Social control in information systems development

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Abstract Examines sources of control over information system development decisions. Although past research has examined sources of internal organizational control that were solely determined by technical/rational goals, this article analyzes the symbolic role of social institutions in exerting control over system development decisions. Three regulatory mechanisms, developed by institutional theorists, are used to explain how specific social institutions exert their control. The mechanisms of coercive isomorphism, mimetic isomorphism and normative isomorphism help illustrate the types of social forces that enhance similarity of systems across organizations. Three conditions also are identified which moderate these effects: dependence on external institutions having control over an organization’s resources; unclear performance standards for system development; and interaction patterns during development. These conditions imply that social control would differ greatly according to whether the major influences on the process of system development arise from within the organization or are imposed from external institutions. The examination of symbolic/institutional forces in system development is useful in both the evaluation of system effectiveness and the assessment of the “appropriateness” of managerial interventions in the process. Future research should empirically examine these manifestations of social control and their influence on system development decisions.

As you set out on your journey to Ithaca,
pray that your journey be a long one,
filled with adventure, filled with discovery.

...........
The Laestrygonians and the Cyclopes,
the savage Poseidon – you won’t meet them
so long as you do not admit them to your soul,
as long as your soul does not set them before you.

...........
And if you find her poor, Ithaca has not mocked you.
As wise as you have become, so filled with experience,
you will have understood what these Ithacas signify.
(_constantine Cavafy)

This paper examines sources of control over information system (IS) development decisions. Although past research has examined sources of internal organizational control that were solely determined by technical/rational goals, this manuscript analyzes the symbolic role of social institutions in exerting control over system development decisions. Information systems development is conceptualized broadly as the process that leads to a decision
about the choice, design and development of an information system. The process itself may be affected by concerns for legitimacy as well as by concerns for effectiveness in supporting organizational tasks. As in Cavafy’s *Ithaca*, where Odysseus’ homeland is recreated as a symbol for the journey that is itself the goal, symbolism is a significant part of the goal in a system development decision. The symbolic importance of social institutions is taking effect during the process of deciding about a specific choice for a system development project. Throughout the paper, therefore, the process of deciding will be emphasized when the term “IS development” is mentioned.

The past literature has examined the process of system development in terms of a purely technical/rational perspective. The effectiveness of the process itself has been modeled as a sole function of its outcomes. Two different technical/rational models of organizational change were applied: the system resource model, emphasizing outcomes such as the quality of support for IS users; and the goal model, emphasizing the attainment of productivity and decision quality outcomes for IS users (Georgopoulos and Tannenbaum, 1957; Molnar and Rogers, 1976; Scott, 1977, 1987a; Yuchtman and Seashore, 1967). These outcome measures have been extensively examined in the past literature and exerted controlling influence in explaining phenomena of IS development (Bailey and Pearson, 1983; Davis, 1989; Doll and Torkzadeh, 1988; Hamilton and Chervany, 1981). However, the observed difficulties in the literature regarding the “appropriateness” or “effectiveness” of managerial interventions during the process (DeLone and McLean, 1992; Goodhue, 1995), suggest a lack of intellectual insight about the influence of social factors that are not included in rational analyses of organizational change.

This paper expands upon the technical/rational explanation of IS development by applying the institutional model of organizations to explain the influence of social control over the process of development. Social control is exerted by social institutions in a firm’s context and is manifested through symbolism and the institutionalization of the system development process as well as its outcomes. Technical/rational goals are therefore not the sole controlling factors in organizational processes, but are complemented by institutional forces and symbolic means of control in a firm’s environment (Gupta *et al.*, 1994; Oliver, 1991; Scott, 1987a). As in Cavafy’s poem of *Ithaca*, the happenings along the journey greatly depend upon the traveler’s own perceptions of environmental influences, rather than being part of a planned set of events that are dealt with in a rational manner. The rational goal of returning to Odysseus’ homeland is shaped, contextualized, by social influences along the process. The purpose of this paper, therefore, is to examine influences of social institutional control that affect the process of deciding in systems development.

