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Building Legitimacy for IT Innovations: The Case of Computerized Physician Order Entry Systems*

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Abstract

Research on IT innovations has largely relied on economic-rationalistic models and focused on individuals or organizations as the unit of analysis. The intent of this paper is to advance an alternative research agenda that explores the institutional underpinnings of IT innovation diffusion at the inter-organizational level. Through a multi-stage research study, we examine the legitimation function of organizing visions for IT innovations and develop a taxonomy of legitimation strategies employed by the proponents of an IT innovation. We first built a preliminary theoretical framework that synthesizes key arguments on legitimacy drawn from the organization theory and IS literatures. Next, we conducted an exploratory case study of institutional entrepreneurship surrounding computerized physician order entry (CPOE) systems. We examined the discursive actions of CPOE vendors by content analyzing 165 press releases issued between 1998 and 2006. We then combined the findings of the literature analysis and the case study to create a taxonomy of discursive strategies for building IT innovation legitimacy. A post-hoc analysis of the case study data reveals a number of interesting patterns in the CPOE vendors' use of the legitimation strategies and helps us formulate a set of research questions to guide future investigations. The work reported in this paper lays a foundation for a deeper understanding of the role of legitimacy and legitimation in shaping diffusion of IT innovations. It also contributes to the conceptual and methodological elaboration of the organizing vision framework.

Keywords: *IT innovation, legitimacy, organizing visions, institutional theory*

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1. Introduction

"Cloud computing is all the rage. "It's become the phrase du jour," says Gartner senior analyst Ben Pring, echoing many of his peers. The problem is that (as with Web 2.0) everyone seems to have a different definition."

(Gruman and Knorr, *InfoWorld*, 2008)

For those who follow new developments and trends in IT, the situation described above represents the norm, not the exception. As new technologies and approaches continue to emerge at an increasingly rapid pace, managers and technologists are challenged to quickly develop an understanding of these ideas and assess their potential value to their organizations. Many of these ideas are packaged with labels that are catchy and memorable (e.g., "green IT," "social media," etc.), but lack the specificity needed to make sense of exactly what it is they entail. And while many IT innovations fail to gain traction, other ideas 'catch,' becoming the new "phrase du jour." As has happened time and time again in the world of IT, organizations seem eager to embrace new technologies whose business value is yet to be proved. Why does this happen? How do some IT innovations come to be viewed as appropriate corporate practices even in the absence of hard evidence of their positive performance impacts? What is the role of various stakeholder groups in facilitating this process? Despite the rich tradition of IT innovation research, these questions, we believe, warrant a closer examination.

Diffusion and assimilation of information technology (IT) innovations has been a key area of investigation within the IS research community for almost 20 years (for reviews see Prescott and Conger, 1995; Fichman, 2000). While significant progress has been achieved in furthering our collective understanding of the phenomena, most of the insights have been generated from within a rationalistic family of perspectives. The "dominant paradigm of IT innovation research," as Fichman (2004) labels it, is deeply rooted in the rational-actor decision models and focuses on the organization as the main unit of analysis. Most studies within this tradition are predicated on the idea that adopters make independent rational decisions directed by the goals of technical efficiency (Strang and Macy, 2001). While such research has yielded contributions to both theory and practice, a number of scholars have pointed out that the resulting models are "overrationalized" and fail to account for the technical and institutional complexities of modern organizational environments (Abrahamson, 1991; Currie and Parikh, 2005; Strang and Soule, 1998). Fichman (2004, p. 315) suggests that the dominant paradigm may be reaching "the point of diminishing returns" and calls on IS researchers to step out of the tenets of the prevalent perspective and be willing to challenge its fundamental assumptions.

In this paper we argue that, given the complexity of today's IT innovations and the degree of interconnectedness among potential adopters and other stakeholders, one of the more fertile avenues for innovation research outside of the dominant paradigm is to explore institutional dynamics underlying innovation diffusion processes at the inter-organizational level of analysis. To this end, we build on and seek to extend the framework of organizing visions for IT innovations (Swanson and Ramiller, 1997), which, in our opinion, offers a fresh and insightful lens for studying these dynamics. Organizing visions are shared understandings of organizational application of an information technology innovation that are established, maintained, and transformed through community discourse. Community in this context represents a collective of organizations with diverse and often conflicting interests in the focal IT innovation. Within the community, organizing visions perform three broad functions of interpretation, legitimation, and mobilization that together facilitate and shape diffusion of IT innovations among organizations.

The organizing vision framework offers a sound conceptual foundation and rich analytical context for furthering research into IT innovation diffusion. Nonetheless, for its full potential to be realized, several aspects of the framework warrant further elaboration. In particular, we argue that the current understanding of the key functions performed by organizing visions, namely interpretation, legitimation, and mobilization, is limited and as of now has received little explicit empirical attention. Similarly, the strategies that organizational actors engage in to enable the three aforementioned

functions have not been addressed in a systematic fashion in the literature. In this paper, we start to explore these issues and focus our attention specifically on the legitimation function of organizing visions.[1]

The objectives of this research, therefore, are three-fold: (1) to develop a framework through which to examine the legitimation of organizing visions for IT innovations; the framework, which we term the "IT legitimation taxonomy," is to be grounded in the broader theory of legitimacy and informed by the specifics of the IT innovation domain; (2) to apply the framework in an empirical setting to ascertain its validity and assess its explanatory power; (3) to develop a set of research questions to guide future inquiry into the legitimation of IT innovations. Although our study focuses exclusively on legitimation, it has important implications for the remaining two functions of organizing visions. As we will show later, interpretation is closely related to the cognitive form of legitimation, while successful mobilization is mutually dependent on the efficacy of legitimation efforts (Wang and Swanson, 2007).

To achieve the aforementioned objectives, we employed a three-stage research approach (see Figure 1). In Stage I, we reviewed and synthesized major conceptual views on legitimacy drawn from both organization theory and IS literatures. This led us to formulate an *a priori* framework delineating major forms of legitimacy and generic strategies employed by social actors to build legitimacy for new ventures. Stages II and III were based on an exploratory longitudinal case study. In Stage II, we utilized a subset of the case study data to refine the *a priori* framework developed in Stage I and to construct the IT legitimation taxonomy. In Stage III, we applied the legitimation taxonomy as a research lens to analyze the entire case study dataset. We used the insights from this analysis to evaluate the explanatory power of the proposed legitimation taxonomy and to develop research questions to guide future investigations. In what follows, we present a detailed discussion of the three stages. We conclude the paper by outlining the contributions and limitations of our study.

	Stage I	**Stage II**	**Stage III**
Approach	Conceptual	Case Study	
Process	Review and synthesize organization theory and IS literatures on legitimacy	Content analyze a subset of case study data to refine and extend generic legitimation strategies	Apply IT legitimation taxonomy to content analyze entire case study data set
Outcome	Unified typology of legitimacy forms List of generic legitimation strategies	IT legitimation taxonomy	Interpretation of legitimation patterns Research questions for future investigations

Figure 1. Research Stages

2. Stage I: Legitimacy and Organizing Visions

In this section we briefly revisit conceptual underpinnings of the three functions of organizing visions and demonstrate that the empirical research into the legitimation function has been limited to date. Next, we review key aspects of how legitimacy has been conceptualized in the broader organization theory literature. We then provide a unified view of the main forms of legitimacy and identify key generic strategies for building legitimacy for new ventures.

[1] We would like to clarify at the outset that the focus of this paper is not on how adoption of IT innovations may help organizations garner legitimacy among certain social audiences (see Wang (2006) for this type of research question), but rather on how IT innovations themselves gain legitimacy in order to become widely accepted and evolve into an IT-enabled organizational practice. (See Lounsbury and Crumley (2007) for the discussion of how innovations lead to the establishment of new practices via institutionalization.)

2.1. Functions of Organizing Visions

As mentioned earlier, Swanson and Ramiller (1997) identify three basic functions by which organizing visions facilitate and shape diffusion of IT innovations. These functions are legitimation, interpretation, and mobilization. In their original essay, Swanson and Ramiller (1997) described the function of *legitimation* as related primarily to the soundness of the rationale to adopt the innovation, as projected by the vision. Legitimacy, in this view, is not directly linked to the population density and mimicry (Tolbert and Zucker, 1983), but achieved by grounding the technology in broader business concerns and demonstrating its relevance to prominent organizational needs. Legitimacy can also be bolstered by affiliating the practice with the reputation of social actors who promote and adopt it.

Subsequent research on the executive response to organizing visions provided further insight into the interworkings of the legitimation function. Ramiller and Swanson (2003) introduced the concept of critical reception of organizing visions, which describes how certain social groups (e.g., IT executives) view and react to an organizing vision for a particular IT innovation.[2] Critical reception comprises several dimensions — interpretability, plausibility, importance, and discontinuity — which reflect the criteria employed by members of these groups in evaluating the organizing vision discourse. We will draw upon these dimensions later in this paper, when we discuss forms of legitimacy.

Second, the function of *interpretation*, according to Swanson and Ramiller (1997), is aimed at reducing the cognitive complexity surrounding the innovation in its early stages and helping social actors to render the practice meaningful within their respective belief systems. In other words, by creating a vision, an adopter community provides its members with a rationalized frame of reference that "explains the innovation's existence relative to its broader social, technical and economic context" (Swanson and Ramiller, 1997, p. 460). This frame of reference will be further employed by individual organizations to evaluate the innovation's eventual success or failure. Finally, the function of *mobilization* performed by an organizing vision helps to activate, motivate, and coordinate activities of various parties that provide technical, service, and knowledge support to prospective adopters of an IT innovation. In essence, this function is responsible for providing the market infrastructure "necessary for making the innovation a reality and putting it into practice" (Swanson and Ramiller, 1997, p. 461). The interplay among the three functions determines whether an innovation embodied in a particular organizing vision will diffuse into the wider community or dissipate, becoming yet another fad.

Over the last several years a number of empirical investigations of organizing visions have appeared in the literature. These studies span a variety of IT innovations, ranging from enterprise resource planning (Wang and Ramiller, 2004) and customer relationship management systems (Firth, 2001) to professional services automation (Wang and Swanson, 2007), application service provisioning (Currie, 2004), and electronic medical records (Davidson and Reardon, 2005). In addition, a study by Carton et al. (2007) analyzes cross-cultural differences in the production of and response to the organizing vision discourse. Nevertheless, a review of the aforementioned literature reveals that the majority of the papers do not attend systematically to either the types of legitimacy that organizing visions seek to achieve or general strategies that innovation entrepreneurs employ to build and manage legitimacy.

An exception is the study on professional services automation by Wang and Swanson (2007). These authors look at the role of legitimation and mobilization in the early stages of the organizing vision evolution, which they refer to as the launching phase. While the study's findings suggest that the success of legitimation efforts is contingent on the coherence of the vision discourse and the use of success stories by innovation entrepreneurs, the authors do not go so far as to identify a range of legitimation strategies available to IT entrepreneurs. Consequently, in this paper we seek to extend Wang and Swanson's work and delve deeper into how different forms of legitimacy interact within a single organizing vision and what strategies IT entrepreneurs employ to pursue legitimacy of each form.

[2] Ramiller and Swanson (2003) explicitly link their study on the executive response to organizing visions to the legitimation function: "The vision's legitimacy is reflected, ultimately, in how it is received by practitioners and works its way into their assumptions and practices. This is where the current study comes in." (Ramiller and Swanson, 2003, p. 16). Based on this statement, we argue that it is appropriate to extrapolate their findings on the dimensions of critical reception into the domain of organizing vision legitimacy.

2.2. Strategic and Institutional Approaches to Legitimacy

The literature offers a wide range of legitimacy definitions (see Johnson et al., 2006 for a review). Most of these definitions, and the subsequent research that builds on them, fall under one of the two major research traditions in organization theory, *viz.,* strategic and institutional. The strategic approach depicts legitimacy as an operational resource that organizations employ in order to aid accomplishment of their goals and objectives (Ashforth and Gibbs, 1990; Pfeffer, 1981). The institutional view, on the other hand, posits that legitimacy "is not a commodity to be processed or exchanged but a condition reflecting perceived consonance with relevant rules… [norms, and beliefs]" (Scott, 2001, p. 59). More recent work on legitimacy seeks to integrate the two perspectives (Suchman, 1995; Golant and Sillince, 2007; Oliver, 1991). In particular, Suchman in his seminal essay suggests that while institutional environments are "fundamentally constitutive of organizational life" (p. 577) and, thus, play a key role in rendering certain practices legitimate, social actors do have the capacity to carry out strategies aimed at "fostering legitimating perceptions of desirability, propriety, and appropriateness."

