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Tao Hu
taohu@memphis.edu

Xihui Zhang

Brian D. Janz

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Tao Hu
The University of Memphis
taohu@memphis.edu

Xihui Zhang
The University of Memphis
xzhang2@memphis.edu

Brian D. Janz
The University of Memphis
bdjanz@memphis.edu

Abstract

Information systems (IS) analysis and design has much to do with "people factors." Basically, human beings are creatures of self-interest. This paper first proposes a theory of self-interest as the theoretical base and integrative approach to understand the phenomenon of IS development. Based upon the theory proposed, a series of research propositions are then advanced to lay the basis of specifying variables and hypotheses in future research. The two research questions explored are: (1) How does IS analysis and design connote self-interest? (2) How does self-interest affect IS quality?

Keywords: *IS development, self-interest, user, analyst, power, rationality, institution.*

Introduction

IS development is usually viewed as a "people-oriented" process (Couger, 1973). Users and analysts are deemed as fundamental to IS success (Marakas & Elam, 1998). As for atomic individual human nature, an obviously taken-for-granted propensity is self-interest, which provides "a means of decoding the personal agendas underlying specific actions and activities." (Morgan, 1997) It is rather strange that IS research communities have done little theoretical elaboration in this domain. This paper first proposes a theory of self-interest as the theoretical base and integrative approach to describe the phenomenon of IS development, and a series of research propositions are then advanced to lay the basis of specifying variables and hypotheses in future research. The two research questions explored are: (1) How does IS analysis and design connote self-interest? (2) How does self-interest affect IS quality?

Theoretical Framework: A Theory of Self-Interest

By nature, self-interest represents the intrinsic propensity of individuals to behave in accordance with their own advantage and well-being. The atomism perspective views human individuals as engaged in maximizing behavior, and taking utility maximization as the criteria of choice, while retaining the premise of seeking "to do the best they can to satisfy whatever their wants might be." (Abell, 1995) However, a chaotic competition will inevitably end up with a total mess. Instead, the pursuit of self-interest is governed by a self-balanced system, which Rorty (1998) defined as the first sense of rationality for individuals to "cope with the environment by adjusting one's reactions to environmental stimuli in complex and delicate ways."

Rationality as a function of the pursuit of self-interest is characterized along three dimensions. (1) An economic being: The common economic notion of rationality views individuals as rational actors who evaluate all situations

and options and choose a consequence that maximize their expected utility even under cognitive constraints (Ranganathan & Sethi, 2002). (2) A reasonable being: Human individuals attempt to maximize their behavior over stable and consistent preference orderings (DiMaggio & Powell, 1991). They pursue their interests with appropriation of rules, which is absorbed through socialization, education, or acquiescence to convention (March & Olsen, 1984). (3) A coordinative being: The pursuit of self-interest poses as an organizing process of arranging collective collaborative effort to maximize an outcome potentially superior to that of individuals acting alone – a system of coordinated and controlled activities (Meyer & Rowan, 1977), and a priori drivers and sets of antecedents, with which individual actors interact with other social organizational phenomena and entities.

Self-Interest in IS Development

This paper assumes that behavioral variations in individual choices as a whole are ultimately mediated and reconciled by the pursuit of self-interest following the rational model. Based on such assumptions and the theory of self-interest proposed earlier, this section proposes a research model as follows with the incorporation of self-interest into IS development.
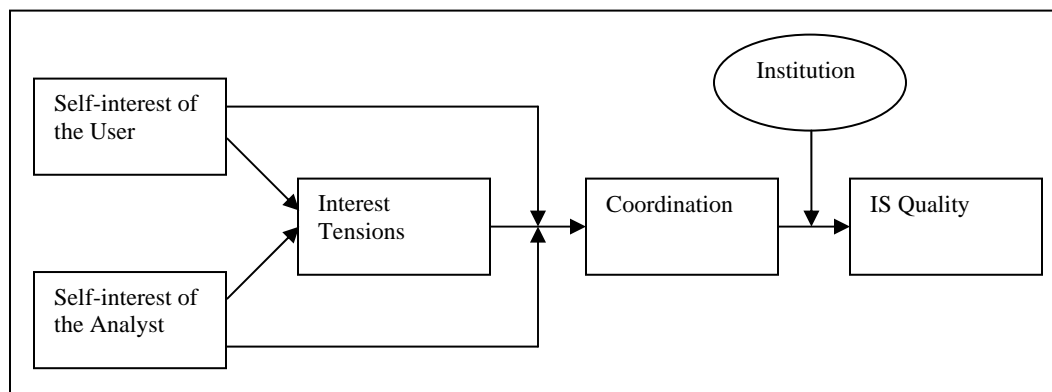

Figure 1. A Research Model with the Incorporation of Self-Interest into IS Development