The examination of institutional theory and the relationship to IS development decisions is an appropriate application which adds to the research domain and our understanding of IS development as an organizational change phenomenon. Institutional influences can be important because of the nature of system development decisions. These decisions often are made without the
availability of objective criteria that can direct the decision process. The lack of a clear link between decisions and resulting performance improvements in the organization is likely to lead to situations where symbolic requirements of the organization supplement technical, rational decision needs and requirements. As a result, researchers and professionals examining issues in IS development within organizations should be cognizant of these institutional factors. The present paper assists in this direction and also provides significant contributions to future research dealing with the broad problems associated with the systematic and rational allocation of scarce resources and the process of evaluating the effectiveness of implemented system development solutions. The remainder of this paper discusses the role of social institutions in legitimating system development activities and introduces the mechanisms of institutional isomorphism that shape social action. The factors moderating the significance of social control in system development follow. Differences in the sources and mechanisms of institutional influence reflect on the extent of social control over system development decisions and conclusions and implications for future research are derived from that discussion.

The role of social institutions in legitimating system development activities
Contemporary organizational sociologists (e.g. Giddens, 1984; Scott, 1994; Scott and Meyer, 1994) emphasize the role of institutions and social context in influencing organizational action, as well as the counter effects of such action in shaping the social context. According to Scott (1994), institutions are social constructions made up of three elements: meaning systems and related behavioral patterns; symbolic elements, including representational, constitutive and normative rule systems; and regulatory processes that are used to enforce reified and legitimated actions. Institutions, as social constructions, are therefore important in the shaping of organizational life since organizational decisions and actions are made within a broad context that defines social control through the interrelationships among the three basic elements of institutions. In the following, these elements are further discussed.

Systems of shared meaning are indispensable for collective activity in a social context. In their seminal article, Meyer and Rowan (1977) emphasized the role of rationalized belief systems in providing a structure for meaningful interactions and acceptable patterns of behavior. Symbolic elements of institutions are contained in socially constructed systems of shared meaning and it is through these elements that social control is exerted on organizations and in their decision-making processes. Representational elements include the set of rules that define socially acceptable associations between certain objects and their properties. The term “institutional logics” (Friedland and Alford, 1991) has been used to characterize associations giving meaning to actions. In IS development, for example, such logics would establish a cognitive framework within which beliefs about an information system could be stored and provide the rules by which the effectiveness of alternative information
system choices could be evaluated. The constitutive functions of institutions stress the importance of cultural cognitive models external to specific organizational forms in redefining the nature and roles of organizational actors and meaning systems (Scott and Meyer, 1994, p. 5). For example, shifts in user perspectives, coupled with decreasing costs of information gathering, processing and retrieval, have exerted pressures for a changed role of accounting professionals from the traditional information provider to an information interpreter (Borthick, 1992). Normative rules “Stipulate expectations of behavior that are both internalized by actors and reinforced by the beliefs and actions of those with whom they interact” (Scott, 1994, p. 67). The conditioning of action relating to IS evaluation and development, for example, takes place through learning standard patterns of acceptable behavior that are dictated by norms of organizational efficiency and effectiveness. The symbolic functions of institutions are imposed upon organizational form and action through regulatory mechanisms or processes. For example, institutional regulation and influence were prevalent in Laudon’s (1985) study of information systems development. King et al. (1994) also emphasize institutional regulation and influence over the development, adoption and diffusion of information technologies.

Institutional influence is therefore made prevalent with the explicit consideration of the various institutional elements giving rise to rationalized rules or belief systems. These sets of “myths” represent the shared reality among IS designers and developers and could limit available choices to those considered legitimate. In Scott’s (1994, pp. 73-4) words:

Frameworks external to organizations provide models of organizational arrangements from which organizational participants choose or to which they are subjected. Organizational participants are viewed as being subjected to normative pressures and cognitive constraints to embrace forms regarded as appropriate or legitimate for organizations of the type to which they belong. From this perspective, executives may not be designing their own governance structures in the light of the particular problems confronted but rather choosing a structure from a menu providing a set of options ... [a structure] is imposed on them.