As its title suggests, the primary focus of our paper is on "building" legitimacy – that is, on strategic actions entrepreneurial actors take as they attempt to garner legitimacy for IT innovations. We view these actions as embedded in the existing institutional framework and, accordingly, share Suchman's skepticism about the "autonomy, objectivity, and potency of managers" (p. 577) in achieving their legitimation objectives. At the same time, we argue that institutional embeddedness serves not only as a source of constraint on entrepreneurial agency but also as a source of opportunity that facilitates action (Dacin et al., 1999). In this vein, our approach is in line with the growing literature on institutional entrepreneurship (Powell and Colyvas, 2008; Garud et al., 2007; Green et al. 2009; Reay et al., 2006; Mutch, 2007) that seeks to address the paradox of embedded agency,[3] which Suchman refers to in the above quote.

2.3. Key Properties of Legitimacy

Suchman defines legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, beliefs, and definitions" (Suchman, 1995, p. 574). This conceptualization touches upon a number of important properties of legitimacy that inform our research.[4]

First, it suggests that actors in a social group collectively grant legitimacy to a new venture or practice based on considerations determined by a "socially constructed system of norms, beliefs, and definitions." This socially constructed system refers to the institutional framework situated within the group (Scott, 2001, p. 59). The framework is not homogeneous but consists of multiple and often conflicting beliefs, norms, logics, and rules (Clemens and Cook, 1999). One way to capture this diversity is by aligning elements of the institutional framework with the three institutional pillars, *viz.,* regulative, normative, and cultural-cognitive, identified by Scott (2001). Each of these pillars encodes a different set of criteria and, hence, provides a different basis for granting legitimacy.[5]

Second, in their comprehensive treatment of the legitimacy literature, Johnson et al. (2006) point out that "as a collective construction of social reality, legitimacy has both a cognitive dimension that constitutes the object for actors as a valid, objective social feature and a normative, prescriptive dimension that represents the social object as right" (p. 57). This characterization, also echoed in the work of Golant and Sillince (2007), suggests that there exist two distinct mechanisms through which legitimacy can be granted. On the one hand, legitimacy may rest on the development of a shared understanding of the practice as "a valid, objective social feature" (Johnson et al., 2006, p. 57). In this

[3] The paradox of embedded agency posits that insofar as actors are embedded in an institutional field, they have a limited ability (or, alternatively, lack the motivation or resources) to conceive of and promote the spread of new practices that deviate significantly from the dominant institutional framework. See Garud et al. (2007) for an overview.
[4] These properties also are reflected in other major definitions of legitimacy (Johnson et al., 2007).
[5] This view of legitimacy also implies that legitimacy is not an objective quality, but should always be considered in the context of a particular social audience that does or does not grant it. Consequently, what is legitimate for one social group may not be legitimate for another – see Martin and Powell (1994), for example.

vein, members of the target audience need to collectively answer the question: is the practice something that can actually work/exist in this world, as we understand it? This type of legitimation is often associated with the spread of knowledge about a new practice (Aldrich and Fiol, 1994) and the congruence of this knowledge with the elements of the institutional framework (Suchman, 1995). Following Johnson et al. (2006), we will refer to this mechanism as legitimation based on *validity*. On the other hand, actors within the target audience may engage in evaluation of a new practice with regard to its contribution or service to culturally-valued ends salient to them. This type of legitimation, in other words, requires the audience's approval of the practice according to a set of criteria encoded by one of the three institutional pillars. In this paper, we will refer to this mechanism as legitimation based on *desirability* (or "rightness" in Johnson et al.'s terms).[6] The two legitimation mechanisms, along with the institutional bases on which legitimacy is granted, provide a "coordinate plane" that will help us define and operationalize different forms of legitimacy later in the paper.

Last, from the point of view of the strategic approach, Suchman's definition implies that legitimacy comes about through a process of construing a new practice as congruent with the institutional framework (Johnson et al., 2006). This process is driven by symbolic work on the part of practice entrepreneurs who produce "legitimating accounts" linking the practice to a particular element of the framework (Suddaby and Greenwood, 2005). We will use the term *legitimation strategies* to describe these micro-level agency dynamics.

Forms of legitimacy and legitimation strategies comprise the key building blocks that inform the development of the IT legitimation taxonomy, a framework through which to examine the legitimation function of organizing visions. In the following sections we examine and synthesize the major conceptual views concerning these two aspects of legitimacy.

2.4. Forms of legitimacy

Several frameworks delineating forms of legitimacy are available in the literature (Aldrich and Fiol, 1994; Stryker, 1994; Suchman, 1995). In what follows, we examine the main definitions associated with legitimacy forms, discuss how these forms are addressed in the extant research on organizing visions, and characterize each form with regard to the two criteria introduced above: (1) the institutional basis on which legitimacy is granted (i.e., the three institutional pillars) and (2) the legitimation mechanism in play (i.e., desirability vs. validity). The objective of this exercise is not to offer a new conceptualization of legitimacy forms, but rather to help researchers distinguish among the different forms by explicating their operational properties from the existing conceptualizations. In particular, we make an argument that each form can be described by a unique combination of the institutional basis on which it is granted and the legitimation mechanism it invokes. We conclude with a discussion of the potential for overlaps between the legitimacy forms.

2.4.1. Cognitive Legitimacy

A type of legitimacy common across all the major frameworks is that of cognitive legitimacy (Aldrich and Fiol, 1994; Stryker, 1994; Suchman, 1995). Aldrich and Fiol (1994) view cognitive legitimacy as reflecting the spread of knowledge about a new venture or practice among social audiences; while Suchman (1995) emphasizes that this knowledge must "mesh with both larger belief systems and with experienced reality of the audience's daily life" (p. 582). Further, Suchman identifies two variants of cognitive legitimacy: (1) legitimacy based on comprehensibility and (2) legitimacy based on taken-for-grantedness. Comprehensibility is predicated on the availability of plausible and coherent accounts that explain the existence of a new practice in the context of dominant cultural models. Taken-for-grantedness arises when the new practice itself becomes an integral part of the institutional framework governing a particular population. Taken-for-grantedness, hence, can be viewed as the highest form of cognitive legitimation (Aldrich and Fiol, 1994) and, as such, is rarely attainable in the early stages of innovation diffusion.

[6] Golant and Sillince (2007) identify similar legitimation mechanisms and refer to them, respectively, as evaluative and cognitive legitimacy.

Comprehensibility and taken-for-grantedness also differ in the amount of leverage that actors can exercise in fostering the cognitive legitimacy of each type. Taken-for-grantedness requires a high degree of reification of the underlying practice and assumes a self-regulating mechanism enforcing its application (Jepperson, 1991). In this vein, this form of cognitive legitimacy generally lies beyond the realm of strategic action (Suchman, 1995). Comprehensibility, on the other hand, relies on sense-making mechanisms, which can be pursued through strategic means. Several studies have shown that entrepreneurial actors employ symbolic and rhetorical devices to render new practices meaningful within the backdrop of existing cultural schemas of the target social audiences (Hargadon and Douglas, 2001; Van de Ven and Garud, 1993; Wang and Swanson, 2007). Accordingly, so far as taken-for-grantedness is less salient to the launching of IT innovations, and because it does not directly lend itself to strategic manipulation, in this paper we focus on comprehensibility when discussing cognitive legitimation.

We argue that cognitive legitimacy is contingent on the alignment of a new practice with the *cultural-cognitive institutional pillar* and invokes the legitimation mechanism based on *validity*. That is, this form of legitimacy arises when there is a broad awareness about a new practice among the relevant audiences (Aldrich and Fiol, 1994) and the practice is perceived as coherent and meaningful in the context of the prevalent beliefs, logics, and categories (Suchman, 1995; Golant and Sillince, 2007).

Cognitive legitimacy and comprehensibility, in particular, have received significant attention in the literature on organizing visions. First, the interpretation function of organizing visions (Swanson and Ramiller, 1997) operates through mechanisms similar to those of cognitive legitimation. More specifically, both aim to reduce cognitive complexity by providing social actors with tenable explanations of the innovation's existence and purpose. Second, Ramiller and Swanson (2003), in their work on the executive response to organizing visions, identify two dimensions of critical reception that are congruent with Suchman's (1995) view of comprehensibility. The Interpretability and Plausibility dimensions reflect, respectively, how informative and free of distortion the organizing vision discourse is perceived to be by executives. Finally, Wang and Swanson (2007) assess coherence of the discourse on Professional Services Automation as a proxy for cognitive legitimacy of an IT innovation in the early stages of its lifecycle. Thus, the emphasis on cognitive legitimacy throughout the organizing visions research speaks to the salience of this form of legitimacy in explaining IT innovation phenomena.

2.4.2. Pragmatic Legitimacy

In addition to cognitive legitimacy, Suchman (1995) identifies a pragmatic form of legitimacy, which "rests on the self-interested calculations of an organization's most immediate audiences" (p. 578). These calculations may range from a simple assessment of the venture's direct expected value to the stakeholders to more subtle motives involving pursuance of shared interests and goals. Regardless of the specific mechanism, pragmatic legitimacy always involves evaluation of the venture's utility (Golant and Sillince, 2007) and, therefore, falls under the *desirability* legitimation mechanism. With regard to the institutional basis, we argue that pragmatic legitimacy involves the cultural-cognitive institutional pillar. Indeed, rational calculations of utility always take place within the framework of institutional beliefs and logics, which imbue the very notion of "value" with its situated meaning (Hoffman, 2001). Hence, both cognitive and pragmatic forms of legitimacy are associated with the *cultural-cognitive institutional pillar*. The difference between the two is that the latter employs the legitimation mechanism based on *desirability*, while the former is based on *validity*.

Conceptualization of pragmatic legitimacy finds support in the work on organizing visions. Ramiller and Swanson (2003) identify Importance as one of the four dimensions of critical reception of organizing visions. A dominant theme within the Importance dimension is that of Business Benefit, which encompasses judgments of potential adopters about the value that an IT innovation is likely to deliver if adopted by an organization. This view of Business Benefit is consistent with the conceptualization of pragmatic legitimacy discussed above. Therefore, we expect pragmatic legitimacy to also play an important role in shaping the early stages of IT innovation diffusion.

2.4.3. Normative Legitimacy

A normative, or moral, basis for legitimacy also takes a prominent spot in the work of organizational scholars (Scott, 2001; Suchman, 1995). In general, this form of legitimacy is viewed as predicated on judgments about whether a new venture is consonant with and/or promotes moral norms and values prevalent within a particular social audience. Often, the emphasis here is put on promoting broad pro-social logics of justice and welfare (Suchman, 1995). In this vein, moral legitimacy is fundamentally different from the pragmatic form. Moral legitimacy does not involve considerations of whether "a given activity benefits the evaluator" but rather hinges on a view of the activity as "the right thing to do" (Suchman, 1995, p. 579). This conceptualization implies that the moral form of legitimacy is associated with the *normative institutional pillar*. At the same time, pragmatic and normative legitimacy are similar in that both involve an evaluative element (Golant and Sillince, 2007) and, hence, rely on the *desirability* legitimation mechanism.

Despite its visibility in organization theory research, moral legitimacy has not made its way into the literature on organizing visions. For example, Ramiller and Swanson's (2003) work on the executive response to organizing visions does not include a dimension of critical reception corresponding to moral legitimacy. This, however, could be explained by the exclusive focus of their study on IS managers. Perhaps, if the critical reception of general managers, who traditionally are more concerned with the public image of an organization, had been assessed, aspects of moral legitimacy may have garnered more visibility. Due to this reason, we retain moral legitimacy in the framework at this point.

2.4.4. Regulative Legitimacy

Drawing on the premise that legitimation takes place through the linking of a social object to a certain element of the institutional framework, regulative legitimacy is produced by aligning a new practice with symbolic systems comprising the *regulative pillar*. Such alignment is usually accomplished by setting up new practices in accordance with the relevant legal and quasi-legal rules and regulations existing within the field (Scott, 2001). Support for practices that exhibit regulative compliance is usually granted to help alleviate coercive pressures imposed on an organization by regulative institutions (DiMaggio and Powell, 1983). Accordingly, regulative legitimacy, like pragmatic and normative forms, involves active evaluation of the practice by stakeholder audiences and, therefore, operates via the legitimation mechanism based on *desirability*.