According to this model, the user and the analyst of IS are generally locked in "the iron cage" of self-interest. They are in lack of foresight, and unable to see beyond their current frame of preference, personalities, attitudes, values, desires, and other private orientations and inclinations (Mittermeir, Hsia, &Yeh, 1987). Differentiations and specifications in self-interests not only lead to differences in interpretations of IS between users and analysts, but also trigger interest conflicts among users of various groups and types – aggregately theorized as the construct of "Interest Tension" in this model. Furthermore, within organizational settings, as institutionalized and socialized entities, users and analysts are able to transcend their biological properties, and pursue self-interests in a reasonable and organizational way. Such underlying rationality constructs the fundamental basis on which IS can be developed and implemented interactively and collectively. Depending on the degree to which the coordinative archetype is structured into an organization, IS quality will be varying. The research propositions flowing out of the model are discussed as follow.

Self-Interest of User and Analyst

Morgan (1997) characterized self-interest along three dimensions: (1) Task interests are connected with the work one has to perform; (2) career interests concern what kind of future an individual may hold; and (3) extramural interests shape the way the individual acts in relation to both job and career. In the context of IS development, the three domains of self-interest are usually interconnected, and readily provide specific directions toward questions such as how well user and analyst perceive and behaviorally respond to IS development.

Users generally attach personal values regarding to their particular situations and private inclinations to judgments of a proposed IS. Such situations and inclinations may include values, concerns and opinion (Lawrence & Low, 1993), and other personal relevance (Barki & Hartwick, 1989, 1994). The technology acceptance model specifies

two key variables – perceived usefulness and perceived ease of use – to model IS acceptance or rejection (Davis, 1986). Basically, each variable has a theory of self-interest behind it.

Similar patters of self-interest are found in analysts. During the IS development, the analyst seeks to understand the world for the purpose of rearranging that world into structures and processes (Vitalari, 1985). Personal and situational and functional characteristics of the analyst can complicate communication outcomes (Tan, 1994). Typically, when the analyst approaches to and interprets the IS, he applies relatively subjective meanings, and displays outward signs or artifacts of idiosyncratic understandings that exist in his local culture of self-interest (Lee, 1991).

The user and the analyst may have distinct understandings of IS effectiveness and efficiency. For particular expediencies, the analyst often holds the inadequate conceptualizations of the user in terms of his perceptions of the roles and relationships (Pitts & Browne, 2004). Meanwhile, because effective fulfillment of organizational responsibilities contributes to the user's reputation, he is likely to focus on IS development that can contribute to his personal effectiveness or the effectiveness of his own unit (Huber, 1990).

> Proposition 1: The user and the analyst may have distinct understandings of IS development in terms of task, career, and extramural interests.

Tension between User and Analyst (Between Tension)

The analyst often interprets the empirical reality in terms of what it means to the observing person rather than to the observed people – users. During IS development, users may not know what information they want (Ackoff, 1967), or analysts often ask the wrong questions (Wetherbe, 1991). Both cases can lead to an IS development mostly based on considerations of analysts, which, as they have not succeeded in reading the meaning behind the actions existing in the local culture of users (Lee, 1991), may result in the tension between them (between tension).

It seems unlikely for the user to accept as credible challenges from the analyst to his preferences, if the challenges follow from the analyst's opinion of what IS features the user should have (Huber, 1983). Once an IS becomes a social object "whose meanings are defined by the context of their use" (Barley, 1986), users often continually shape and reshape the proposed IS for their own interests of tasks, career, and personal life, so that the IS ceases to be a fixed, tangible constraint (Orlikowski & Robey, 1991).

Furthermore, "technology has served as instrument of power." The introduction of an IS can alter the balance of power structure. Increase in the power of one part at the expense of another thus tends to develop into hot political issues. Merely out of self-interest considerations, Gurbaxani & Kemerer (1990) interpreted the between tension as control of the provision of IS services. The analyst may not act in accordance with the desired behavior of the self-interested user. The between tension can also go to another polar, in which users or their functional departments act as the controller of IS development. This political contest over meaning "serves as symbolic backdrop for the more noticeable maneuvering for resources to support user-led design." (Orlikowski et al., 1991)

> Proposition 2: The between tension can be highly political in terms of self-interests with regard to the control of IS development.

Tension among Users (Among Tension)

Within a computing environment, IS as a comprehensive structure determines the information flow, nature of interaction, responsibility allocation, and modes of coordination (Miller, 1987). Generally, individual actors use IS to protect their valued interests by establishing, maintaining, and transforming the rules by which the organization operates (Amis & Hinings, 2004). In response to technical functions, the introduction and implementation of or modification to an IS usually connotes changes in dominant existing organizational structures, ideology, culture, and priorities (Pettigrew, 1985), all of which challenge current balance of interests as well as temporal distribution of power (Gurbaxanl, et al., 1990). In such situation, self-interest of individual actors can become an important determinant of IS success.