The types of institutions involved would include government agencies, trade and industry associations, other organizations in a firm’s value chain (that is, major customers and suppliers), trend-setting corporations, professional associations, as well as educational institutions. These institutions are relevant for IS development as they may constrain or impose particular decision choices. Government agencies might often require specific forms and content of reporting, imposing specific IS structures that are required for compliance. Trade and industry associations as well as major trading partners of an organization might also impose certain information processing requirements, data access, and set standards for interorganizational communications and external reporting of information. Trend-setting organizations would also set targets for information processing capability that an organization might be forced to achieve in order to gain legitimacy in its environment. Professional associations and educational institutions would help create shared meanings
through cognitive systems that prescribe sanctioned ways in the execution of organizational tasks and evaluation of decisions.

The existence of social expectations, norms and dependencies, as expressed by the theory of institutions, bridges the individual and organizational levels of analysis. Social context is not determined by individual needs and wants but is determined by what people take for granted, and consider legitimate (Weick, 1996). The individual and the institution thus become connected. This paper applies institutional theory to gain predictive insights with regard to the role of institutions in system development decisions. The level of analysis at which social control is examined is secondary to the more fundamental issue of which forces determine social legitimacy and thus exert control over the decision process in systems development. Table I presents in summary form the role of social institutions and the mechanisms through which these institutions can exert social control over system development decisions.

The three institutional mechanisms of social control that are described on Table I are further discussed in the following section.

The mechanisms of institutional isomorphism
The application of the institutional framework in IS development supplements the technical/rational system evaluation/assessment context by proposing that the symbolic nature of IS development is also important. Institutional theory highlights the symbolic aspects of an organization’s context by emphasizing the role that rationalized rules or belief systems have in shaping and determining organizational form and action (Meyer and Rowan, 1977). As Scott (1987b, p. 115) explains, the most fateful forces are the result not of rational pressures for more effective performance but of social and cultural pressures to conform to conventional beliefs.

Conformity with conventional beliefs is assumed to legitimate or justify organizational practices, in response to internal and external environments (Selznick, 1996). A corollary to this observation is that organizations are pre-

<table>
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<tr>
<th>Domains of influence (relevant institutions)</th>
<th>Government agencies</th>
<th>Industry groups and trade associations</th>
<th>Trading partners (suppliers, customers)</th>
<th>Industry leaders (competitive and technological external environment)</th>
<th>Professional associations</th>
<th>Educational system and institutions</th>
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<tr>
<td>Mechanisms of social control</td>
<td>Coercive isomorphism</td>
<td>Mimetic isomorphism</td>
<td>Normative isomorphism</td>
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<tr>
<td>Reified behavior</td>
<td>Adopt systems according to expectations</td>
<td>Adopt systems that will enhance prospects for survival and legitimacy</td>
<td>Act according to established conditioning, programmatic behavior</td>
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Table I.
Institutions and mechanisms of social control
occupied with “myths”. Myths cannot be tested objectively but are rationalized through the establishment of rules that have little to do with technical or economic efficiency (Scott, 1987b, p. 114). They specify procedures that would help an organization gain acceptance in its environment and justify its decisions as the “right thing to do”. Thus, system development may occur irrespective of whether such decisions lead to increased productivity or improved financial performance. To the extent that information systems share similar information support objectives and carry similar functionalities across different organizations, they become institutionalized with their use considered necessary for legitimating operational, planning and management control decisions.

The symbolic functions of institutions are imposed upon organizational form and action through three regulatory mechanisms and/or processes. These regulatory mechanisms and processes have been identified by institutional theorists as coercive isomorphism, mimetic isomorphism and normative isomorphism (DiMaggio and Powell, 1983). These mechanisms aid in explaining why institutionalized procedures and practices across organizations tend to become similar over time. In the next section, we sketch how each mechanism may operate to influence system development decisions.