As discussed earlier, a number of studies suggest the importance of regulative legitimation in the IT domain. More specifically, in the context of launching new information technologies, such regulative legitimation dynamics may take several forms: (1) emphasizing that an innovation operates in conformance with IT-related policies and directives passed by government and/or international authorities (Jang and Luo, 2000; King et al., 1994), (2) stressing that it helps achieve compliance with relevant non-IT regulations, and (3) stressing that it alleviates pressures imposed on the adopter organization by resource-dominant actors (Teo et al., 2003). Accordingly, we believe that the role of regulative legitimacy in IT innovation diffusion needs to be explored further.

2.4.5. Socio-Political Legitimacy

Finally, we believe it is important to address the notion of socio-political legitimacy. Introduced by Aldrich and Fiol (1994) and brought into the IS literature by Wang and Swanson (2007), socio-political legitimacy has been defined as "the process by which key stakeholders…accept a venture as appropriate and right, given existing norms and laws" (Aldrich and Fiol, 1994, p. 648). To us, this definition effectively suggests two things. First, socio-political legitimacy, similar to normative, pragmatic, and regulative forms, involves assessment of a new practice with regard to its desirability. Hence, this form of legitimacy relies on the *desirability* legitimation mechanism. Second, criteria employed by social audiences in determining the desirability of a new venture do not seem to be limited to any particular subset of the institutional framework (the definition reads: ."…given existing norms and laws"). Thus, socio-political legitimacy may be granted based on *any of the three institutional pillars*. In this light, we argue that socio-political legitimacy essentially encompasses the three forms of legitimacy discussed above, *viz.,* pragmatic, normative, and regulative, and therefore

should be viewed as a meta-type rather than a separate variant of legitimacy.[7]

Table 1 below summarizes our discussion on how different forms of legitimacy can be characterized with respect to institutional bases and legitimation mechanisms. As the figure shows, both cognitive and pragmatic legitimacy involve the cultural-cognitive institutional pillar and, therefore, are to be differentiated by identifying the legitimation mechanism in play. On the other hand, pragmatic, normative, and regulative forms all rely on the desirability-based legitimation mechanism; these forms, however, can be distinguished by looking at which subset of the institutional framework the new practice is being evaluated against.

Table 1. Main Forms of Legitimacy: Institutional Bases and Legitimation Mechanisms

Legitimacy Form	Institutional Basis	Legitimation Mechanism
Cognitive Legitimacy	Cultural-Cognitive	Validity
Pragmatic Legitimacy	Cultural-Cognitive	Desirability
Normative Legitimacy	Normative	Desirability
Regulative Legitimacy	Regulative	Desirability

* Together pragmatic, normative, and regulative forms of legitimacy may be referred to as socio-political legitimacy.

It is also important to note at this point that the boundaries between the four forms of legitimacy are not as clear-cut as our discussion portrays; there may exist interrelationships or overlaps among the forms. For example, a common type of overlap is that between pragmatic and normative legitimacy. Under conditions of high uncertainty, performance measures often become morally proscribed, while organizational outcomes, procedures, structures, and leaders may be attributed with positive moral values (Suchman, 1995 p. 580). The same can be said of regulative compliance, which would be viewed by many as “the right thing to do” and, consequently, contributes to building normative as well as regulative legitimacy for a new practice. On the other hand, an overlap may also exist between cognitive and pragmatic legitimacy. In this vein, what is seen as a cognitive element by one social audience (e.g., innovation adopters) may carry a pragmatic message for the other (e.g., third-party vendors).

As the above examples suggest, overlaps between the legitimacy forms occur when the same characteristic of a new practice or venture becomes aligned with different institutional pillars or, alternatively, invokes different legitimation mechanisms. This usually takes place across social audiences (e.g., potential adopters vs. third-party vendors, etc.), but may also affect a single audience (in this case, normative legitimacy is usually involved). In general, addressing overlaps between legitimacy forms becomes important when one attempts to identify the forms empirically. Later in the paper, we will describe an approach to dealing with the issue of form overlap employed in this study.

2.5. Legitimation Strategies

Delineating different forms of legitimacy at a macro-level of analysis is useful insofar as it sets the stage for identifying micro-level strategies employed by entrepreneurs to build legitimacy for new ventures. Different types of legitimacy need to be pursued through different cultural means to ensure success of the legitimacy management efforts (Suchman, 1995). The organization theory literature, once again, offers a valuable reference point to start building a better understanding of how these micro-level agency dynamics unfold in the context of IT innovations. A number of case studies (Munir

[7] As one of our reviewers pointed out, the notion of socio-political legitimacy can also be viewed as a means (i.e., a category of legitimation strategies) of achieving desirability-based legitimacy (i.e., pragmatic, normative, and regulative). Regardless of whether it is conceptualized as a meta-type of legitimacy or a means of fostering certain forms of legitimacy, we argue that socio-political legitimacy should be kept outside of the main typology of legitimacy types.

and Phillips, 2005; Suddaby and Greenwood, 2005) and conceptual frameworks (Aldrich and Fiol, 1994; Suchman, 1995) describe general entrepreneurial approaches to legitimation of new ventures and practices. Building upon these studies, we compiled a list of generic legitimation strategies aimed at fostering different forms of legitimacy (see Figure 2 on the next page).

The four forms of legitimacy shown in Table 1 are conceptualized at a high level of abstraction and, therefore, can accommodate a wide range of new practices, including IT innovations. Legitimation strategies, on the other hand, encompass the ground-level efforts of practice entrepreneurs and need, therefore, to reflect particulars of the legitimation domain. In this sense, the generic legitimation strategies, identified *a priori* through the synthesis of the organization theory literature, cannot not be applied "as is" to IT innovations. In the next section, we describe a longitudinal case study looking at how IT entrepreneurs sought to build legitimacy for an IT innovation in the field of healthcare. Through the case study we extend the set of generic legitimation strategies and construct the IT legitimation taxonomy, a framework aimed at capturing legitimation dynamics specifically in the IT innovation domain.

Pragmatic Legitimacy	Normative Legitimacy
▪ Respond to needs – meet the substantive needs of various audiences (i.e., respond to client tastes). Demonstrate results. ▪ Advertise product – persuade constituents to value the innovation offerings ▪ Co-opt constituents – build alliances with potential constituents; highlight (exaggerate) the extent of constituent participation in the innovation ▪ Build reputation – trade on the organization's strong reputation in related activities ▪ Develop legitimacy by organizing collective marketing and lobbying efforts	▪ Produce proper outcomes – produce concrete meritorious outcomes ▪ Embed in institutions – embed new practices in established institutions (e.g., through co-optation of respected entities) ▪ Offer symbolic displays – portray outputs, procedures, and structures as conforming to moral norms ▪ Proselytize
Cognitive Legitimacy	**Regulative Legitimacy**
▪ Mimic standards - mimic most prominent and secure entities in the field ▪ Formalize operations – codify informal procedures ▪ Professionalize operations – link activities to external definitions of authority and competence ▪ Seek certification ▪ Establish and promote new standards and models ▪ Develop knowledge by promoting activity through third-party actors	▪ Signal that the new practice operates in accord with relevant laws and regulations

Figure 2: Forms of Legitimacy and Generic Legitimation Strategies

3. Case Study: Computerized Physician Order Entry Systems

Given the lack of prior empirical research on the legitimation function of organizing visions, we conducted an exploratory case study (Yin, 2002) aimed at examining the legitimating discourse of IT vendors, a prominent group of entrepreneurs involved in the launching of IT innovations. As discussed earlier, the case study facilitated Stages II and III of our research. In Stage II, we refined the generic legitimacy framework discussed in the previous section and constructed the IT legitimation taxonomy. In Stage III, we assessed the explanatory power of the taxonomy through a post-hoc pattern analysis of the vendors' use of legitimation strategies.

3.1. Case Description

During the case study, we analyzed vendor discourse surrounding the IT innovation of Computerized Physician Order Entry (CPOE) systems (or, alternatively, Computer-Based Provider Order Entry systems). CPOE is a clinical information system that enables a patient's care provider to enter orders for drug therapy, diagnostic tests, and requests for consultations, which are then transmitted to the appropriate department or individual for fulfillment. CPOE systems also incorporate clinical decision support functions such as computerized reminders, prompts and advice regarding drug selection, allergies, doses, interactions, and the need for corollary orders (Kaushal et al., 2003).

CPOE was selected as the case for this study for theoretical reasons. First, it granted us the opportunity to study an IT innovation in the uptake phase of its diffusion curve (see Figure 3). It is during this phase that IT vendors are actively engaged in rhetoric aimed at spreading the ideas about a new practice and shaping the constituents' beliefs that the practice has merit (Green, 2004). Hence, we expected the CPOE vendor discourse to provide ample examples of the use of legitimation strategies designed to foster different forms of legitimacy. While various stakeholder groups are involved in the entrepreneurial community that launches and maintains the discourse surrounding an IT innovation (Wang and Swanson, 2007), we chose to focus on the discursive actions of IT vendors. Vendors constitute a primary group within the community and are expected to be highly engaged in the discursive legitimation efforts. The other reason we chose CPOE as the case is that the legitimacy perspective is particularly salient for healthcare IT, as these technologies are embedded in complex interdependent social, economic, and political networks (Lines et al., 2004). Moreover, CPOE, in particular, deals with goals such as improving patient care and reducing adverse drug events.

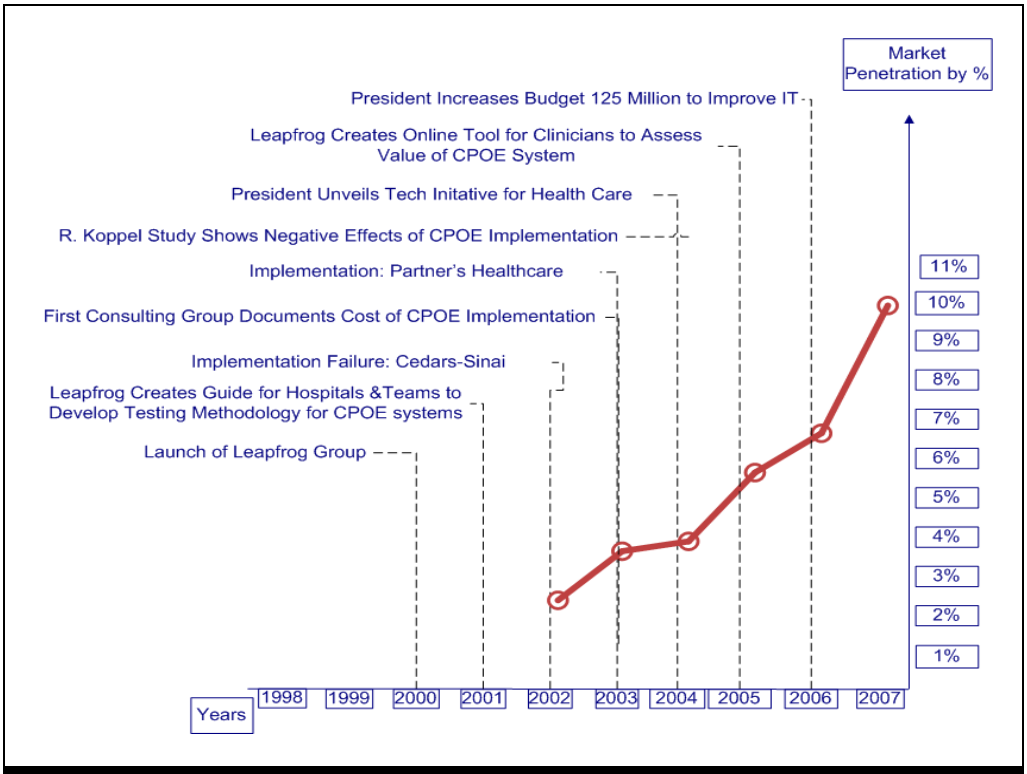

Figure 3: CPOE Historical Timeline

3.2. Data Collection

The source of data for the study was PR Newswire, a news distribution service providing unedited full-text press releases. Press releases are overt discursive actions used by organizations for public relations, marketing, etc., and are written in a form that can easily be used by journalists (Strobbe and

Jacobs, 2005). For this study, we searched for press releases issued from 1980 through 2006 that contain the terms "CPOE," "computerized physician order entry," "physician order entry," "clinician order entry," and "provider order entry," yielding a total of 364 unique articles. We eliminated 85 press releases from sources other than vendors (e.g., market research organizations, professional societies) and 114 press releases by vendors where CPOE was not a primary topic (e.g., financial reports, announcements of management changes). The remaining 165 press releases authored by software, hardware, and service vendors and including CPOE as a key topic were included in the content analysis. Counts of releases per year (see Figure 4) show a steady increase from the first known occurrence in 1998 through 2004.[8] In 2005, however, this growth appears to have stabilized, and in 2006, the number of press releases decreased slightly.

