteboom (1989) consider that the innovation characteristics suggested by Rogers are incomplete as they do not comprise an understanding of the influence of uncertainty on the consumer's innovation adoption decision. It is likely that variables such as the type of innovation decision, the nature of communication channels diffusing the innovation at various stages in the innovation-decision process, the nature of the social system and the extent of change agents' efforts in diffusing the innovation, also influence the consumer's adoption decision.

Therefore, while the five attributes of an innovation proposed by Rogers are useful in that they help us to see how a potential adopter may evaluate an innovation, they only provide

partial insight into the factors that influence consumer adoption of an innovation. There are other equally relevant factors that influence the adoption decision. One of these factors is the issue of perceived risk.

2.3 Uncertainty & Perceived Risk

The benefit of an innovation is not always obvious, and potential adopters can rarely be sure that an innovation is preferable to the existing product or practice (Verschuur, 1984). Neither are the consequences of adopting an innovation always clear to the potential adopter and this increases the perception of risk and uncertainty associated with the innovation (Frambach, 1995; Bauer, 1967).

One of the clearest categorisations of perceived risk is proposed by Cunningham (1967). He suggests that there are six measures of perceived risk – performance loss, financial loss, time loss, safety loss, social loss and psychological loss. These measures can be categorised in terms of (1) performance risk and (2) psychosocial risk. When this categorisation is applied to the context of the healthcare sector, it is clear that numerous performance and psychosocial risks exist for senior management who make the adoption decision on the part of the organisation. For example, there are performance risks associated with the reliability and security of the technology. There are financial risks associated with the investment decision. There are temporal risks e.g. related to the time delay between the collation of patient or organisational information, there are safety risks associated with the purchase of some technology products from vendors whose integrity is undetermined, and there may be psychosocial risks where senior management worries about how they will be perceived by other members of their peer group should the technology prove to be unsatisfactory for the organisation.

Studies (Donnelly and Etzel, 1973) have shown that the more authentically new an innovation, the greater the potential adopter's perception of risk. This has implications for the healthcare sector as the technologies typically adopted by that sector require significant financial investment, which senior management must be able to justify in terms of organisational benefits and productivity returns to the organisation. Information represents one of the principal solutions for reducing uncertainty regarding an innovation's consequences. Rogers and Kincaid (1981) contend that when a potential adopter seeks out and finds positive information about an innovation's advantages and consequences, uncertainty will be reduced and at this point the decision to adopt or reject the innovation will be made. However, the need for information is likely to vary according to the individual.

2.4 Resistance to Adoption

The diffusion literature pertains almost exclusively to adoption. Rogers (1983) makes mention of *"discontinuance",* which he defines as a *"a decision to reject an innovation after having previously adopted it"* (1983:186). However, rejection without ever having adopted the innovation is rarely considered explicitly in the literature. In fact, both Sheth (1981) and Ram (1987) observe that the diffusion literature is so pro-change biased that can be said to have ignored the issue of innovation resistance.

Nonetheless, resistance to change is a powerful factor that hinders the adoption of innovations. As far back as 1964, Bright observed that *"Anyone introducing a technological*

innovation is implicitly or explicitly predicting acceptance and a rate of adoption. Yet a fact of technological history is that many innovations are subject to frustrating delays and deliberate resistances to adoption" (1964: 171).

Resistance to innovative products can result from unfamiliarity with the product. For example, in a recent study, Veryzer (1998) found that several factors appear to influence individuals' resistance to discontinuous (i.e. really new) products. These factors include: (1) lack of familiarity with the products; (2) uncertainty about the benefits and risks associated with the product; (3) the ability to understand how the product operates; and (4) perceptions of the product's safety and product aesthetics. Although Veryzer's study is limited in that it did not take into account the psychological characteristics of the individual, its results emphasise the influence of uncertainty and perceived risk on adoption outcome.