Coercive isomorphism

The first mechanism promoting similarity is called coercive isomorphism. Coercive isomorphism refers to the external pressures placed on an organization to conform to rules and practices that are considered important within an industry. Implicit in this mechanism is the threat of punishment or the use of force if an organization does not comply with standard practices. With respect to system development, coercive isomorphism may dictate that an organization develop a particular system, where the system structures and functionalities are designed in a certain way. For example, government mandates for specific reporting requirements in regulated industries and in organizations fulfilling government contracts represent constraints that influence the entire design of a system by prescribing the nature of data to be collected, the method of classification and form of reporting. Cultural expectations also create constraints in the design and use of systems. The airline industry offers a good example. American Airline’s SABRE system was the pioneering application in airline reservation systems. As its use spread, other airlines and travel agencies competing in the same environment were under pressure to utilize the system in their operations. The system became institutionalized, with other airlines being under pressure to respond to expectations from the public to offer similar services commensurate to those made possible by using the SABRE system. The presence of social constraints is also evident in the implementation of ISs in government agencies. The development of the Check Handling Enhancement and Expert System (CHEXS) at the United States Internal Revenue Service (General Accounting Office, 1992a), or the system modernization efforts at the United States Social Security
ITP Administration (General Accounting Office, 1991), just to name a few examples, have been driven by such demands from the United States Congress. The need to demonstrate short-term results with regard to system development efforts, coupled with the very short-term tenure of government agency executives, have created pressure to adopt technology projects “... in the belief that more information resources will somehow engender solutions to management problems. Acquiring the latest technology can create the illusion of progress, but agencies may actually lock themselves more tightly into existing, inefficient ways of doing business” (General Accounting Office, 1992b, p. 14). Thus, organizations conform to social constraints to develop ISs consistent with expectations in order to demonstrate legitimacy in operational and managerial decision making. As a result, the social context shapes actions and, in turn, those actions help modify the construction of socially accepted alternatives over time.

**Mimetic isomorphism**
The second mechanism that encourages similarity has been labeled mimetic isomorphism. Mimetic isomorphism, or “follow the leader”, is driven by the desire to reduce uncertainty, minimize risk, ensure survival and gain legitimacy by choosing to select and implement systems used by the most prestigious, visible members of an industry. Where a technology is poorly understood, goals are ambiguous, or the environment creates symbolic uncertainty, imitation is encouraged and used as a response to such uncertainty (DiMaggio and Powell, 1983; McKinley et al., 1995). Imitation is also used to enhance the legitimacy of means utilized in an organization, even though there may not be concrete evidence that adoption of such procedures enhances efficiency or effectiveness. In system development, late adopters of a technology often mimic earlier implementations in order to both reduce uncertainty and enhance their conformity to an accepted type of system design, therefore ensuring legitimacy of the means used to support decision making. An example of mimetic isomorphism at work is McKesson Drug Company’s “ECONOMOST” order entry and customer support system (Clemons and Row, 1988). Introduction of that system brought about concentration in the wholesale drug distribution industry with other drug manufacturers adopting similar systems offering equivalent services. In the end, no individual company in the industry could realize a higher-than-average return by adopting the system but its use became necessary in order to survive in the industry. Both coercive isomorphism and mimetic isomorphism, therefore, derive their appeal from similarity. Their power is based upon a shared interpretation of important values in the organizational and social context.

**Normative isomorphism**
The third and final mechanism fostering similarity is known as normative isomorphism. Normative isomorphism or “learning” refers to the complex network of educational institutions and professional associations by which
organizational participants learn “the ropes to know” or acceptable norms of practice (DiMaggio and Powell, 1983; McKinley et al., 1995). In IS development, learning is a powerful source that can drive the set of organizational needs and determine expectations about information support. To a certain extent, learning is legitimated in a cognitive base cultivated by formal training and through interactions in professional networks (DiMaggio and Powell, 1983, p. 152). Through conferences, workshops, in-service educational programs and professional publications, information is exchanged about what practices are appropriate in what circumstances for established practitioners. In addition, certifying institutes, through their certification examinations, can establish the skills needed by their potential new members and, thereby, influence what is taught at universities (Cooper, 1996, p. 41). Thus, learning is a powerful force that can drive the set of organizational needs and determine expectations about information support. As a result, different organizations, employing individuals with similar educational backgrounds, interests and contacts, become more similar in their need for information support and, consequently, in the types of systems they consider acceptable. The process of learning also shares commonalities with Huber’s (1981) description of the program model and its effects on organizational decision making due to the programming or conditioning of decision makers in established rules and procedures.