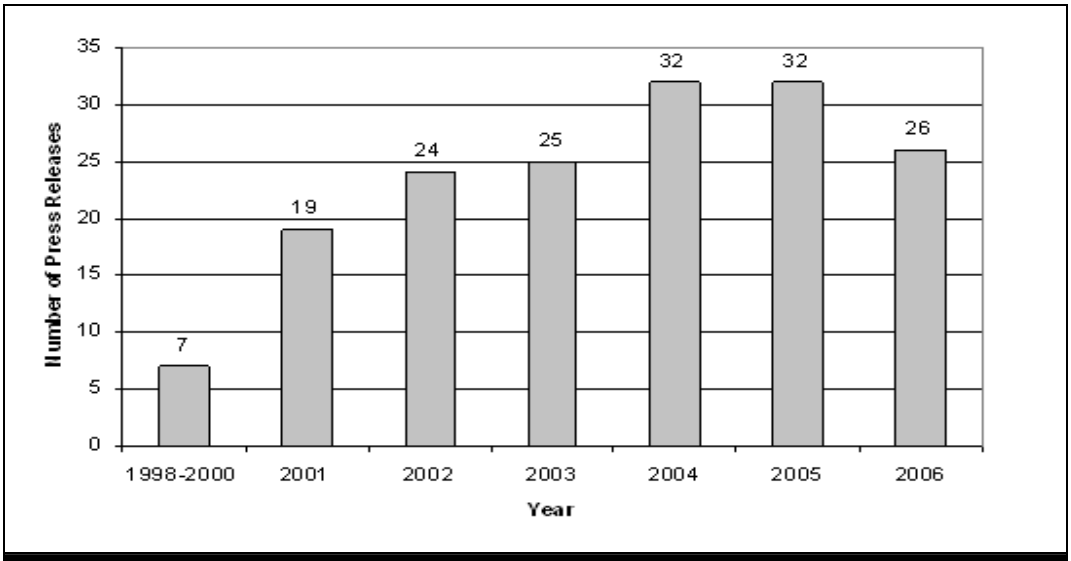

Figure 4. Overall Use of Legitimation Strategies by Vendors

3.3. Data Analysis

Analysis of the vendor press releases was carried out differently according to the stage of the study. In Stage II, we analyzed a subset of press releases through an inductive coding process aimed at refining the generic legitimation strategies and constructing a taxonomy of discursive strategies for building legitimacy for IT innovations (i.e., the IT legitimation taxonomy). In Stage III, we used the IT legitimation taxonomy to code the entire text corpus of press releases. We then used the results of the coding to explore patterns in the vendors' use of the legitimation strategies. Below, we discuss the methods employed at each stage in more detail.

3.3.1. Stage II: Construction of the IT Legitimation Taxonomy

To construct a taxonomy of discursive strategies for building legitimacy for IT innovations, we employed the following content-analytical procedure.[9] We entered the analysis with a broad two-level conceptual framework grounded in the existing legitimacy literature. The level-one categories of the framework were comprised by the four forms of legitimacy, *viz.*, cognitive, normative, pragmatic, and regulative. The level-two categories encompassed the four corresponding sets of generic legitimation strategies. We kept the level-one categories fixed throughout the analysis and employed an iterative coding process to refine the level-two subcategories. The idea was to use the generic strategies as a starting point to aid in the identification and interpretation of themes emerging from the CPOE dataset. The ultimate goal of this process was to elicit legitimation strategies specific to the IT innovation domain.

[8] Before 1998, CPOE systems were primarily developed in-house by large healthcare providers.
[9] Content analysis has been shown to be an appropriate and effective methodology for identifying elements of cultural toolkits (Weber, 2005).

Insofar as certain legitimation claims may contribute to building legitimacy of different forms (see discussion earlier in the paper), we adopted the following coding approach. Each legitimation claim was classified as cognitive, pragmatic, normative, or regulative based on the presence of *overt* discursive manifestations linking the claim to the appropriate institutional pillar or legitimation mechanism (see Table 1).[10] For example, the claim "improving clinical outcomes" clearly has normative ramifications, as it is likely to be viewed by many as "the right thing to do..." Nonetheless, there is nothing in the language of the claim that makes its moral aspects explicit and, hence, we would code this claim as pragmatic. On the other hand, the claim "saving lives" does make a clear link to the normative pillar and, therefore, would be coded as normative. While this approach may have its limitations, we argue that it enables us to capture the main vector of the legitimacy-building efforts undertaken by practice entrepreneurs.

During the coding process, three successive samples of 10 documents each, stratified by year and vendor, were drawn from the data set and coded by one researcher. We used Atlas.ti software to facilitate the coding process. A coding unit was defined as a text segment no smaller than a sentence and no bigger than a paragraph. Multiple codes were allowed to be assigned to a single text segment. During the coding process, each generic strategy was either modified to reflect the IT domain particulars, merged with another strategy to achieve conceptual parsimony, or dropped if no matching discursive dynamics were detected in the data. In addition, several new codes were added to the taxonomy to account for strategies not present in the generic set.

After the third iteration of coding, no further modifications were necessary, and the taxonomy was deemed to have reached theoretical saturation. At that point, a coding protocol was compiled and transferred to the second researcher, who independently coded a random sample of 10 documents (drawn from the thirty documents used to develop the taxonomy). We assessed inter-coder reliability both at the aggregate level and for individual codes (i.e., legitimation strategies). At the aggregate level, recorded a 0.554 Cohen's Kappa suggests a moderate level of inter-coder reliability (Landis and Koch, 1977). We also examined percent agreement values for individual codes in order to identify areas where the most coding discrepancies occurred. After the discrepancies were evaluated and reconciled, we finalized the coding protocol and constructed the final version of the IT legitimation taxonomy.

3.3.2. Stage III: Evaluation of Legitimation Patterns

Once the IT legitimation taxonomy was established, we used it to code the entire data set of vendor press releases. Similar to the approach employed in Stage II, the remaining 135 documents were initially coded by a single researcher. Once again, a text segment was selected as a coding unit, and multiple codes were allowed to be assigned to a single segment. For instance, three codes, *viz.*, *P15 Reputation-adopter*, *P2 Value-clinical-rationale*, *P5 Value-operational-rationale*, were assigned to the following segment of text:

> *"Siemens INVISION CPOE and clinical documentation solutions were critical components of 2003 Nicholas E. Davies Award of Excellence winner Cincinnati Children's Hospital Medical Center's (CCHMC) Integrating Clinical Information System, which is delivering outcomes that include reduced medical errors and medication turnaround time…" (PR Newswire. February 17, 2004,Siemens Medical Solution)*

To assess inter-coder reliability, a second researcher re-coded a random sample of 40 documents (approximately 30 percent of the Stage II sample), stratified by year and vendor. The inter-coder reliability analysis produced a Cohen's Kappa of 0.628. This value suggests a substantial level of

[10] As Table 1 suggests, overlaps between legitimacy forms take place when the two forms share one of the two categorization criteria. Accordingly, to distinguish among the forms empirically, it is usually sufficient to focus on identifying evidence linking the claim to the other "differentiating" criterion. For regulative/normative/pragmatic forms this criterion is the institutional pillar (i.e., regulative, normative, or cultural-cognitive); for cognitive/pragmatic form, the criterion is the legitimation mechanism (validity vs. desirability).

reliability (Landis and Koch, 1977) and represents a significant improvement over Stage II of the analysis. Once coding of all press releases was completed, a binary code-by-document matrix was generated and analyzed to identify patterns in the CPOE vendors' use of the legitimation strategies.

4. Findings and Discussion

Similar to the section describing the data analysis approach, we organize the discussion of the findings in two parts. The first section covers Stage II of our research and presents a detailed discussion of the four clusters of legitimation strategies comprising the IT legitimation taxonomy. Additionally, we reflect upon the individual strategies within each cluster and provide their empirical examples. The second part addresses the research objectives of Stage III of the study. Here, we evaluate patterns in the CPOE vendors' use of legitimation strategies, draw tentative conclusions about the explanatory usefulness of the proposed IT legitimation taxonomy, and develop a set of research questions to guide future investigations on the subject.

4.1. Stage II: Construction of the IT Legitimation Taxonomy

The final version of the IT legitimation taxonomy is comprised of 26 discursive strategies. These strategies can be categorized as follows: 15 are aimed at pragmatic legitimacy; eight, at cognitive legitimacy; two, at moral legitimacy; and one, at regulative legitimacy. Table 2 on the next page shows the 26 legitimation strategies, each paired with a short description and central themes.

4.1.1. Cognitive Legitimation Strategies

Cognitive legitimacy is predicated on the spread of knowledge about the innovation (Aldrich and Fiol, 1994). Early stages of diffusion are characterized by high ambiguity surrounding a new practice, making communication efforts by innovation entrepreneurs necessary to help constitutive audiences better understand and interpret the innovation's key properties and applications (Attewell, 1992; Swanson and Ramiller, 1997). As the knowledge spreads, comprehensibility of an innovation increases, and so does its cognitive legitimacy. We identified three groups of strategies that IT vendors employ to pursue the cognitive form of legitimacy.

System-Related Strategies (Cognitive): The first group of strategies conveys the essence of an innovation, such as an information system, to potential adopters and other stakeholders and aligns it with the salient institutional beliefs, models, and categories. The **C1 System-Functionality** strategy comprises claims centered on defining key attributes, features, and usage conditions of the innovation. In particular, the *C1* discourse included such elements as laundry lists of features ((e.g., "system to place orders, prescribe medication, review results, chart vital signs and flow sheets, add or view notes, and alert clinicians to abnormal results or potential conflicts"), suite descriptions (e.g., "including Flowsheets, Intake and Output, Problem Management, Care Plans…and Electronic Medication Administration record (eMAR) modules"), descriptions of the application areas that the innovation supports (e.g., "with specialized modules for the emergency room, intensive care unit, the operating rooms, recovery rooms, general care floors"), as well as more detailed accounts of how a particular functionality operates (e.g., "built-in drug prescription capabilities instantly respond with appropriate alerts to patient specific information located within the longitudinal record"). At a general level, this strategy seeks to enhance the comprehensibility of an IT innovation by describing *what* the innovation can do in categories familiar to the key stakeholder audiences (e.g., clinicians, hospital administrators).

Another system-related legitimation strategy is the **C2 System-Configuration** strategy. Unlike *C1,* which expresses the capabilities of an innovation, *C2* seeks to delineate the mechanism through which these capabilities are delivered. So far as the same set of functional features can be provided via different configurations of information technology, it is important for certain stakeholder groups (e.g., IT staff in this case) to know the characteristics of the underlying IT artifact. CPOE vendors, for example, devoted significant effort to detailing specifics of the innovation's software/hardware architecture (e.g., "using the latest technologies, which include an ultra thin client environment,

Table 2: IT Legitimation Taxonomy

Code	Strategy Name	Strategy Description	Central Themes	Conceptual Grounding
C1	System – functionality	Explicitly define key features, attributes, and usage conditions of the innovation	Laundry lists of features, specific description of features, application areas, suite description	Comprehensibility (Suchman, 1995, Aldrich and Fiol, 1994) Interpretability, Plausibility (Ramiller and Swanson, 2003)
C2	System – configuration	Explicitly define key characteristics of the underlying IT artifact	Software/hardware architecture, database characteristics, outsourcing	
C3	System – characteristics	Describe characteristics of the innovation that are in alignment with current technological best practices	Integration/interoperability, scalability, reliability, security, user-friendliness	
C4	Implementation – strategies	Describe implementation strategies/success factors	Proprietary and generic implementation methodologies and tools, strategies to promote user acceptance	Discontinuity (Ramiller and Swanson,2003)
C5	Implementation – successes	Demonstrate implementation successes (examples)	On-time activation, smooth seamless migration, high adoption rates, user satisfaction	
C6	Implementation – challenges	Discuss challenges/risks associated with the innovation	Gaining user acceptance, high investment cost, implementation complexity	
C7	Diffusion – organizational	Describe positive market response to the innovation; emphasize ongoing development of the innovation	Adoption/upgrade instance, increasing demand for/penetration of the innovation, release of the new version of the innovation	Density dependence (Hannan and Freeman, 1989) Market interest (Ramiller and Swanson, 2003)
C8	Diffusion – end user	Stress acceptance of the innovation by end users	Wide acceptance/utilization of the innovation	
P1	Value – clinical – rationale	Explain how the innovation improves quality of medical care in an adopter organization	Patient safety, quality of (patient) care, medical errors, clinical outcomes	Exchange legitimacy (Suchman, 1995) Business benefit, Practical acceptance (Ramiller and Swanson, 2003)
P2	Value – clinical – success story	Provide examples of how the innovation improves quality of medical care in an adopter organization	Specific examples of the P1 themes	
P3	Value – financial – rationale	Explain how the innovation improves financial performance of an adopter organization	Cost-effectiveness, financial well-being, financial savings	
P4	Value – financial – success story	Provide examples of how the innovation improves financial performance of an adopter organization	Specific examples of the P3 themes	
P5	Value – operational – rationale	Explain how the innovation improves operational performance of an adopter organization	Efficiency, streamline/improve workflow or specific tasks/processes, productivity	
P6	Value – operational – success story	Provide examples of how the innovation improves operational performance of an adopter organization	Specific examples of the P5 themes	