An alternative explanation for why individuals' resist innovative products is proposed by Rackham (1998). He rejects the conventional wisdom that the problem stems from consumers' resistance to change. He reminds us that we are told that most people are intrinsically conservative and resist innovation and that the broad mass of individuals sees innovative products as risky and find new unproven products less attractive than tried and tested alternatives. The result is that we anticipate that any innovative product, particularly if it has a high technological component, will meet resistance and will sell slowly until potential customers perceive it as safe. However, Rackham points out that this was not the case for high technology innovations such as Xerox 9200, Honeywell TDC2000, and the Kodak Blood Analyser. Despite the fact that these innovations have a high technology component, they met with virtually no resistance and were quickly adopted. He therefore concludes that the reason for consumer resistance to certain innovations cannot be reduced to a simplistic 'resistance to change'. Instead he suggests that consumer resistance to an innovation stems from the way in which the innovation is communicated. He reminds us that the launch of an innovative product typically focuses on all the new features that the product offers, *"despite that fact that the most important issue in the selling process is the customer's needs"* (1999: 206). He contends that the marketing of innovative products tends to be *product*-centered instead of *customer*-centered, and this reduces customer interest in the product. He therefore suggests that the innovation should be communicated to customers in terms of the problems that it solves for the customer. In such a customer-centered approach, the product's features are considered, but only in terms of the manner in which they meet the customer's needs.

Other researchers such as Cooper (1999) are in agreement. He argues that customers have only a transitory interest in product capabilities and he stresses the importance of communicating the solution capabilities of an innovative product. This solution-oriented perspective changes the focus from passive to active. For example, the psychological characteristics of the consumer and the social system within which on-line shopping exists are fixed factors. However, communicating to consumers the ways in which on-line shopping can satisfy their needs is within the control of marketing strategists.

2.5 Information Sources

Cognitive process researchers have shown that the rate of adoption of an innovation increases with the average time of information diffusion within the social system (Bartholomew, 1976; Karmeshu and Pathria, 1980b). The principal question is what method of information

diffusion is most effective in influencing the potential adopter's beliefs and attitudes, and consequently is most effective in increasing the rate of adoption of innovations.

The effectiveness of interpersonal communication in influencing adoption behaviour is substantiated throughout the literature. For example, Whyte's (1954) study demonstrates the effect of *'Web of Word of Mouth'* on the adoption of a technical product. (This expression describes interpersonal communication in a marketing context.) He found that a system of interpersonal communication can cause products to be adopted, and that this form of communication is far more influential than price or advertising. In fact, Whyte concludes that as society becomes increasingly affluent, consumers are presented with escalating diversity of options that causes their reliance on interpersonal opinion/guidance to become *more* rather than less essential. Other marketing studies such those of Arndt (1967a) and Sheth (1971) also emphasise the importance of interpersonal communication as a key part of the potential adopter's information search that leads to the adoption of an innovation. In fact, having reviewed the literature on interpersonal communication, Arndt (1967b: 70) suggests that *"word of mouth emerges as one of the most important, if not 'the' most important source of information for the consumer."* Evidence of the significance of interpersonal communication on the adoption process has been provided by McGuire (1969). In his study on attitude change he found that interpersonal communication facilitates the immediate transfer of persuasive information, as it is information specific to the individual's needs. In addition, he found that due to the interpersonal politeness obligation, the receiver could not avoid receiving the message as would be possible with mass media means of communication such as television or print media.

The consumer behaviour literature recognises the influence of non-marketer dominated information sources, such as friends and relatives, in the consumer's search for information about product quality (Engel *et al.,* 1978). It notes that most individuals evaluate an innovation, not on the basis of scientific research by experts, but through subjective evaluations of near-peers who have adopted the innovation (Katz and Lazarfield, 1955; Czepiel, 1975; Midgeley, 1977; Rogers, 1983). Of course, the effectiveness of word-of-mouth communication can be a double-edged sword and Robertson (1971:164) cautions that "Interpersonal communication can be dysfunctional in (1) recommending against adoption, (2) being unreliable in content, and (3) being unfavourably perceived." In fact, negative personal influence has been shown to have significantly more impact on the potential adopter than positive personal influence (Arndt, 1967a; Mizerski, 1982; Mahajan et al., 1984).

2.6 The Social System

The *innovative* aspect of a new product or idea is contained in the fact that it confronts established ideas and ways of behaviour within the social system (Rogers and Shoemaker, 1971). However, people are inclined to expose themselves to innovations that not only provide a solution to their needs, but that also appear to be consistent with and reinforce their attitudes, or value systems (Hassinger, 1959). Therefore, if the creator of the innovation can communicate the similarity between the innovation and present behavioural norms to the target audience (i.e. if the innovation can be shown to be compatible with socially acceptable ways of behaving) the probability of the innovation being adopted is increased (Rogers, 1971).