Coercive, mimetic and normative isomorphism help illustrate the types of social forces that might control system development and enhance the similarity of systems across organizations. To the extent that similarity or conformity is perceived to lead to such rewards as increased legitimacy, resources, and survival capabilities (Scott, 1987a, p. 498), institutional forces could exert control over system development decisions through the aforementioned mechanism(s). Nevertheless, the stimuli for the three mechanisms of isomorphism are varied and do not influence system development with equal vigor. DiMaggio and Powell (1983, pp. 154-5) have identified a number of primary predictors or moderating factors of the movement toward similarity. Based on their analysis, three conditions are discussed in the next section which enhance the strength of isomorphic mechanisms on system development.

**Moderating factors of social control in system development**

The three mechanisms of coercive, mimetic, and normative isomorphism help illustrate the types of social forces, the types of institutions, as well as the types of processes that give rise to institutional influence over system development decisions and enhance the similarity of information systems across organizations. In essence, the mechanisms of isomorphic change represent modalities of interaction between social structure and human action (Orlikowski and Robey, 1991). Referring to Table I, the mechanisms of social control over system development are expressed in terms of these three mechanisms of isomorphic change which are influenced by those institutions in an organization’s environment that define reified types of behavior.
Three conditions can be identified to moderate the extent of social control on system development: dependence on constraints imposed by external institutions having control over an organization’s resources; unclear performance standards for the process of system development; and interaction patterns during the development process. These conditions set the context within which the process of system development operates and decisions about system development are made. A detailed discussion of these conditions follows.

External dependencies
When dependencies exist on other organizations for critical resources, the dependent firm experiences a constraint to conform to the norms and values advocated by the dominant partners (DiMaggio and Powell, 1983, p. 154). For example, the implementation of information systems to support efficient interchange of order and invoicing data between an organization and a supplier can result in a significant commitment of capital and human resources (Borthick and Roth, 1993). This relationship can limit the gathering of information about alternative system solutions to those offered by the existing supplier of such systems (Griese and Kurpicz, 1985; Masoner and Nicolaou, 1996). As a result, such investments are often transaction-specific, requiring extensive cooperation between the two organizations for successful implementation, and thus made irretrievable (cf. Williamson, 1979). This creates pressures for system development to maintain existing relationships and ensure the continuation of the existing systems in order to minimize the costs and risks associated with switching to a different system. Coercive pressures are therefore built into such relationships in order to enhance homogeneity in the procedures followed and facilitate cooperation. Furthermore, as Staw and Ross (1987) suggest, the process of institutionalization will result in an escalation of the organization’s commitment to the system, thus reducing the likelihood that the economic suitability of the system will be questioned.

External dependencies also are very prevalent in types of organizations or industries that are faced with strong technical and institutional influences. Financial institutions, utilities, and airlines are commonly identified as such (Scott, 1987b). These organizations are often subject to coercive pressures from government entities to develop information systems that will provide information useful in exercising institutional regulation and control. Nicolaou (1993) provides empirical evidence about the existence of government regulatory reporting in these types of organizations. As a result, external constraints to develop an IS that conforms to government reporting requirements will be reflected strongly through the mechanism of coercive isomorphism. In sum, coercive isomorphism is demonstrated as a powerful social force in the choice of government-mandated and transaction-specific information systems.
Unclear performance standards
Performance standards for some types of system development are relatively clear. An example is when a system is developed to support a specific new product or service. This type of system can be evaluated based on well-specified and crystallized outcomes, such as improved profitability or productivity in a specific service area (National Research Council Committee to Study the Impact of Information Technology on Service Activities, 1994). Here, the choice is driven less by an inclination to conform or imitate and more by a desire to improve specific results. Other types of system development, however, are made in situations where beliefs about cause-effect knowledge are incomplete, decision criteria are ambiguous, decision quality requires a long time to establish, and the success of a decision cannot be evaluated autonomously but depends upon other decisions, the results of which may not be accurately predicted or controlled. In such circumstances, both organizational theorists (Feldman and March, 1981; Thompson, 1967) and institutional theorists (DiMaggio and Powell, 1983) suggest that organizations will seek to reduce uncertainty by employing symbolic measures of fitness to evaluate past actions and plan for the future. This is certainly so with respect to system development, where system success is most often determined by the users’ acceptance of the system (Kumar, 1990; Newman, 1989) or by other indicators based on user perceptions of system success which are significantly associated with intentions for future development (Nicolaou et al., 1995).