Table 2: IT Legitimation Taxonomy

Code	Strategy Name	Strategy Description	Central Themes	Conceptual Grounding
P7	Value – business – rationale	Explain how the innovation improves general business performance of an adopter organization	Achieving strategic goals, achieving customer satisfaction, managing personnel	Exchange legitimacy (Suchman, 1995) Business benefit, Practical acceptance (Ramiller and Swanson, 2003)
P8	Value – business – success story	Provide examples of how the innovation improves general business performance of an adopter organization	Specific examples of the P7 themes	
P9	Value – IT – rationale	Explain how the innovation improves management of IT in an adopter organization	Total cost of ownership of the innovation, use IT strategically, maximize IT investment, improve management of IT operations	
P10	Value – IT – success story	Provide examples of how the innovation improves management of IT in an adopter organization	Specific examples of the P9 themes	
P11	Alliance – adopter	Advertise collaborative long-term relationships with adopters	Common vision/goals, strategic/long–term collaboration, shared success in deploying the innovation	Influence legitimacy (Suchman, 1995)
P12	Alliance – vendor	Advertise partnerships/ collaborations with other innovation entrepreneurs (e.g., vendors, consultants)	Leveraging mutual strengths to improve the innovation or the implementation process	
P13	Alliance – field-level actor	Advertise affiliation with influential field level actors	Governmental agency, non-profit organization (e.g., think tank, research foundation), professional organizations, special interest groups (e.g., Leapfrog), conference/trade show/exhibition	
P14	Reputation – vendor	Emphasize the innovation entrepreneurs' strong reputation in the innovation domain and related areas	Reputation in a particular area, leadership in the field, reputation in a related domain, prior track record, awards	Dispositional legitimacy (Suchman, 1995)
P15	Reputation – adopter	Describe (favorable) characteristics/stress reputation of the adopter organization	Leadership in a certain area, award winner, organization size/market share	
N1	Normative – moral	Stress congruence of the innovation with prevailing moral norms; provide examples	Value of life, well-being of patients, enhancement of work experience	Moral legitimacy (Suchman, 1995)
N2	Normative – transformation	Emphasize the ongoing transformation of the adopters' industry; stress the enabling role of the innovation	Industry transformation, new era, changing paradigm, enabling role of the innovation	Expectations of progress (Abrahamson, 1996)
R1	Regulative – compliance	Stress compliance with legal and quasi-legal rules and regulations	Compliance with the rules of key regulative agencies in the adopter field (e.g., HIPAA, JCAHO)	Coercive pressures (King et al., 1994)

intuitive Internet navigation, and wireless integration"; "[system X] is a PDA-based Internet solution"; "solutions based on the Microsoft platform and .Net technologies"; "built on the HP NonStop™ platform"). In other words, the goal of *C2* is to inform the constituent audiences about how the innovation can do what it does. Finally, CPOE vendors engaged in a strategy aimed at showcasing general characteristics of the innovation – **C3 System-Characteristics**. That is, in addition to specific claims conveying what the system does (i.e., *C1*) and how it does it (i.e., *C2*), statements depicting how well the system performs its functions figured prominently in the vendor discourse. System characteristics were usually portrayed in relation to current technological best practices, which, once again, can be seen as an attempt to link the innovation to a subset of existing institutional beliefs. *C3* manifestations include, but are not limited to, claims concerning a system's performance with respect to integration/interoperability (e.g., "high level of integration it fosters between various [system X] modules"), scalability (e.g., "because of the scalability of our solutions…we can meet the information technology needs of healthcare organizations of virtually any size"), reliability/response time (e.g., "delivers a subsecond response time and 99.9 percent uptime"), security/privacy (e.g., "maintains high levels of security"), and usability (e.g., "due to its innovative and intuitive user interface, [system X] wins accolades from physicians"). Furthermore, many press releases contained descriptors emphasizing that the innovation is on the cutting edge of technology, management, or clinical progress (e.g., "next generation," "state-of-the-art").

Implementation-Related Strategies (Cognitive): Another group of cognitive legitimation strategies relates to the process whereby an innovation is brought into an organization and integrated into the work environment. Acquiring the knowledge about what kind of organizational changes and implementation challenges are typically involved in this process is important for potential adopters to the extent that it renders alleged benefits of the innovation achievable (Ramiller and Swanson, 2003).[11] In a way, implementation-related strategies act as a link between system-related strategies, which delineate what an innovation is, and value-related strategies, which detail the benefits that the innovation is purported to deliver (this group of strategies will be discussed later in the paper).

We identified three interrelated strategies within this group. The **C6 Implementation-Challenges** strategy comprises claims identifying potential risks and pitfalls associated with the process of bringing an innovation into an organization. In the CPOE data set, the most prominent of these assertions discusses various aspects of an implementation such as gaining clinicians' acceptance of CPOE, a high level of initial investment required to acquire and deploy the system, and implementation complexity. These were countered with **C4 Implementation-Strategies** discourse directed at suggesting approaches to tackle the implementation challenges. Strategies to promote user acceptance focused on providing extensive customized user training, soliciting feedback from and collaborating closely with clinicians at all stages of the implementation process, and tailoring the system to the unique workflow of a particular clinical environment. Suggestions to alleviate high start-up investments revolved around "sharing the cost of infrastructure and management among a group of facilities" and "rolling out (process changes) through incremental investments." Finally, it was proposed that risks resulting from high implementation complexity could be mitigated through a variety of approaches ranging from rapid "quickstart" implementation strategies to phased deployments. In the latter case, a core basic system is installed first and then expanded "to encompass the full capabilities of the advanced solution." Vendors also often emphasized the fact that they had access to unique proprietary implementation methodologies and would share these with system adopters to ensure success of the implementation process.

The **C5 Implementation-Successes** strategy is the last one in the implementation-related cluster of the IT legitimation taxonomy. Demonstrating success is of paramount importance to any legitimation effort (Strang and Macy, 2001; Zbaracki, 1998). *C5* seeks to establish the innovation success in a very narrow yet fundamental sense – in the sense that the innovation is implementable. Implementability, as noted earlier, is essential for an innovation's value proposition to be appreciated by potential adopters. Accordingly, the CPOE vendors have invested considerable efforts into

[11] Ramiller and Swanson (2003) define this as the discontinuity dimension of the critical reception of organizing visions.

showcasing implementation successes. Successes were construed in a number of ways, including on-time activation, on-budget or under-budget project completion, smooth/seamless migration, high adoption/utilization rates, and a high level of user satisfaction. The vendor's role in accomplishing a successful implementation was also often underscored (e.g., "it was a shared effort and we are happy that it has become a shared success").

Diffusion-Related Strategies (Cognitive): One of the early conceptualizations of legitimacy, stemming from organizational ecology, suggests that legitimacy is a function of the population density of a new organizational form (Hannan and Freeman, 1989). As the number of organizations of a given form increases (that is, as its population density goes up) and the form becomes more prevalent within the field, social actors start to regard it "as the natural way to organize for some purpose" (Scott, 2001, p. 119). It is in this way that an organizational form ultimately acquires the status of a reified social fact and gains "taken-for-grantedness" (Aldrich and Fiol, 1994). Although this conceptualization was later criticized (Zucker, 1989), most scholars would still agree that density-dependence plays an important role in instigating the spread of new practices, primarily through the mechanism of organizational imitation or mimicry (see, for example, Strang and Macy, 2001).[12] In the context of IT innovation diffusion, population density translates into the innovation adoption rates. Accordingly, claims rendering CPOE as an organizational practice that is becoming widely used within the adopter population were central to the vendor discourse.

The **C7 Diffusion-Organizational** strategy consists of statements stressing positive market response to the innovation and/or the ongoing evolutionary development of the innovation (e.g., upgrades). Unable to cite high overall market penetration rates for CPOE, the vendors focused their attention on highlighting adoption of the software by individual organizations (e.g., "[Corporation X] …today announced that [health system Y], a 132-bed community health system based in …, will deploy [system Z] advanced clinical and financial information software"), as well as playing up their own customer base (e.g., "over 15,000 physicians and 56,000 nurses in more than 1,300 healthcare organizations, including 160 medical centers and 850 clinics, are currently using [system X]"). Interestingly, when noting the low rate of CPOE adoption, the vendors characterized adopting organizations as setting themselves apart from non-adopters (e.g., "part of an elite group," "among the clinical informatics leaders in healthcare"). In addition to showcasing adoption instances, the vendors made announcements about new releases and upgrades of their software suites (e.g., "[Vendor X] announced today that [system Y] release 2003 will be available in March 2003"). In our opinion, such claims constitute another manifestation of *C7,* as they seek to project an idea that the innovation has survived its first iteration and is naturally progressing to the next version. Such progression implies that the innovation is becoming more mature and, perhaps, more sustained.

The **C8 Diffusion-End User** strategy is similar in purpose to *C7* but focuses on acceptance of an innovation by end users rather than on its adoption by organizations (e.g., "physician acceptance of the CPOE software at [hospital X] has been very high, and entering orders has become second nature"). Although *C7* and *C8* statements were often intertwined in the vendor discourse, we chose to move the end-user related claims into a separate category due to the following reasons. As discussed earlier, legitimacy is always granted (or not granted) to a new practice by a particular group of actors. Hence, emphasizing end-user acceptance may be viewed as a means to pursue legitimacy with those social actors who may eventually become users of the system (as opposed to *C7*, which is directed at management/administration). Depending on the organizational context, securing legitimacy with the end users may be of greater or lesser importance to the overall success of the innovation legitimation efforts. In the case of clinical information systems, *C8* plays a pivotal role due to the significant power that physicians hold in the U.S. health care system.

[12] Another mechanism that may lead to legitimation through diffusion-related strategies involves network effects (Katz and Shapiro, 1994). In cases where a new practice exhibits strong positive externalities, diffusion claims may also reinforce strategies aimed at building pragmatic legitimacy for the practice. While CPOE does not provide a good example of such a case, Electronic Health Records, another IT-enabled clinical innovation, does.

4.1.2. Pragmatic Legitimation Strategies

Suchman (1995) posits that pragmatic legitimacy encompasses three subtypes: (1) exchange legitimacy – where stakeholders offer support to a new venture because of its expected value to them, (2) influence legitimacy – where stakeholders support the venture because they or other influential actors within the field have been co-opted by the founding entrepreneurs, and (3) dispositional legitimacy – where stakeholders provide support because they regard the actors promulgating a new venture as generally "decent" and "of good character." Each of these subtypes underlies a group of pragmatic legitimation strategies, which we discuss below.

Value-Related Strategies (Pragmatic): These strategies invoke exchange legitimacy mechanisms by delineating needs that an innovation is designed to address and demonstrating how the innovation meets those needs. We identified four foci and two types of value-related discourse, producing a total of eight distinct legitimation strategies related to those foci. The discourse foci reflect the key areas in which organizational performance is generally evaluated, and include financial, operational, clinical,[13] and general business domains. In each of the four domains, the CPOE vendors employed different rhetorical means to demonstrate the innovation value, which led us to distinguish between two types of value-related legitimation discourse. One category of claims seeks to provide social actors with a *rationale* for why they should consider adoption. These claims perform a theorization function by specifying a generic organizational problem and justifying, on logical grounds, the innovation as a solution to the problem (Greenwood et al., 2002; Strang and Meyer, 1993; Tolbert and Zucker, 1996). We refer to these types of value-related strategies as "*rationale"* strategies. The second category of value-related assertions complements rationale strategies by offering empirical evidence in support of the problem-solution arguments. As discussed earlier, being able to demonstrate success "in at least some cases that can be examined by others considering adoption" is crucial to the overall success of the legitimation efforts (Tolbert and Zucker, 1996, p. 183). Accordingly, in each of the four focal "value" areas, the CPOE vendors tried to provide examples of specific organizations that had been able to improve their performance due to the innovation. We use the "success story" label to denote value-related strategies that pursue this objective.