This view is strongly supported in the literature (e.g. Ries and Trout, 1976; Rokeach, 1976; Rosenberg, 1976, Brown, 1981). For example, Rokeach (1976) in his work on beliefs,

attitudes and values, suggests that values guide evaluations, attitudes and actions regarding objects and situations. Economists such as Rosenberg (1976) acknowledge that technological innovations do not exist in exclusion and are subject to social influences. He emphasises that *"the productivity of any technology is always dependent upon its institutional and cultural context, and its eventual impact must therefore always be examined within that context"* (1976: 286).

This cultural compatibility or social acceptability is often referred to as legitimation. Legitimation is described as "a subprocess in collective decision-making at which a collective innovation is approved or sanctioned by those who informally represent the social system in its norms and values and in the social power they possess" (Rogers, 1971: 280). In other words, it is an approval and sanctioning activity that is carried out by those who are influential within the social system (Rogers and Shoemaker, 1971). The individuals or peer groups who possess this sanctioning ability will vary according to the potential adopter's values. Gatignon and Robertson (1986) posit that the greater the homogeneity in the population in terms of the parameters of the diffusion process, the faster the rate of diffusion. In other words, the more that people within a social system hold the same values and think alike, then the faster the diffusion of the innovation. Support for this view comes from Feder and O' Mara (1982). However, a note of caution is required, as uniformity in social structure (i.e. people thinking alike and holding the same values) can also have a negative outcome. For example, Bordenave (1976) found that socially structured inflexibility is a major source of resistance to innovation adoption in non-first world countries[3].

In summary, when influential people within the potential adopter's social system indicate by their behaviour that an innovation is acceptable, the rate of innovation adoption is accelerated. The reverse is also true. In the organisational healthcare context, this highlights the importance of identifying the individuals or groups who are perceived as significant and ensuring that their use of the technology and its perceived benefits is widely communicated.

3. THE INSTITUTIONAL FRAMEWORK & IT ADOPTION LITERATURE

Institutional theory sheds light on isomorphic processes as a key concept to understand human and organization choices and behaviours. Such processes pertain to the adoption by organizations of similar structures, strategies and processes. An organization is isomorphic when it resembles other organizations in both its institutional and organizational field (Powell and DiMaggio 1991; Tolbert and Zucker 1983). The concept of institutional field, as recalled by Mignerat and Rivard (2009), refers to the specific environment within which an organization has to gain, repair or maintain its legitimacy. At the organizational level, the field encompasses 'those organizations that, in the aggregate, constitute a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies and other organization that produce similar services or products' (Di Maggio & Powell, 1983, p. 148). In this context, legitimacy stands as a key concept (Powell and DiMaggio, 1991; Meyer and Rowan, 1977). It is defined as "… a generalized perception or assumption that the actions of

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[3] Bordenave found that socially structured inflexibility inhibits access to and adoption of innovations in non-first world countries.

an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions" (Suchman, 1995, p.574). Institutional authors hold that institutional isomorphism enhances organizational legitimacy and thus the organization's acceptance by its external environment (Meyer and Rowan, 1977; Deephouse, 1996). We use this theoretical perspective in order to examine organizational choices, and in particular IT adoption in healthcare sector.

Institutional theory posits that norms, values and rules present in the environment can act as key determinants of the organisation's strategic choices (Oliver, 1997). Within this perspective, the development of organisational structures is guided by imitation and conformity seeking (ie: isomorphism). Such conformity to the institutional environment's expectations benefits the organisation by increasing legitimacy, access to resources and results in improved performance (Deephouse, 1996). Thus, researchers such as Powell and DiMaggio (*op. cit.*) emphasize the role of coercive, normative and mimetic-cognitive mechanisms in the emergence of isomorphism. In an organisational setting, such coercive, normative and cognitive pressure stem from stakeholder scrutiny, peer scrutiny and the organisations own self-scrutiny respectively.

The use of institutional frameworks in information systems research falls into two distinct but related categories (Mignerat and Rivard, op. cit.). The first focuses on institutional effects by examining how institutions affect other institutions or organizations. In this scenario, institutions are considered to be the explanatory variable. The second category relates to processes and institutionalization with the focus being on the different steps that result in the formation of the organisation.