Thompson (1967, pp. 86-7, 95-6) suggests that when knowledge of cause-effect relationships is incomplete, organizations will evaluate actions in terms of “organizational” rationality, where performance measures are obtained from social reference groups, rather than on the basis of “technical” rationality. Consistent with Thompson’s suggestions, Feldman and March (1981) also propose that decision-making behavior within a context, such as that which involves system development, can become highly symbolic. When objective criteria that would allow a maximizing or optimizing approach to the assessment of decision performance are absent, other visible aspects of the decision must serve as implicit indicators of decision quality, such as conformance to expectations or imitating similar types of systems existing at other organizations (cf. Feldman and March, 1981, pp. 177-8). Both coercive isomorphism and mimetic isomorphism, therefore, become important sources of influence in reaffirming the social virtue of system development decisions that are characterized by uncertain consequences.

Interaction patterns during system development
Frequent interaction between an organization, its personnel and a variety of external constituents can magnify the importance of all three mechanisms of isomorphic forces on system development. Such interconnectedness has been suggested to facilitate the voluntary spread of institutional norms (DiMaggio and Powell, 1983; Meyer and Rowan, 1977). Examples of frequent interactions are those that occur between an organization or its personnel with customers,
vendors of hardware and software systems common to firms in the industry, consultants who are also employed by competing organizations, and competitors and their personnel through informal social contact and participation in professional associations, trade shows and conferences. These interactions help organizations to learn about one another’s problems and solutions, whether they intend to or not, and facilitate imitation of each other’s system development processes and decisions. Thus, mimetic and normative isomorphism influence system development by contributing toward the spread of certain types of system solutions that have proven effective in performing common tasks across different organizations.

Both Meyer and Rowan (1977) and DiMaggio and Powell (1983) imply that the frequency of interactions among organizations stimulates the development of institutional rules that over time delineate the norms of acceptable behavior. As organizations interact, these rules begin to limit the discretion of decision makers, including those participating in system development teams. For example, employees, vendors or consultants of an organization may impose constraints regarding the selection and implementation of decision support applications integrated with traditional transaction processing systems, or of applications facilitating group communication and information exchange. Thus, frequent interaction is an important condition that increases the effect of coercive isomorphism on system development.

Implications
The three institutional mechanisms and the conditions that promote them, as discussed above, lead to one major implication for systems development investigators and institutional theorists in information systems. This implication has to do with the issue of social control over the process of system development. Essentially, social control would differ greatly according to whether the major influences on the process of system development arise from within the organization or are imposed from external institutions. The control issue manifests itself in several ways as is discussed below.

Purpose of system development
A central premise of this paper is that system development is highly context-oriented and can be affected by a variety of technical/rational and symbolic/institutional forces. This raises the question of which set of forces will prevail, determining the purpose of system development, and, hence, the priority that is placed on the development of specific types of systems.