The **P1 Value-Clinical-Rationale** and **P2 Value-Clinical-Success Story** strategies aim to establish the value of an innovation in its immediate application domain, in our case – that of clinical services. In this vein, CPOE systems were purported to improve medical care in terms of "patient safety," "quality of care," "error prevention," and "clinical outcomes." Explanations of how the innovation would help achieve these improvements ranged from general statements (e.g., "enabled us to enhance our clinicians' abilities to provide excellent medical care to patients") to more specific accounts (e.g., "an example of how information technology can reduce errors is through recognizing a patient drug allergy"). The latter category was also often intertwined with descriptions of the system functionality and configuration, as the vendors tried to make their claims more substantial and credible (e.g., "[system X] provides caregivers with the right decision support at the point of care using …handheld scanner and …, providing enhanced safety at the bedside"). Success stories were usually presented in terms of measurable improvements achieved by an adopter organization on one of the above performance criteria (e.g., "the organization recently documented a 60 percent reduction in preventable adverse drug events as a result of the technology").

In general, all value-related strategies follow the pattern of using rationale and success story claims as described above for the clinical strategies (i.e., *P1* and *P2*). The **P3/P4 Value-Financial-Rationale/Success Story** strategies, for example, follow this pattern but focus on how the innovation will enable adopters to boost revenue and reduce costs through improving "cost-effectiveness of medical care" and "maximizing resources and reimbursements." Success stories in this domain revolved around the amount of cost savings adopter organizations had enjoyed as a result of the CPOE deployment (e.g., "the solution has resulted in an estimated $2 million in annual savings"). Similarly, **P5/P6 Value-Operational-Rationale/Success Story** strategies drew upon their own business logic by encompassing considerations of efficiency, productivity, and workflow. CPOE systems were portrayed as promising significant improvements in this area because of their ability to

[13] In general, this will be an area specific to the innovation application domain.

automate clinical tasks (e.g., "by automating functions, such as … physicians' orders, documentation and prescription writing, the system helps [hospital X] streamline workflows"), improve collaboration across the continuum of care (e.g., "the connected enterprise operates efficiently"), and provide easy real-time access to required clinical information (e.g., "the software solution brings complete, real-time patient information directly to the point of service, enabling faster and more efficient care delivery"). Success stories described improvements in hospital-wide cycle-times (e.g., "a 52% improvement in medication turnaround times") as well as gains in personal productivity (e.g., "saving physicians an estimated 30 to 60 minutes per shift").

Another group of value-related strategies encompasses rhetoric emphasizing improvements in areas that cannot be readily categorized into the three performance categories discussed above. While statements comprising this strategy address a fairly diverse set of issues, there is a common thread throughout in that each statement mentions the challenges faced by all business organizations, regardless of the industry they belong to. In particular, **P7/P8 Value-Business-Rationale/Success Story** strategies stress improvements in customer service/satisfaction (e.g., "they will benefit from increased patient satisfaction"), the ability to attract and retain better professional staff (e.g., "the system will help our recruiting efforts by attracting new physicians who value the role of technology"), as well as including more general claims concerning the fulfillment of an organization's mission and business goals and the strengthening of its leadership position (e.g., "[system X] plays an extremely important role in helping us achieve our strategic objectives").

Finally, in addition to the legitimation strategies related to the four key areas of organizational performance, the taxonomy includes a pair of value-related strategies that specifically address the impact of an innovation on the management of an IT function in an adopter organization. This is a particularly important element of the discourse surrounding IT innovations. The dominant theme in **P9/P10 Value-IT-Rationale/Success Story** strategies was maximizing return on IT investment (e.g., "[system X's] web-centric architecture is expected to minimize the overall cost of system ownership"). In addition, the vendors made references to the innovation's conformance to IT industry standards (e.g., "technology vision that centers around the development of software based on industry standards such as Extensible Markup Language (XML) and Web services") and its integration with legacy applications (e.g., "an architecture that allows an innovation to be incorporated without requiring complete – and costly – platform replacement").

Alliance-Related Strategies (Pragmatic): Legitimation strategies in this cluster are directed toward the *influence* subtype of pragmatic legitimacy. Influence legitimacy, as discussed above, arises when a practice entrepreneur co-opts constituents by incorporating their interests and goals into its own policies, or by adopting their performance standards as its own (Suchman, 1995). A declared commitment to a common set of goals is likely to prompt the actors to support these goals and, as a result, grant legitimacy to a new practice being promoted by the entrepreneur. In our study, we found that the CPOE vendors pursued influence legitimacy through building and advertising alliances and long-term relationships with field-level actors, adopter organizations, and other vendors.

So far as influence legitimacy is predicated on establishing common goals and signaling commitment to an agenda that is widely shared within the target organizational population, it promises the greatest dividends to the entrepreneur. Accordingly, affiliating the innovation with the interests of influential field-level actors proved to be a prominent strategy among the CPOE vendors. More specifically, the **P13 Alliance-Field-Level Actor** strategy draws upon statements citing general endorsements of IT in healthcare and CPOE systems in particular by professional groups (e.g., American Medical Association, American Society of Health System Pharmacists), associations of insurers and payers (e.g., The Leapfrog Group), and government officials (e.g., "In his recent State of the Union address, President Bush called for a more aggressive use of medical technology to reduce the number of medical mistakes, which in turn drive up healthcare costs."). Also noted were collaborative research studies involving respected healthcare organizations and professional groups (e.g., "the American Society of Health System Pharmacists (ASHP) Foundation, in partnership with [vendor X], announced its first U.S. healthcare site for its Failsafe Medication Management System Design (F.M.M.S.D.) study").

Next, the vendors employed *the* **P11 Alliance-Adopter** strategy that seeks to portray the relationship between the vendors and their customers as long-term partnerships and ongoing collaborations (e.g., "our collaborative partnership enables this shared vision to become reality"). The main objective of these claims was to convince potential adopters that the vendor shares their vision and concerns and, thus, will pursue their interests as its own. This strategy partially overlaps with the *C4 Implementation-strategy* discourse, as the vendor-adopter partnership was often discussed in the context of ensuring successful deployment of CPOE systems. In this sense, *P11* also helps to highlight implementability of the innovation.

Finally, CPOE vendors made use of the **P12 Alliance-Vendor** strategy by publicizing alliances with other vendors and third-party providers, usually those with expertise in complementary areas (e.g., "[vendor X], an international provider of clinical applications ... to the healthcare industry, and [firm Y], an international law firm and HIPAA industry leader, announced today their strategic relationship"). This strategy, in our opinion, is directed primarily toward developing legitimacy of the innovation not among potential adopters but among actors whose joint participation in the entrepreneurial community is essential for the innovation launch to be successful (e.g., other vendors, consultants, etc.). This finding corroborates the interrelationship between the legitimation and mobilization functions of organizing visions, posited by Wang and Swanson (2007).

Reputation-Related Strategies (Pragmatic): The last group of pragmatic legitimation strategies pursues dispositional legitimacy. Suchman (1995, p. 578) defines dispositional legitimacy as stemming from positive, if naive, evaluations of an organization and its policies as "honest," "trustworthy," "decent," and "wise." To foster such evaluations, the CPOE vendors attempted to strengthen and promote their own reputations as well as to trade on the reputation of their customers.[14]

The **P14 Reputation-Vendor** strategy encompasses statements emphasizing firm characteristics that reflect favorably on the vendor's reputation. These characteristics included expertise in a particular aspect of IT (e.g., "[vendor X's] highly regarded implementation, remote hosting and outsourcing services"), leadership in a certain application area (e.g., "the leader in information solutions for scientific and healthcare professionals"), prior performance track record (e.g., "[vendor X] demonstrated proven capabilities in supporting CPOE in complex teaching environments such as ours"), and previous experiences in related domains (e.g., "our databases have been relied on by hospital pharmacists for many years"). Displaying awards and other signs of formal recognition of a vendor's accomplishments was another commonly used approach (e.g., "[vendor X's] enterprise clinical system placed among the top three vendors in three separate categories of the spring 2001 [analyst Y] Performance Report"). Finally, a number of actors sought to bolster their organizational reputation by drawing on the personal stature of their key executives (e.g., "one of the nation's leading designers of hospital-based clinical information technologies is joining the staff of [vendor X]"). Such "dispositional spillovers" are a necessary legitimation technique in the early stages of diffusion, when founding entrepreneurs often lack an established track record of consistent performance (Suchman, 1995).

The **P15 Reputation-Adopter** strategy represents another attempt on the part of the vendors to leverage dispositional spillovers. In this case, the firm's customers – adopter organizations – provided an external source of reputation to build dispositional legitimacy for the innovation. Rhetorical means employed to carry out *P15* were similar to those of *P14* and included statements highlighting the leadership position of a healthcare provider (e.g., "[hospital X] is one of the most prestigious healthcare organizations in the world") and showcasing awards won by the adopter organization or its staff (e.g., "its staff includes more than 100 physicians who were chosen for inclusion in Best Doctors

[14] We would like to acknowledge that, apart from pragmatic legitimacy, dispositional claims may also contribute to building normative legitimacy for an innovation (Suchman, 1995, p. 579). To keep the IT legitimation taxonomy consistent with Suchman's framework, however, we coded dispositional claims as pragmatic, unless they explicitly referenced the normative institutional pillar.

in America, a nationally recognized database").

4.1.3. Normative Legitimation Strategies

Normative legitimacy, as discussed earlier, is based primarily on the altruistic pro-social logic of promoting societal justice and welfare. This makes normative, or moral, legitimation more difficult to accomplish through strategic self-interested manipulations than pragmatic or cognitive legitimation (Suchman, 1995). Nevertheless, our research shows that IT entrepreneurs engage in strategies aimed at building up the moral base of the innovation's legitimacy.

The **N1 Normative-Moral** strategy was evident in the vendor rhetoric around themes concerning the value of life, the well-being of patients, and enhancement of the work experience. Statements such as "knowing that [system X] can save even one life," "healthcare that leaves no one behind," "it will make me and my peers better physicians," and "professional empowerment of nurses" were made to resonate with broader moral norms and beliefs. While the main emphasis of *N1* was on the life-saving implications of CPOE systems, the vendors also spent considerable effort on trying to align both their own and their customers' visions and goals with key moral themes (e.g., "we share a common vision of advancing world-class pediatric care and research capabilities to our local communities and to children around the world.")

The **N2 Normative-Transformation** strategy comprises another category of the vendor discourse that we classified as normative legitimation. It does not invoke moral values per se, but rather builds upon societal expectations for progress. These expectations, or norms, require organizations to perpetually change and managers to use new and improved techniques to deal with the shifting environment[15] (Abrahamson, 1996; Avgerou and Madon, 2004). In this vein, CPOE vendors used rhetoric emphasizing the ongoing fundamental transformation of the healthcare industry, and stressing the enabling role of new information technologies in helping organizations adapt to the new conditions (e.g., "this is the beginning of a completely new era of information technology in health care"). Terms like "new standard of care," "industry momentum," "changing paradigm," "revolution that has to take place" formed the backbone of the *N2* legitimation vocabulary.

4.1.4. Regulative Legitimation Strategies

Last, CPOE vendors employed the **R1 Regulative-Compliance** strategy to pursue the regulative form of legitimacy. Strictly speaking, IT innovations can be granted regulative legitimacy only if their use is mandated by a formal authority. In most cases, including CPOE systems, this is not a realistic scenario. Nonetheless, practice entrepreneurs may manage to score points in the area of regulative legitimacy by convincing others that the innovation can help organizations to become compliant with rules and regulations that are formally enforced within the field. To this end, the vendors produced justifications of the role of CPOE systems in achieving compliance with industry-wide regulations, such as HIPAA[16] and JCAHO[17] standards (e.g., "such capabilities will permit [hospital X] to share HIPAA-compliant medical information"), as well as their role in conforming to rules established by state and local agencies (e.g., "a solution that will address the authentication requirements set forth by the Ohio State Board of Pharmacy").