In the present research, both angles are relevant. A first research question would be: what are the institutional factors that influence the adoption of IT in the healthcare sector? And the second one would be: how does a specific IT become institutionalised or accepted as a norm in the healthcare sector? This question may also be considered as two sides of the same coin because obviously in order for a specific IT to become the "rule", it will already have experienced the pressure to conform (whether coercive, normative or cognitive-mimetic pressure). As the focus of this paper relates to the initial stages of IT adoption by a healthcare organisation, we deem it more relevant to build a framework for studying institutional factors of adoption. We will also show to what extent the institutional framework can help to integrate the different aspects of IT adoption as reviewed in the first part of this article. We first provide a brief description of the different types of pressure mechanism that can be exerted on healthcare organizations.

3.1 Coercive Pressures

Coercive pressure will result from an isomorphic response to "both formal and informal pressures exerted on an organization by other organizations upon which they are dependent" (Powell and DiMaggio, *op. cit.*, p. 67). The legal environment within which the organization operates will form part of that coercive pressure. For example, as new political and legislative rules frequently require organizational change, the role of potential positive or negative sanctions is a key motivator in organizational compliance.

3.2 Normative Pressures

Normative pressure mainly originates from professionalisation. Professionalisation is the "collective struggle of members of an occupation to define the conditions and methods of their work, to control the production of producers" (Larson, 1977, in Powell and DiMaggio, *op. cit.*, p. 70). Contrary to coercive pressure, the aim of these efforts is to guide and promote certain preferred behaviours. Professionalisation maintains uniformity and self-reproduction with members of the profession deciding and acting in order to exhibit conformity to social norms and expectations rather than in response to economic requirements.

3.3 Mimetic Pressures

Mimetic pressure stems from the fact that certain ideas become taken-for-granted by different actors within the organisational environment. This taken-for-granted property can be linked to the dominant logic concept that was developed by Bettis and Prahalad (1995). Uncertainty can be used to explain why cognitive isomorphism happens: for example as business managers face increased environmental uncertainty, they seek practical and successful solutions as demonstrated in their industry context. Imitation of successful solutions hence becomes a rationale. In addition, the fact that the different actors of a given field share a common vision about the environment and the range of acceptable solutions reinforces isomorphism.

4. RESEARCH PROPOSALS

We hold that in the case of IT adoption in public healthcare sector, each type of isomorphic pressure is exerted and interacts with each other in order to create an overall pressure on the organisation in relation to IT adoption. This proposition is based on previous literature, which has applied institution analysis in relation to IT adoption. For example, Teo, Wei and Bensabat (2003) found that a hierarchy of institutional influences exist with normative pressure being the most important. However, other researches do not yield similar results leading to the conclusion that they are no a priori rules concerning the order of influence between institutional pressures. Hence, as far as IS research is concerned, we prefer to conceptualize institutional effects as a result of interactions leading to a general pressure to conformity. This is schematized in figure one.
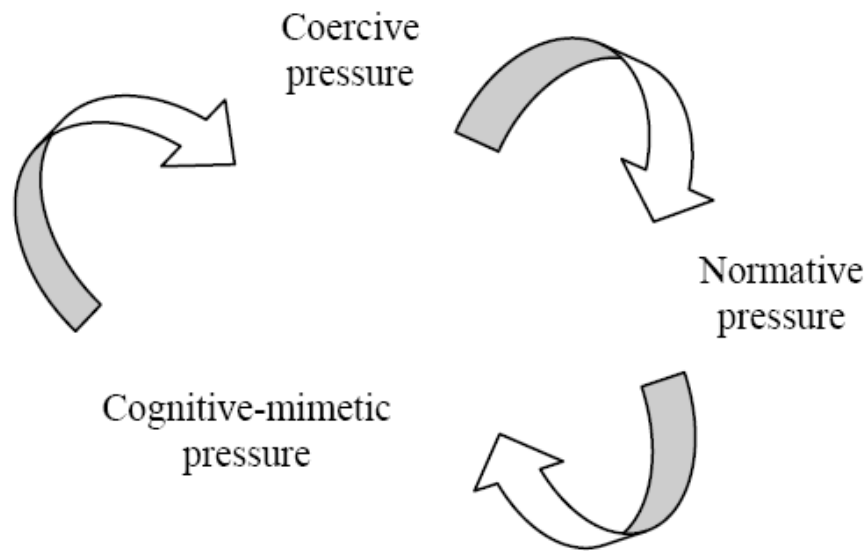
Figure 1. Interaction of institutional pressures to IT adoption in Public healthcare organizations

The idea of an interplay of institutional pressures is our seminal point of departure upon which our research proposals are based. Consequently, before developing detailed research proposals we first set the following one:

> **Seminal research proposal: In public healthcare organizations, institutional pressures to conform and to adopt a specific IT are tightly intertwined**.