The National Research Council’s Commission on the Impact of Information Technologies in the Service Industry (1994) has identified, through executive interviews, a few clusters of information technology use. These clusters of use correspond to different types of information systems, as follows: systems for specific new products and/or services; systems that are mandated by government agencies in order to satisfy external reporting requirements; systems to support operations, as for example, in systems to support basic
information infrastructure and to contribute to increased product quality; and strategic systems with innovative uses. As discussed in earlier sections of this paper, systems for specific new products and/or services have clear performance goals and are least subject to social controls. Mandated systems, on the other hand, relate to development activity that results from external coercion, which cannot be avoided. The management of social control could therefore be concentrated in the development of the other two types of systems, that is, support and strategic systems. Strategic systems are intended to make an organization more flexible, more responsive to customer needs, and more able to adapt to a competitive environment (Clemons, 1991). Adoption of these information systems could offer a competitive advantage, that is, achieve an extra-ordinary result (Neumann, 1994, pp. 140-1). The effort to sustain an organization’s advantage is based on its lead in information systems development so that designed systems are sufficiently different from competitive offerings and are based on innovative ideas. Support systems usually address information reporting and decision-making needs and their adoption is most often motivated by a necessity for survival in the industry and the legitimacy that is delegated to an organization’s practices through the use of those systems. Table II illustrates important system characteristics that help determine the potential effect of social control on systems development.

As can be seen from Table II, strategic systems are diverse; these systems may reflect the implementation of innovative ideas generated within the organization (for example, American Airlines’ SABRE system represented such a type of system in its initial stages of development). The evaluation of strategic systems must be based on competitive impact, rather than quantifiable costs and benefits (Clemons, 1991). As DiMaggio and Powell (1983) discuss, early adopters of an innovation face greater diversity and are driven by a desire to improve performance. As the innovation is diffused, there is a push towards greater homogenization and adoption of the innovation is often determined by a desire to gain legitimacy rather than by technical and economic factors. Empirical support for this conjecture is provided by the work of Cooper and Zmud (1990). In a multi-stage analysis of factors influencing the initial adoption and later diffusion of information technologies, it was reported that a rational assessment of task-technology fit was associated with early adoption, while a political/learning model could have an influence on the diffusion of the adopted system.

Support systems may be well established and more homogeneous across organizations. Due to the perception that these systems promote rational objectives, the push for conformance to similar types of support systems already existing at other organizations is an important force in an organization’s attempt to demonstrate legitimacy and appropriate utilization of resources. This type of influence suggests that social control has a far more important and significant role in the development of information support systems, than in the development of strategic systems. To counteract such
pressures, system developers should try to clearly define the priorities in system development and refocus their activities toward the development of systems that not only support current operations but also help them create new markets, or help them evaluate the need to redefine their existing markets or redesign current products and services.

System champions
By virtue of what they deem relevant, institutional pressures also prescribe specific skills and expertise as important, helping to privilege those within organizations who hold such expertise and skills. Thus, institutional pressures help to anoint specific groups of individuals as system champions. System champions are at a fairly high level of the organization and take on the responsibility of shepherding a project throughout the whole development process (Beath and Ives, 1988; Beath, 1991). They also can effectively deter resistance from users and promote change (Markus, 1984). The result is an implicit bias in system development that reflects the “champion’s” expertise

<table>
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<tr>
<th>System characteristic</th>
<th>More significant</th>
<th>Less significant</th>
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<tr>
<td>Organizational functionality</td>
<td>Mostly homogeneous functions across different organizations</td>
<td>Heterogeneous functions across different organizations</td>
</tr>
<tr>
<td>Development/use objective</td>
<td>To gain legitimacy in means employed to support organizational decision making</td>
<td>To gain and sustain particular competitive advantage in product development, market share and other strategic areas</td>
</tr>
<tr>
<td>System evaluation</td>
<td>Referents exist; system judged successful relative to similar systems in other organizations</td>
<td>Referents do not exist; system is often the result of innovative ideas and needs from within the organization. System success is measured in terms of achievement of strategic objectives</td>
</tr>
<tr>
<td>System diffusion</td>
<td>System is well diffused and widely used in the organization</td>
<td>System is in adoption/diffusion stage, where its introduction and use may be accompanied by major reorganization of critical organizational functions</td>
</tr>
<tr>
<td>Type of system</td>
<td>Support systems: Addressing necessary information support in decision making and operations</td>
<td>Strategic systems: Addressing needs for creating and sustaining competitive advantage</td>
</tr>
<tr>
<td>System examples</td>
<td>Adoption of Electronic Data Interchange (EDI) systems for inter-organizational support</td>
<td>American Airline’s automated reservation system (SABRE) in its early stages of development Merrill Lynch Cash Management Account (Neumann, 1994, p. 142)</td>
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Table II.
System characteristics determining the effect of social control
and training as well as what they perceive to be important or not important. For example, as discussed above, institutional pressures appear to be promoting systems that spotlight information support. This focus, in turn, enhances the stature of those individuals who develop, advise on and use these systems, such as accountants, production people and information systems specialists. Their increased ascendancy in organizational stature and increased recognition as system specialists can make it difficult to promote types of information systems that fall outside their sphere of expertise and training. For example, the institutional pressure of normative isomorphism may be a significant impediment to accountants or production managers developing strategic systems. Accountants appear not to feel comfortable with imprecise, subjective, future oriented and externally derived information that is often associated with such systems. Thus, social control is exerted through the tendency of “system champions” to develop and use “well established” information support systems which are more homogeneous across organizations and their success can be more easily evaluated against similar referents.