4.2. Stage III: Evaluation of Legitimation Patterns

In this section we discuss patterns in the use of legitimation strategies by the CPOE vendors. In particular, we focus on two types of patterns: (1) patterns in the overall use of legitimation strategies and (2) temporal legitimation patterns.[18] By interpreting the detected variations, we seek to evaluate

[15] Norms of managerial progress and norms of rationality, prevalent in the Western societies, have been shown to be key drivers of management fashions (Abrahamson, 1996; Abrahamson and Fairchild, 1996).
[16] HIPAA stands for Health Insurance Portability and Accountability Act
[17] JCAHO stands for Joint Commission on Accreditation of Healthcare Organizations
[18] Another potentially useful type of analysis not presented in this paper is cross-sectional legitimation pattern analysis (i.e., across different groups of actors and/or different innovations). For example, one might be interested in contrasting legitimation efforts carried out by the entrepreneurial communities promoting two different IT innovations, one that enjoyed wide acceptance and another that failed.

the insights that the IT legitimation taxonomy is capable of generating when applied as a research lens to an empirical data set. In other words, our objective is to assess the explanatory power of the taxonomy and, hence, its potential usefulness for future research. Furthermore, we draw upon the findings from the pattern analysis to formulate a set of research questions. These questions, we hope, will form the backbone of a research program to explore the role of legitimation in IT innovation diffusion.

4.2.1. Patterns in the Overall Use of Legitimation Strategies

Figure 5 below shows the percentage of press releases containing at least one statement reflecting each type of legitimation strategy. The vendors employed the 26 elements from the IT legitimation taxonomy to varying degrees to construct their repertoires.

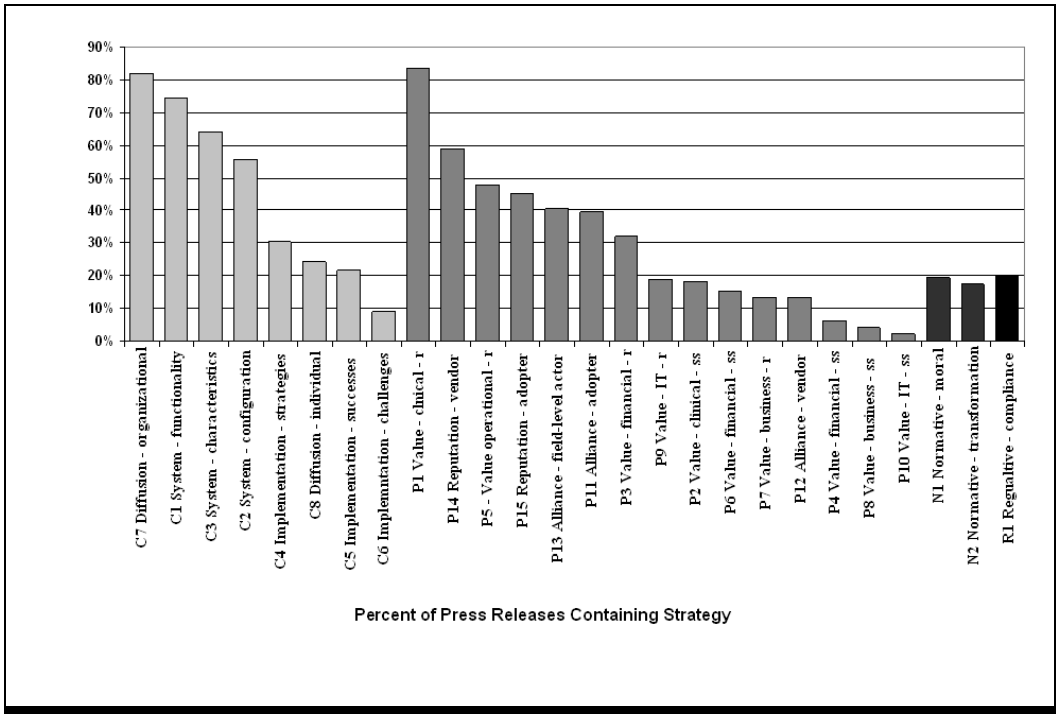

Figure 5: Use of Legitimation Strategies by CPOE Vendors

As Figure 5 shows, strategies aimed at pragmatic and cognitive forms of legitimacy were most strongly represented in the vendor discourse. In particular, the strategies most frequently employed by the vendors are as follows[19]: *P1 Value-clinical rationale*, *C7 Diffusion-organizational*, and two system-related strategies (*C1 and C2*). Several points follow from this observation.

First, justifications of the innovation's value in its focal application domain (i.e., clinical services, in our case) and statements highlighting the spread of the innovation within its target population dominated the vendor discourse. Interestingly, these two categories of claims can be seen as reflecting two major theoretical views on innovation diffusion: rational choice and contagion (Lounsbury, 2003; Strang and Macy, 2001). *P1* is directed at helping potential adopters to "objectively" assess key benefits of the innovation and, thus, lays ground for *rational-choice* adoption decision-making. *C7, on the other hand,* stresses the increasing population density of the innovation, which, in turn, triggers the *contagion* diffusion mechanism. This finding corroborates the argument made elsewhere in the literature that the two mechanisms, *viz.,* rational choice and contagion, play an important role in

[19] These strategies were present in more than 60 percent of press releases.

innovation diffusion; both mechanisms, however, should be viewed as conditioned by the discursive actions of innovation entrepreneurs and other constituent actors (Green, 2004; Strang and Macy, 2001).

Second, system-related cognitive strategies *C1* and *C2* also were common in the legitimation arsenal of the CPOE vendors. These strategies are aimed primarily at enhancing comprehensibility of the innovation. So far as comprehensibility underlies interpretation — one of the three main functions of organizing visions (Swanson and Ramiller, 1997) — the prominence of the system-related strategies highlights the central role of interpretation in the development of organizing visions. Therefore, this observation supports our earlier claim that the functions of interpretation and legitimation are closely intertwined.

So far, we have identified a set of strategies that were prevalent in the CPOE vendors' legitimation discourse. It is unclear at this point, however, whether these strategies represent the core legitimation tasks for any IT innovation or whether they are particular to the context of our study. To address this issue, we formulate these two interrelated research questions:

> *RQ1A: Does there exist a set of core strategies that underlie legitimation of an IT innovation, regardless of its type and industry setting?*

If such a set cannot be identified,

> *RQ1B: How do core legitimation strategies vary across different types of IT innovations and different industry settings?*

Two other patterns in the overall use of legitimation strategies warrant attention. These patterns, in our opinion, offer clues as to what factors may influence the effectiveness of discursive legitimation of IT innovations.[20] To be able to make this connection, let us conjecture that in the timeframe under consideration the vendors' attempts to build legitimacy for CPOE enjoyed limited success.[21] The following two observations then follow.

First, as Figure 5 illustrates, value-related justifications employed by the CPOE vendors were dominated by the *rationale* strategies (*P1, P5, P3*), whereas the *success stories* strategies (*P2*, *P4*, *P6,* and *P8*) were underrepresented. Success stories, however, are vital for building legitimacy for IT innovations (Currie, 2004; Wang and Swanson, 2007). Consequently, the inability of the vendors to offer real-world examples of CPOE benefits may have contributed to the relative lack of success of the vendors' legitimation efforts. Second, claims discussing challenges and risks associated with the innovation were also quite limited in the vendors' legitimation repertoires. This, in our opinion, may have undermined the plausibility of the vendor discourse (Ramiller and Swanson, 2003). For a rhetorical justification to achieve resonance among the target audience, the justification must exhibit empirical credibility. Such credibility is determined by the degree of fit between what the justification conveys and the pertinent events in the real world (Benford and Snow, 2000). In the case of CPOE, the empirical evidence (e.g., market surveys, reports of industry analysts, etc.) indicated a fairly low penetration rate of the innovation among healthcare care providers in the U.S., pointing to the existence of obstacles to CPOE deployment. This, nevertheless, did not receive a proper reflection in the vendor discourse, which, in turn, may have negatively affected the reception of the discourse by potential adopters.

[20] We do not seek to claim causality between the legitimation patterns discussed below and legitimation outcomes. Rather, we merely suggest that there may exist a relationship between the two that warrants further investigation.

[21] Our reasoning here is based on the following consideration. Green (2004) posits that the point when an innovation becomes institutionalized (i.e., gains legitimacy) can be operationalized as the point when the level of rhetorical justifications supporting the innovation goes down while its diffusion rate stays the same or continues to increase. In the case of CPOE, between 1998 and 2005 the volume of the legitimation discourse continued to grow (see Figure 4), while the innovation's penetration level remained low (see Figure 3). Admittedly, in 2006 the discourse volume slightly decreased while the penetration rate slightly increased.

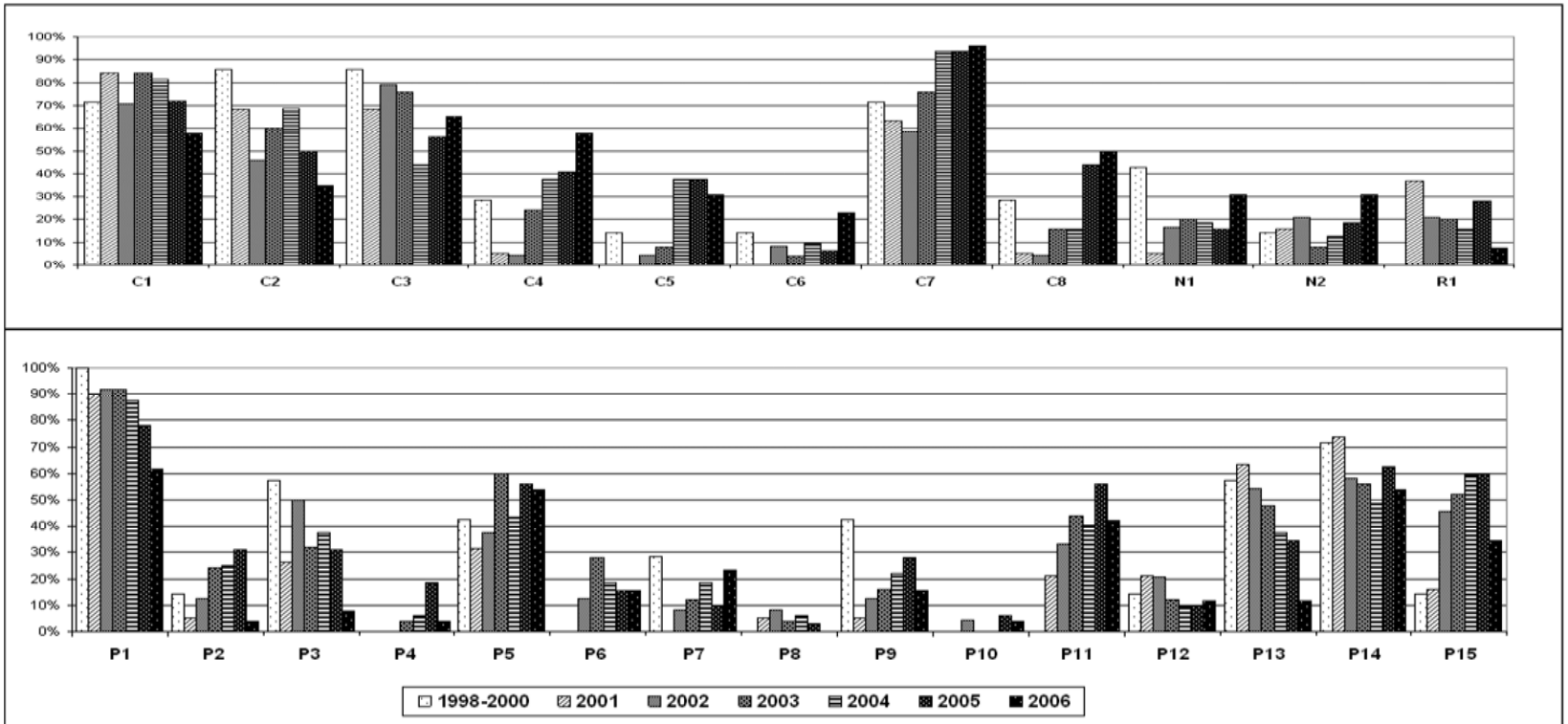

Figure 6: Use of Legitimation Strategies by Year (Cognitive, Normative, Regulative)

To generalize, the two aforementioned legitimation patterns concern the relationship between the content of the legitimation discourse and the empirical evidence supporting or opposing the claims. Our findings suggest that the degree of congruence between the two influences the overall effectiveness of legitimation efforts. To explore this further we put forth the following research question:

> *RQ2: How does congruence between actions and events in the real world and the content of legitimation claims affect the outcome of IT innovation legitimation?*

4.2.2. Temporal Patterns in the Use of Legitimation Strategies

Figure 6 shows the overall use of legitimation strategies by year. Use here is defined as a percentage of press releases containing at least one instance of a given strategy in a given year. Once again, several interesting dynamics can be gleaned from the graph.

