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Participation in Development and Implementation —Updating An Old, Tired Concept for Today's IS Contexts*

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Abstract

The participation of users in system development and its role in IS success have been core topics of IS research since the 1960s, yet critical analysis and recent changes in IS practice suggest the need to revisit the topic. The purpose of this paper is to revitalize participation as an important area of IS theorizing and research and to build the foundations for an updated theory that is robust enough to accommodate changing IS practice. In this paper, we critically analyze traditional IS participation theory and show that it contains partial and conflicting explanations for participation's effects on system success. These explanations leave important conceptual issues unresolved, particularly when viewed in light of developments such as ERP system installations, outsourcing, and new software development approaches such as contextual design. To address these gaps, we outline the key elements of a new theoretical framework, including a redefined concept of system success, an elaborated conceptualization of participants and other actors, a fine-grained characterization of participation activities, and a restatement of hypothesized causal links among the concepts. We conclude with a brief discussion of research strategies for investigating the framework.

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Introduction

The participation of users in system development and its role in system success have been core topics of IS research since the 1960s (Swanson, 1974). Research generally supports the proposition that participation (or the closely related concept of involvement) is linked to system success. However, some conceptual issues remain unresolved (Cavaye, 1995b), and qualitative evidence suggests that the state of IS participation practice is poor (Gasson, 1999; Mouakket et al., 1994; Urquhart, 2001). Furthermore, a sizable body of normative literature has emerged in recent years, often at the margins of the IS field, offering new perspectives on how system developers should involve users in development. At the same time, new trends in IS development-such as business process reengineering, package installations, and outsourcing- have changed the nature of IS practice. These considerations suggest that it is time to revisit and refresh IS participation theory.

Our approach to that task is as follows. We critically analyze traditional IS participation theory and show that it contains at least three partial and conflicting explanations for participation's effects on system success. One explanation holds that participation works by creating the psychological experience of buy-in among participants. The second argues that participation improves system quality by getting system requirements right. The third asserts that relationships among developers and users emerge during participation and shape development outcomes. These explanations exhibit two kinds of conceptual gaps. First, the explanations exhibit logical inconsistencies, some of which have not previously been identified or satisfactorily resolved. Second, the explanations appear deficient in light of today's IS development initiatives, which are very different from the initiatives that were current when IS participation theory was developed.

That analysis forms the basis for our new theoretical developments. We redefine the traditional participation outcome concept of "system success." We make explicit the concept of actor, which was largely implicit in traditional theorizing, and we differentiate among different types of stakeholders, participants, and change agents. We expand the concept of participation by identifying several critical dimensions that capture both the experiences of participants and the design choices made by change agents. Lastly, we explicate our assumptions about causality. In doing so, we put forth a set of propositions that incorporates recent empirical findings and normative prescriptions as well as novel insights. Although this set of propositions is far from complete, our framework can easily be extended. In addition, our propositions can be investigated through a variety of research strategies, including survey, experiments, and case/qualitative research.

Theoretical Background

Traditional IS participation theory hypothesizes a link between "participation" (or the related notion of "involvement") and "system success," defined in terms of system quality, user information satisfaction, user acceptance, and system use, and affected by various contingencies such as task and system complexity. (See Figure 1 for a graphical depiction.) Although the empirical evidence seems to supports the hypothesized link (Alavi and Joachimsthaler, 1992; Hwang and Thorn, 1999; Pettingell et al., 1988; Straub and Trower, 1988), the literature presents at least three different explanations for how and why participation leads to system success: the creation of psychological buy-in, the

improvement of system quality, and the emergence of relationships among developers and users.

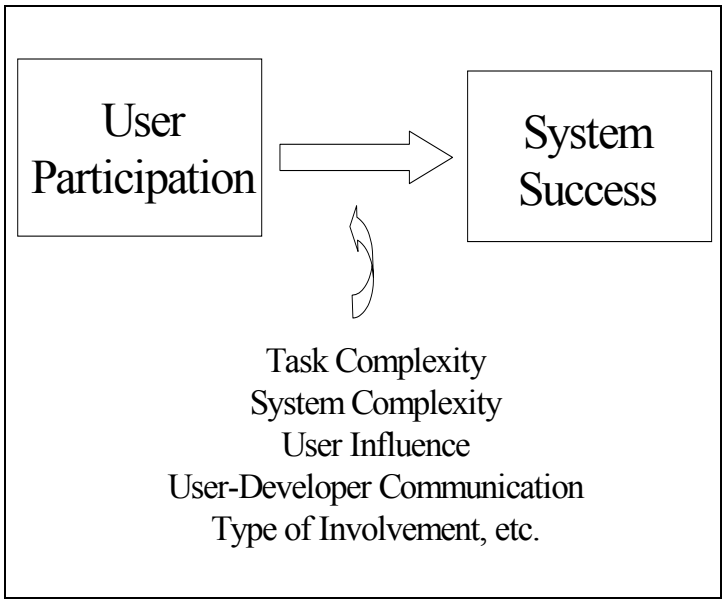

Figure 1. Traditional IS Participation Model

(Adapted from McKeen et al. 1994)

In the sections that follow, we briefly outline the three theories of how and why participation affects system success. For each explanation, we provide a brief description followed by a discussion of unresolved conceptual issues, issues raised by the changing contexts of IS development, and implications for IS participation theory and research.