In the following sections we will discuss and show to what extent institutional theory can integrate, add or refine our current knowledge about IT adoption and in particular IT adoption in public healthcare organizations.

4.1 IT Adoption and Coercive Pressures

Coercive legitimacy can be analyzed with two different lenses. As explained previously, the coercive process is linked to the possibility of a sanction, whether positive (reward) or negative (punishment). That sanction can stem from either economic considerations or from laws and government requirements. This type of pressure to IT adoption has not been emphasized in previous research and therefore applying the institutional theory perspective integrates a new dimension in examining the factors that influence IT adoption. This is particularly relevant in healthcare sectors where the public domain is relatively well developed (such as in France and in Ireland) and it sheds light on the power of governments upon their subsidiary. Governments are now demanding improved economic performance and want public hospitals to show that they are using public money efficiently, leading to many political attempts to reform the sector. This constitutes a coercive pressure to adopt any tools that can help to improve hospitals efficiency; IT systems are clearly a key part of that process. Furthermore, in some countries, the pressure is particularly focused on IT adoption (Cf. France). Hence, beyond the seminal research proposal, we suggest that:

RP1: IT adoption in the public healthcare sector is positively related to coercive pressures exerted by the government (mainly in order to satisfy legislative requirements).

4.2 IT Adoption and Normative Pressures

As mentioned above, normative pressures pertain to compliance to norms that the profession itself prescribes. The role of professional associations is relevant in ensuring that compliance in three regards (Greenwood, Suddaby and Hinings, 2002). First, professional associations play a role of self-representation that reinforces internal cohesion within a profession or industry. Second, professional associations negotiate with their political and economic environment and this activity allows them to disseminate norms outside the circle of professionals and to elaborate and refine "best practices" that will be communicated to their members. Third, professional associations scan their environment in order to anticipate significant changes. This helps the community to adapt more tightly to legal, technological and economic evolutions. All in all, professional associations are sources of normalization as well as sources of information and norm dissemination for their members. In the public healthcare sector domain, some professional associations exist. For instance the French Association of Hospital Top managers, created in 1961, aims at organizing congress and disseminating information. Such a professional association is clearly influential in terms of norm diffusion and practice homogenisation, particularly in relation to operational dimensions of hospital management (such as change management, budget management, health and clinical services organisation, recruitment, investment (see: http://www.adh-asso.org/spip.php?article21). Another example is the network of hospitals that are in place for each region in France (ARH: Regional Agency of Hospitals) as their role is to gather and share the results of experiences and experiments that are conducted on a local basis. This disseminating function is every bit as powerful as that of a professional association and contributes to norm diffusion (Lee and Pennings, 2002). Just as Rogers (op. cit.) and Burt (2000) underline the role of the social system on an individual choice, the role of networks or professional associations exerts a similar influence on organizations (Granovetter, 1985). Institutional theory, in this case, does not necessarily bring a new insight, because the role of social norms on innovation adoption is well recognised, but it indicates that norms can also influence whole human organizations. This represents a deepening of the extant view of IT adoption in organizations and suggests that the existence of a professional association or a structured organisational network can serve as a source of normative pressure on an organization (in this context hospitals). Furthermore, the more links that exist between the different institutions, the more the social system can affect their internal decisions and specifically those concerning IT adoption. Consequently, institutional theory causes us to consider the impact of the social system at a higher level of analysis than has been evident in previous literature on IT adoption. Two research proposals can be formulated:

RP2a: IT adoption in the public healthcare sector will be encouraged by the presence of a network of healthcare institutions that is actively engaged in technology adoption.

RP2b: IT adoption in the public healthcare sector will be positively linked with the density of that network (cf. number of links between institutional members of the network).