The first group of temporal legitimation patterns that we identified is driven by the natural progression of the innovation lifecycle. These patterns are largely consistent with regularities in the evolution of innovation discourse reported elsewhere in the literature. For example, as Figure 6 indicates, the use of system-related strategies (*C1-C3*) by the CPOE vendors tapered off over time, while the use of implementation-related strategies (*C4*, *C5*) increased. This observation is congruent with the argument put forth by Wang and Ramiller (2004), who suggested that over time the focus of organizing vision discourse shifts from "know-what" (i.e., system-related strategies) to "know-how" (i.e., implementation-related strategies). The shift reflects the changing knowledge needs of potential adopters. Another interesting pattern within this group is that over time the CPOE vendors increased their use of diffusion-related claims (*C7, C8*) and success stories related to the clinical and financial benefits of CPOE (*P2, P4*). This trend, in our opinion, is also driven by the growing maturation of CPOE within the adopter population. As the adoption and implementation of the innovation expanded, the vendors sought to capitalize on the limited, yet verifiable, evidence of the innovation's spread and value. Furthermore, as time passes, members of the vendors' audience (prospective adopters, industry journalists, etc.) have rising expectations that they will be hearing success stories and seeing evidence of diffusion. In the absence of this, skepticism is likely to set in.

A number of researchers have pointed out the importance of studying "typical" temporal progressions of the innovation discourse, in general (Ramiller, 2006) and legitimation efforts, in particular (Suchman, 1995). While one should not expect to find a single dominant legitimation sequence that would hold for all IT innovations, a number of important context-specific regularities may well be discovered. To inquire further into this facet of the legitimation process, we propose the following research questions:

> *RQ3A: What are the typical patterns of how IT innovation entrepreneurs employ legitimation strategies over time?*
>
> *RQ3B: How do these patterns vary across different types of IT innovations and different industry settings?*

The second group of temporal legitimation patterns is not directly linked to the spread and maturation of the innovation, but rather reflects the vendors' attempts to adjust their legitimation repertoires in order to make their claims more resonant with potential adopters. The first trend within this group concerns reputation-related strategies. As Figure 6 shows, over time the CPOE vendors increased their reliance on the *P15 Reputation-adopter* strategy and somewhat decreased their use of the *P14 Reputation-vendor* strategy. One possible explanation behind this pattern is that the vendors came to a realization that, in the absence of a prior performance track record in the CPOE domain, claims highlighting their own reputations were not being given much credibility by the stakeholders. The reputation of their clients, on the other hand, was already established and readily available for the vendors to tap into. Hence, by stressing the reputation and characteristics of client organizations, the CPOE vendors sought to achieve two objectives discussed earlier in the paper: to trigger dispositional

spillovers (Suchman,1995) and to reinforce diffusion through organizational imitation (Haunschild and Miner, 1997).

Another pattern related to the adjustment of the vendor legitimation repertoires involves the use of alliance-related strategies. These are characterized by an overall downward trend in the use of the *P12 Alliance-vendor* and *P13 Alliance-field-level actor* strategies with a parallel increase in the use of the *P11 Alliance-adopter* strategy. As discussed earlier, alliance-related strategies are aimed at pursuing influence legitimacy, which arises when an entrepreneur co-opts constituents by incorporating their interests and goals into its own policies and standards (Suchman, 1995). In this light, *P12* is aimed at building influence legitimacy among other actors in the entrepreneurial community (e.g., other vendors), while *P13* affects a wide range of actors, but does so indirectly through signaling commitment to a field-level agenda. Accordingly, the aforementioned shift in strategies may be indicative of the vendors' desire to refocus their legitimation efforts on direct co-optation of potential adopters, as the most important group of the innovation stakeholders.

Insofar as the two examples above reflect adjustments of the vendors' repertoires in order to improve the effectiveness of the CPOE legitimation efforts, it would be sensible to suggest that different temporal orderings in the use of legitimation strategies are likely to result in different legitimation outcomes. To take this argument one step further, we posit that more research is needed to understand the overall impact of legitimation on innovation diffusion. To this end, we propose the following research question:

> *RQ4: How do different temporal patterns in the use of legitimation strategies affect the diffusion paths of IT innovations?*

5. Conclusions and Implications

The majority of mainstream research on IT innovations relies on economic-rationalistic models and focuses on individuals and organizations as the unit of analysis. In this paper, we aimed to advance an alternative research agenda, one that attends to the institutional underpinnings of IT innovation and examines innovation diffusion at the inter-organizational level of analysis. To accomplish this goal, we carried out a multi-stage study examining the legitimation function of organizing visions for IT innovations (Swanson and Ramiller, 1997). First, we reviewed a broader literature on legitimacy drawn from sociology and organization theory and developed a comprehensive view of the sources of legitimacy in the context of IT innovations. Further, we conducted a longitudinal case study through which the findings of the literature analysis were refined and a taxonomy of legitimation strategies for IT innovations was constructed. Finally, we employed the case study to demonstrate the usefulness of the proposed legitimation taxonomy in an empirical setting and develop a set of research questions to guide future investigations.

5.1. Limitations

Our research is not without limitations. The data employed in the case study are confined to a single group of innovation entrepreneurs – IT vendors – and a single IT innovation – CPOE systems. Other stakeholders, such as consultants, industry analysts, conference firms, etc. (see Wang and Swanson, 2007), often also play important roles in shaping efforts to build legitimacy for IT innovations. The legitimation strategies that these actors employ may differ from those utilized by IT vendors. Hence, for a more fully historical analysis, future investigations will need to incorporate the broader entrepreneurial community into the analysis, as well as to examine legitimation strategies for different types of IT innovations and different industry settings (see a more detailed discussion on future research directions below).

Nevertheless, so far as IT vendors represent a key driving force behind the launching of IT innovations, we argue that our exclusive focus on the vendor discourse in this initial step of the framework development is warranted. Furthermore, concerns related to the limited scope of the case study were mitigated, to a large extent, due to the research strategy that was employed. To develop

and validate the IT legitimation taxonomy, we used a deductive/inductive approach, beginning with a comprehensive literature review of the sources of legitimacy. This approach makes the aforementioned limitations much less of a concern than it would be with a purely inductive research strategy.

Another limitation of our work stems from the fact that certain legitimation claims may contribute to building legitimacy of different forms. In this paper, we have taken a content-analytical approach aimed at identifying the "main" legitimation effect of a claim (see discussion on pp. 23-24). This approach, we argue, is robust methodologically and allows for capturing insightful legitimation patterns in the data. Nonetheless, it is important to point out that it may also result in certain "tangential" legitimation effects of the vendor discourse being left out of the analysis.[22] At a general level, we would like to note that the four legitimacy forms should be viewed as archetypes – simplified but powerful conceptions of an ideal or character type (Mitroff, 1983) — rather than "real-life" entities. These ideal types can never fully capture an empirical phenomenon in question but can provide a useful lens to better understand its properties. And this, we hope, is what the IT legitimation taxonomy will help IS researchers to accomplish.

5.2. Contributions

Despite the limitations discussed above, we believe our research makes a number of important contributions to both theory and practice. First, at a theoretical level, we offer an elaboration of the framework of organizing visions for IT innovations (Swanson and Ramiller, 1997). We extend the framework by grounding the ideas related to the legitimation of organizing visions in the broader literature on legitimacy of new organizational forms and ventures. Through a synthesis of major typologies of legitimacy forms, we offer an integrated view of legitimacy in the IT innovation domain. In particular, we identify four salient forms of legitimacy: cognitive legitimacy (based on comprehensibility), pragmatic legitimacy (based on audience self-interest), normative legitimacy (based on normal appropriateness), and regulative legitimacy (based on compliance with laws and regulations). Distinguishing among these forms is important inasmuch as it underscores that legitimation is not a monolithic process. Different types of innovations and/or different stakeholder groups may be better served by strategies geared toward different types of legitimacy. Awareness of these differences will help researchers provide more accurate explanations for why legitimation of organizing visions succeeds in one case and fails in another.

At a methodological level, our research provides a useful tool for future empirical investigations of organizing visions. The IT legitimation taxonomy sets the stage for developing a more structured approach to studying the lower-level discursive dynamics underpinning the evolution of organizing visions. With further development, this approach will complement the classical ethnography-like historiographic studies dominating the extant literature on organizing visions (e.g., Currie, 2004; Wang and Swanson, 2007) with formal analytical methodologies of the "new archival tradition" (Mohr, 1998; Ventresca and Mohr, 2002; Weber, 2005). Stage III of our study offers an illustration of how some of these methodologies can be applied. Furthermore, the IT legitimation taxonomy will provide researchers with a common language to articulate their ideas and findings regarding organizing visions of different IT innovations. This, in turn, will enable better cross-validation between studies and contribute to building a cumulative body of knowledge on the subject.

Another contribution of this research lies in identifying specific directions for advancing our current understanding of the role of legitimacy in the IT innovation domain. By building upon the insights of the post-hoc analysis of the CPOE legitimation patterns, we have developed a set of research questions. These questions, we hope, will serve as a roadmap for designing future empirical investigations into how legitimation dynamics shape the evolution of organizing visions, and more generally, how they enable diffusion of IT innovations among organizations.

[22] In general, content analysis tends to analyze textual elements in isolation, away from their immediate conceptual context (Weber 2005). As one of our reviewers pointed out, this may have introduced a certain bias into our findings concerning the CPOE case study. In this light, we suggest that future studies need to go beyond the analysis of isolated textual units and look at their associations, such as, for example, co-occurrences.

Finally, our research has several significant implications for practice. For IT vendors and other actors seeking to promulgate IT innovations, it offers a better understanding of how to carry out entrepreneurial efforts. For example, the IT legitimation taxonomy can guide firms in devising communication campaigns to promote new classes of organizational IT. Similarly, the findings of the pattern analysis of legitimation repertoires will sensitize vendors to specific factors determining the effectiveness of strategic legitimation. For adopter firms, our research will help inform better adoption decision-making. While discourse surrounding IT innovations provides potential adopters with early knowledge about an innovation, our study suggests that it also can be strategically manipulated by the propagating institutions. Consequently, the adopter firms need to be aware that the uncritical reliance on the innovation discourse often results in mindless adoption and leads to the development of IT fads and fashions (Swanson and Ramiller, 2004).

5.3. Future Research Directions

Future research in this area may proceed in two general directions. First, additional studies are necessary to establish validity of the legitimation taxonomy across a wide range of IT innovations. To this end, the taxonomy will need to be applied as a research lens to analyze discourse concerning different types of IT innovations in a variety of application domains. The goal of these studies will be to ascertain that the taxonomy can capture a full range of relevant discursive dynamics present in the data and detect differences in these dynamics across visions. Additionally, as mentioned earlier, future investigations will need to account not only for vendors but also for other entrepreneurial stakeholder groups, such as consultants, industry analysts, etc. A possible outcome of this stream of research could be an extension of the IT legitimation taxonomy to reflect specifics of a particular type of IT innovations, a particular application domain, or a particular entrepreneurial group.

Second, future studies should focus on exploring different aspects of the six research questions proposed in the paper. This, in general, will require extending the research design from a single case to multiple case studies. For example, to investigate the impact of legitimation on innovation diffusion (RQ4), comparative case studies of IT innovations that have developed different diffusion paths within the same or similar adopter populations could be carried out. Analogous to the approach described in our study, the following analytical strategy may be utilized. In stage 1, aggregate legitimation repertoires employed to promote each innovation are measured with respect to the IT legitimation taxonomy. In stage 2, the repertoires are assessed on a number or criteria such as inclusion or exclusion of individual strategies; relative emphasis on these strategies; and the repertoire second-order properties such as the repertoire size, diversity, and balance (see also Weber, 2005). In stage 3, pattern matching techniques are used to understand how differences in the aggregate legitimation repertoires affect the diffusion paths of IT innovations. Similar multi-case research designs can be employed to address the other research questions.

In conclusion, two observations provided the genesis of the research in this paper. The first was an appreciation of the potential contributions that an institutional perspective can bring to expanding our understandings of IT innovation diffusion. The second was a recognition of the extreme challenges faced by IS researchers in applying an institutional lens in their empirical investigations. The IT legitimation taxonomy developed in this paper is offered in response to those opportunities and challenges.

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