Leader or follower
Successful firms, whether they be profit seeking, not-profit oriented, or governmental agencies, tend to be innovative in origin. They dare to be different, taking calculated risks, in terms of what they try to do and how they go about doing it. Their leaders are likely to be visionaries, more like transformational leaders (Burns, 1978), who are motivated more by what they believe are good ideas, rather than by external pressure or by what others are doing. They believe that in order to be first, you must lead, not follow. A specific example is American Airline’s SABRE system. The development of that system was a result of a leadership initiative that opposed conformance to the existing system for airline reservations. American Airline’s leadership in the development of the SABRE system offered a unique competitive advantage to the organization through the creation of a proprietary network that connected travel agents to American’s central reservation database. However, the three social forces and the conditions that promote them work against being different. They tend to promote conformity to both ends and means and, hence, followership. As a result, it becomes more difficult for organizations to be different – to do what American Airlines did to differentiate themselves from their competitors. Without an understanding of these forces, organizations may get trapped into a followership status regarding system development resulting in a competitive disadvantage.

Conclusion and recommendations for future research
The primary purpose of this paper was to examine influences of social institutional control that affect the decision process in information system development. The examination of symbolic/institutional forces in system development serves to fill a gap in the information systems literature, where
prior investigations have predominantly emphasized technical/rational influences in both the evaluation of system effectiveness and the assessment of the “appropriateness” of managerial interventions in the process. The analysis in the present paper also adds to the existing body of literature in institutional theory in that it applies and extends theoretical concepts and relationships regarding the role of social institutions in the field of information system development decisions.

The analysis presented in the paper has demonstrated that system development decisions are highly subjected to a number of conditions that could strengthen the effect of institutional forces in an organization’s environment. Coercive social forces have been identified in the analysis to be particularly influential in the development of systems in industries that are subject to government regulatory reporting and in cases where external dependencies on trading partners or other organizations in the same industry are significant. Both coercive and mimetic social forces have also been identified to be influential in system development decisions, where performance standards are not well specified and the “success” of the resulting information system choices can neither be measured objectively nor evaluated in a context-free fashion. In addition, all three mechanisms of institutional isomorphism, that is, coercive, mimetic, and normative, have been shown to exhibit a strong influence in the case of system development decisions which involve frequent contact and communication prior to and during the process of development.

The major implication and contribution of this analysis relates to the recognition of manifestations of social control in dealing with problems of resource allocation and in assessing the effectiveness of system development decisions. Three different issues, namely, purpose of development, system shepherding by a “champion” in the organization, and leadership/followership status, were presented as manifestations of social control that influence system development objectives and priorities. System development investigators, both theorists and professionals, should be aware of these manifestations of social control and evaluate their influence on system development decisions. Empirical qualitative as well as quantitative research analysis is needed to formulate generalizable constructs and assess their validity for explaining system development behavior, evaluating the effectiveness of past system development decisions, as well as predicting the success of planned system development. Inclusion of social/institutional factors in information systems development studies would therefore enable information systems researchers to offer a broader understanding of the whole system development process and of the factors that influence system development decisions in organizational contexts.

References