4.3 IT Adoption and Mimetic Pressures

As previously noted, mimetic pressures stem from the fact that certain ideas become taken-for-granted by different actors within the organisational environment. Healthcare organizations that are adopting an IT system gain expertise in that technology domain, an expertise that is beneficial when the organisation needs to add complementary technologies and applications. For example, prior experience in project management, human management and coaching can be redeployed on new IT adoption initiatives at no additional cost to the organisation. Thus, the dissemination of a specific norm (such as adopting an IT system) can become taken-for-granted and guide managerial decisions and actions (Haunschild, 1993). Meyer and Rowan (op. cit.) suggest that institutionalization is the process by which actors come to accept norms as if they were intangible rules. This results in a strongly shared social reality and a commonly shared view of what is appropriate is created (Zucker, 1983). These taken-for-granted views irrigate practices and behaviours (Berger and Luckman, 1967). A related idea is developed in the work of Prahalad and Bettis (1986) and Bettis and Prahalad (1995) who advance the notion of "dominant logic". A dominant logic represents a sort of informational genetic code that has been built from the firm's observation of environment. It predisposes one specific organization to analyze and act in a specific direction (or a specific set of directions) and the interiorisation of one specific view of the world restrains the number of strategic options managers will consider (Burt, 1991; Granovetter, 1985; Fligstein, 1990; Greenwood and Hinings, 1996). Additionally, this process is strengthened by the bounded rationality of individuals (Cyert and March, 1963; March and Simon, 1958) who judge strategic and organization options through a satisficing process and not an optimizing one. All this leads to IT choices that are mimetic by nature as managers use heuristics that favour easy, already known or already observed solutions that appear to be successful. In this simplifying heuristic process, the role of leaders and those perceived to be pioneers is critical as their technology adoption choices and behaviour represent examples of what should be done to be successful and consequently tends to be copied.

This mimetic, or isomorphic, process is also linked to environmental uncertainty. As discussed in the first part of this article, uncertainty raises informational costs (Bartholomev, op. cit., Karmeshu and Pathria, op. cit.). At an individual level of analysis, people tend to be more reluctant to adopt innovations about which they hold very little information (Rogers and Kincaid, op. cit.). Institutional theory proposes a different interpretation of the uncertainty related to lack of information, suggesting that lack of information can stimulate the use of heuristics and the observation of other actors in the environment. Other actors may be considered to be better informed and therefore if their technology adoption strategies appear to be successful, this can be interpreted as an indication that adoption of the specific IT system is the correct choice. So while the same antecedents (uncertainty, risk, information costs) may apply, the conclusions are different. This is clearly an interesting avenue. In the case of the adoption of a complex product (such as an IT system), we contend that typical mimetic institutional processes will occur. This leads us to propose a series of 3 research proposals.

> *RP3a: The perceived success of IT adoption by other public actors will raise the probability that a specific actor will adopt the same IT system.*
> *RP3b: The greater the extent of adoption of an IT a system within the public sector, the greater the probability for each institution to adopt it.*

RP3c: The greater the number of private competitors adopting an IT system, the greater the probability that a public institution will also adopt it.

All in all, the contribution of institutional theory to the explanation of IT adoption in the public healthcare sector is potentially powerful, not only because it integrates different types of traditional factors which are recognized as influencing IT adoption, but because it also proposes alternative and extended explanations to IT adoption. It emphasises the need to take account of the level of analysis (individual versus organisational or institutional versus sectorial). It also provides an alternative understanding of the impact of factors such as uncertainty, information costs, and risk perception and therefore offers stimulating research avenues.

5. CONCLUSION

The question of IT adoption has long been discussed in the literature. Different important contributions have already been suggested and explored. Institutional theory, developed in the early 90's, can help us to integrate and reconsider the role and place of previously identified factors of influence. It also draws researchers' attention to new mechanisms that still require empirical testing. The main contribution of this paper is to show that this theoretical framework is particularly well adapted to understanding IT adoption in the public healthcare sector. Because of its unique features, this sector exemplifies the three facets of institutional analysis (coercion, norms, isomorphism). Institutional theory provides a promising approach to understanding IT adoption in the healthcare sector and the operationalisation of institutional variables presents an urgent methodological and empirical challenge as well as a fruitful avenue of research.

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