

# **A Framework for User Participation Approaches to Information Systems Development**

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## **ABSTRACT:**

User participation in information system development (ISD) has been discussed in the literature from many theoretical and practical perspectives. In reality, most of this discussion is grounded in empirical research that has yielded mixed results on the importance of user participation and its relationship to system success. The goal of this research is to extend the line of inquiry into user participation during ISD by providing information systems (IS) researchers and IS practitioners with both a technically and organizationally valid foundation. This framework organizes user participation approaches that emerge from the different worldviews that exist within organizations.

## **INTRODUCTION**

Today most people would consider user participation as a critical factor in successfully developing an information system (IS). Interestingly enough, empirical studies have had mixed results and cannot conclusively prove a link between user participation and system success. Indeed, attempts to organize and synthesize past empirical studies on user participation have resulted in conflicting results (Olson and Ives, 1981; Cavaye, 1995; Hwang and Thorn, 1999). One of the reasons for the conflicting results may be the existing approaches managers and analysts use when users participate. These approaches are both explicitly and implicitly imbedded in the worldview (Bostrom and Heinen, 1977) of the analyst, who has traditionally guided the information system development (ISD) process. Certainly a worldview is the overall perspective from which one sees and interprets the world. In reality, the worldview of an analyst, user, manager and stakeholder is like a pair of glasses through which they view the world. They all have one and they aren't all the same. Furthermore, the IS literature seems to indicate that there is no approach that guarantees that user participation leads to a successful information systems project. Therefore, numerous user participation approaches maybe needed that are congruent with the worldviews that exist in an organization.

## **LITERATURE REVIEW**

Participation is the subject of research in many other disciplines like organizational behavior, human relations, and psychology. This section presents a review of literature that is meant to enlighten and enliven the current approaches used for user participation during ISD. As a point of departure, we will define some basic terminology. We will review four themes that exist during ISD that dominate this research agenda: user participation, the four paradigms, a social

network perspective, and leadership. To our knowledge, social network analysis has not been applied to user participation during ISD. Therefore this section will lay a foundation to better understand how to approach user participation as a social network in the ISD context only.

## **User Participation in Information Systems Development**

User participation has been discussed in the literature from many theoretical perspectives. Indeed, attempts to organize and synthesize the literature have proven difficult. In ISD the user participation process has numerous ambiguous terms that need to be defined. This will provide a frame of reference for the remainder of this research. First, Barki and Hartwick (Barki and Hartwick, 1989) suggest that the term user participation should be used “when referring to the set of operations and activities in the systems development process, and the term user involvement “should be used to refer to a subjective psychological state which influences user perceptions of the system.

Due to the diverse use of the terms user participation and user involvement, user engagement has emerged as a term that refers to either user participation or user involvement or both (Hwang and Thorn, 1999). In addition, recent research also looks at user attitudes as a separate term and defines it as affective or evaluative judgment (e.g., good or bad) towards an object or behavior (Barki and Hartwick, 1989). Simply said, it is a psychological state that reflects the user’s feelings about IS. This is important because recent research has suggested that user participation, user involvement, and user attitude exert different impacts on system outcomes. Indeed, a circular relationship is suggested (Lin and Shao, 2000), because when user’s perform participatory activities, they can help users get more involved, which may improve the user’s attitude and make them feel more satisfied with the IS.

Indeed, there is an extensive amount of literature on user participation in information system development. These individual papers discuss separate components, terms and individual factors about the participation issue. They do contribute to the body of knowledge on user participation and system success, but the findings are not consistent or cumulative because the concept has many complex dimensions. In 1995, Cavaye attempts to explain many of the inconsistencies in the empirical literature. This study highlights a number of important attributes of participation and presents a framework which is used to describe and synthesize existing research findings (through 1995) on user participation and its link to system success. This framework is the foundation of the framework extended in this research.

### **A Worldview of User Participation**

A worldview is the overall perspective from which one sees and interprets the world. A worldview of user participation is both explicitly and implicitly imbedded in the worldview (Bostrom and Heinen, 1977) of the analyst, who has traditionally guided the information system development (ISD) process. The worldview of an analyst, user, manager and stakeholder is like a pair of glasses through which they view the world. They all have one and they aren’t all the same. If we understand this basic concept, then it is important to have a scheme for analyzing

the worldviews that exist in a user participation context. This research uses Burrell and Morgan's (1979) research as a foundation to understand the complexity of the user participation process.

Following Burrell and Morgan (Burrell and Morgan, 1979), Hirschheim and Klein (Hirschheim and Klein, 1989) map the dimensions onto one another to yield the four paradigms of information systems. These four paradigms are sets of assumptions about ISD which reflect different worldviews about the physical and social world (Hirschheim and Klein, 1989; Hirschheim, Klein et al., 1995). Different worldviews tend to be reflected in different theories. Indeed, all approaches are located in a frame of reference (worldview) of one kind or another. In 2001, Iivari, Hirschheim and Klein (Iivari, Hirschheim et al., 2001) extended this line of research by supplying a four-tiered framework for classifying and understanding ISD approaches and methodologies that have been proposed in the literature. These frameworks are a frame of reference for the user participation process in ISD. They provide a comprehensive schema for analysis of user participation in ISD and in particular, the user participation domain.

Burrell and Morgan's use the term paradigm as a classificatory device to structure their thesis that "all theories of organization are based on a philosophy of science and a theory of society" (Burrell and Morgan 1979: 1). Hirschheim and Klein (1989) map the Burrell and Morgan (1979) dimensions onto IS dimensions to yield a classificatory device about the information systems domain. Both research studies took the metaphor of a map (another type of classificatory device) as a way of trying to lay out theory and explore and expose assumptions. The premise of both these studies is that we must come to grips with the fact that everyone makes assumptions. Assumptions tend to shape everything and therefore need to be made explicit.