As users strive to secure their sectional claims, and work to mediate and reconstitute their interests, constant struggles among them arise. Difficulties encountered around the IS development are symptomatic of tensions among

users, which constitute a condition and consequence of struggles over resources allocation and career advancement within management (Knights & Murray, 1992). Self-examination of interests, motives, payoffs, and power bases lend much to understand users' reactions to IS development: reactions of users are likely to be affected by the organizational position of the person or subunits to whom one loses power (Markus, 1983).

> *Proposition 3: The among tension can be explained in terms of self-interests such as power re-distribution, and interest re-balance.*

Coordination and IS Quality

Based upon the theory of self-interest proposed, one key assumption of this paper is that organizational decision-making can be best conceptualized in terms of the rational model. That is, organizational decisions are consequences of individuals and organizational units, who objectively collect, evaluate, and apply information in rational manner to make choices in hope of maximization of self-interests. Thus, interest tensions can be mediated and reconciled by various rules and coordinative behaviors of individual actors and subunits.

By incorporating King's work (1983) on centralized versus decentralized computing, the self-interest model of IS development can be described as follows: (1) The organizational ends are agreed upon as aggregations of self-interests of varying individuals and operational divisions. In this paper, the structure of organizational end is termed the duality of organizational-self interest as suggested by the theory of self-interest. (2) The goal of IS development is to provide services to maximize the organization's interests. This goal-oriented view sees the organization as a structure of interrelated tasks, staffed by different IS users who are primarily concerned with maintaining and improving organizational performance because of maximization of self-interests with the large social entity. (3) Various interest tensions in terms of individual values, departmental power, and other political considerations can be unified and reach acceptable compromises under interests of the larger collectivity.

In light of the self-interest model of IS development, interest tensions can be reconciled to improve general IS quality. IS research has long acknowledged the communication breakdown between the user and the analyst because of the lack of common languages. For the between tension, communication can be bridged on the basis of organizational problems, needs, opportunities, and strategies. Although perceptions on managerial contingencies are shaped by individual preferences and task interests, such differences at least can be communicated by the common language of the duality of organizational-self interests.

> *Proposition 4: The between tension can be reconciled by the common language of the duality of organizational-self interests.*

There exist two levels of IS development: IT infrastructure and stand-alone applications (Davis, 1983). From an organizational perspective, with the wide recognition of knowledge sharing and organizational integration, there is no more purely stand-alone application developed (Brancheau, Janz, & Wetherbe, 1996), which "takes on discrete states to meet particular effeteness and efficiency objective" (Davis, 1992). This simply implies that individual actors and operating divisions will not benefit much from IS development for opportunistic pursuit of self-interests.

The development of IT infrastructure has been ranked as one of top management concerns (Luftman, 2005). Building a responsive IT infrastructure can support existing applications as well as remain responsive to change for long-term productivity, network connectivity, and application framework (Brancheau et al., 1996). IT infrastructure has been identified as providing increase flexibility, improved communication, and integration of different functions and organizations (Broadbent, Weill, & Clair, 1999).

> *Proposition 5: Once users realize the duality of organizational-self interest, the building of an IT infrastructure, and the real enactment of strategic IT alignment can be achieved.*

The theory of self-interest suggests that coordinative activities be examined in institutional sense. In the context of IS development, institutions ultimately define and shape social practices of IS users and analysts (Orlikowski, 1992). Institutional elements in terms of socially constructed rules, norms, beliefs, and patterns of appropriate conduct constitute a knowledge template for incorporation of the duality of organizational-self interest, upon which users and analysts draw to perform information requirement determination. This highlights the significance of organizational procedures, policies, and rules regarding IS development.

Proposition 6: Within the process of IS development, institutions of the organization will moderate the relationship between coordination and IS quality.

Methodology

The specific theories and research propositions discussed in this paper concern two different types of entities, or levels of analysis: individuals, and organizations. This research will take a multi-method approach, by which case studies, follow-up interviews, and research surveys will be administered to functional/divisional individuals in several organizations. The case study accompanied with document examination allows conducting a thorough examination of system development activities. The follow-up interviews and the research surveys are conducted to collect information about management practice of individual users, their system requirements for decision-making, and perceptions of and response to proposed IS. At this moment, we are trying to locate more relevant literature, based on which specific research instruments and variables and hypotheses will be specified.

Conclusions

This paper outlines a research model by incorporating the construct of self-interest into IS development. A series of propositions are advanced for future empirical studies to address functionalities of self-interest within the process of IS development. With a multi-method approach, empirical investigations on proposed constructs attempt to define their causative relationships within a structural modeling at both organizational and individual levels, so that specific moderating effects as well as independent causal effects can be identified and assessed.

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