## **ORGANIZE THE USER PARTICIPATION APPROACHES**

Adapted from Cavaye (1995), the traditional variables in the factor research component that have been used in previous user participation research, but extends the model by synthesizing numerous other ideas put forward in the literature, including the four paradigms for the analysis of social theory proposed by Burrell and Morgan (1979) and the four paradigms of information systems proposed by Hirschheim and Klein (1989) into the process research component. It is important to remember that process research is frequently marked by gradual changes through a series of states. This framework is designed to present a more complete picture of a complex phenomenon that is often influenced by the political activities of actors (Franz and Robey, 1984). The philosophical research model addresses the nature of relationships in the social network of the actors. This is important because an effective relationship is achieved through a dialectical process (communication) that results in mutual understanding (Churchman and Schainblatt, 1965; Hartwick and Barki, 2001). In addition, this extension will help organize existing research findings and continue the cumulative research tradition on user participation. The organization of user participation approaches into a framework, therefore is predominantly descriptive, characterized by answering the first of four fundamental questions a researcher asks about a phenomenon, "what is it?". This framework is an aid to presenting some of the information about user participation approaches coherently.

Burrell and Morgan (Burrell and Morgan, 1979) use epistemological assumptions (how you obtain knowledge) and ontological assumptions (your social and technical worldview) to yield two dimensions: a subjectivist-objectivist dimension and an order-conflict dimension. The subjectivist position seeks to understand the basis of human life by exploring the depths of the subjective experience of individuals.

The main concern is with understanding the way in which an individual creates, modifies, and interprets the world. The objectivist position applies models and methods resulting from the natural sciences to the study of human affairs. The objectivist thinks of the social world as being the same as the natural world (Burrell and Morgan, 1979). The conflict-order dimension is described as where an order or integrationist worldview emphasizes a social world characterized by order, stability, integration, consensus, and functional coordination. The conflict or coercion worldview emphasizes change, conflict, disintegration, and coercion (Burrell and Morgan, 1979). The dimensions are offered as a theoretical schema for analyzing organizational theory.

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**Table 1. User Participation Approaches Framework**

<p><b>I. Idealist (subjective-user dimension)</b></p> <ul style="list-style-type: none"> <li>○ Alternative, balanced approach to user participation</li> <li>○ Remove barriers to emancipation- balance between controls and freedoms (joint system development) (Burrell and Morgan, 1979; Newman and Robey, 1992)</li> </ul>	<p><b>II. Realist (objective-user dimension)</b></p> <ul style="list-style-type: none"> <li>○ Alternative, reversed approach to user participation</li> <li>○ Allows social regulation and control by the workforce (user-led) (Burrell and Morgan, 1979; Newman and Robey, 1992)</li> </ul>
<p><b>III. Interpretive (subjective-analyst dimension)</b></p> <ul style="list-style-type: none"> <li>○ Alternative, emergent approach to user participation</li> <li>○ Postponing or eliminating any particular type of leadership from occurring allows social regulation and control to emerge from group interaction (equivocation) (Newman and Robey, 1992; Hirschheim, Klein et al., 1995)</li> </ul>	<p><b>IV. Functionalism (objective-analyst dimension)</b></p> <ul style="list-style-type: none"> <li>○ Traditional, problem-oriented approach (Burrell and Morgan, 1979) to user participation</li> <li>○ Effective social regulation and control (directed by management, analyst-led) (Burrell and Morgan, 1979; Newman and Robey, 1992; Hirschheim, Klein et al., 1995)</li> </ul>

In summary, this framework is an adaption of the four paradigms (see Table 1). They encapsulate the main assumptions of the traditional and some alternative approaches to ISD in a simplified, yet useful way.

## CONCLUSION

Empirical research on the importance of user participation and its relationship to system success exists (Ives and Olson, 1984; Hartwick and Barki, 1994; Cavaye, 1995; Hwang and Thorn, 1999; Lin and Shao, 2000; Iivari, 2006). In addition, studies have shown that user participation is affected by social processes (Newman and Robey, 1992; Robey and Newman, 1996), political perspectives (Franz and Robey, 1984) and cultural impact (Butler and Fitzgerald, 1997; Iivari, 2006) has been explored. Still other research has examined how the backgrounds and perspectives (worldview) of users and analysts affect their relationships, but these studies generally focused on specific aspects, such as conflict during the user-analyst interaction (Robey, Farrow et al., 1989; Robey, Smith et al., 1993). There are various aspects to studying user participation, and one promising approach is looking at the context within which user participation can result in improved user satisfaction. This approach seeks to explain where and how user participation should occur and find strategies based on the results for the most appropriate involvement for users during system development (McKeen and Guimaraes, 1997). Another interesting approach is to capture the institutional and development-related contexts that shape and influence the processes of user participation and the management of change (Butler and Fitzgerald, 2001). The IS literature offers a large amount of useful and interesting research, yet it is clear that little is known about the influence of worldviews on the user participation process or how the relationships of participants affect the user participation process.

This research is focused on organizing and conceptualizing user participation from a worldview perspective. Though people are quite adept in participating in ISD in new and ever-more detailed and persistent ways, they often lack the ability to see the relationship in intelligible, useful, and business oriented ways. Worldviews play a critical role in determining the way problems are solved, organizations are run, and the degree to which individuals succeed in achieving their goals.

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