Buy-in

One explanation in traditional IS participation literature for the link between participation and system success focuses on participation's *psychological effects on user participants*. Participating in development activities can result in the psychological state of *involvement,* whereby participation is experienced as personally relevant and important, leading participants to feel committed to the system they help develop and inducing them to adopt and use it (Barki and Hartwick, 1989; Hartwick and Barki, 1994). An important qualification is that user participants must actually have the ability to influence development choices (Hunton and Beeler, 1997; Saleem, 1996); in the absence of such ability, participation is a sham and is as likely to leave user participants feeling cynical and manipulated as it is to promote the experienced sense of buy-in.

Unresolved issues in the buy-in explanation

A key issue unresolved by the buy-in explanation of participation is the gap between system success in relation to user participants and system success in relation to intended users *who do not participate* in development. (See Figure 2 for a graphical depiction of the theory and its logical gap.) Only if the users who participate in development constitute the population of intended system users does psychological involvement represent an unproblematic explanation of the link between participation

and system success. Whenever there are intended users who do not have the opportunity to participate in development, some other causal process (in addition to the participants' psychological experiences) must be present to explain system success. An example of such an additional causal process would be for the committed participants to act as forceful opinion-leaders or persuasive advocates for the system with the non-participating intended users.

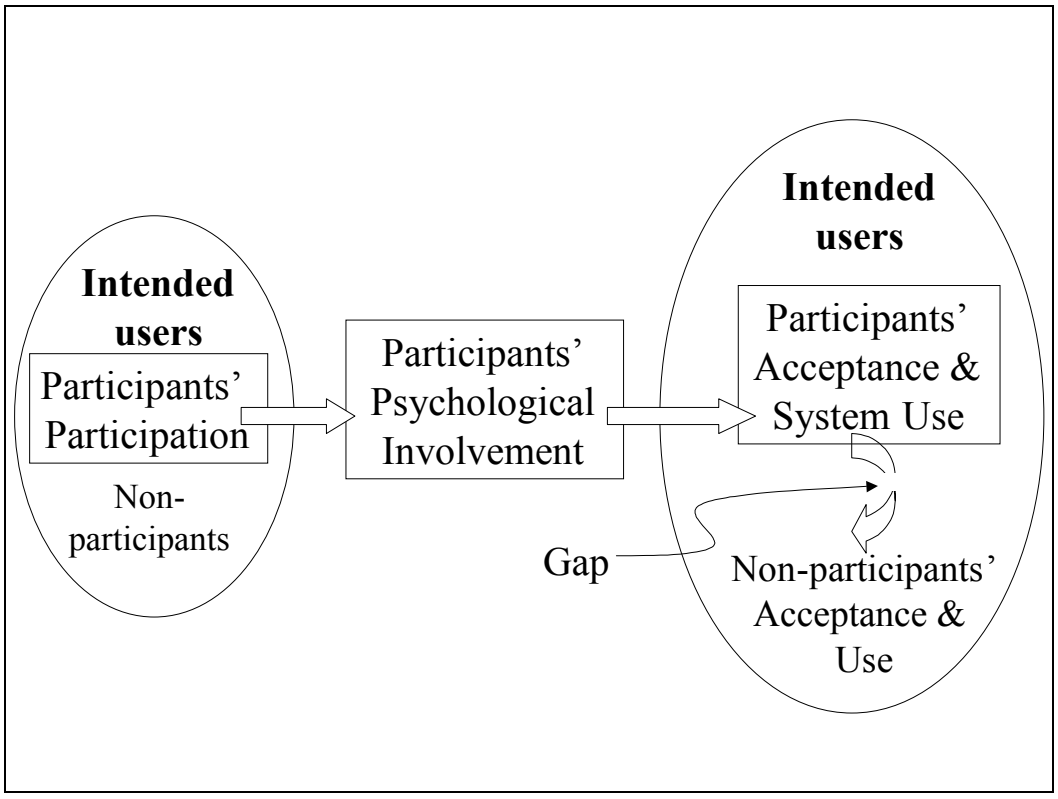

Figure 2. Buy-In Explanation

This issue highlights the importance of *who the participants are*. Traditional participation literature often appears to assume that the participants are the intended hands-on users. However, as Cavaye (1995b) points out, some studies (cf. Jarvenpaa and Ives, 1991) have examined managerial participants. Despite the commitment of participants who are hands-on users, the system may fail because of a lack of buy-in from the users' managers who did not participate. Put differently, the link between participation by end-users and system success requires causal processes in addition to participants' experienced involvement. Examples of such additional processes might be managerial delegation (managers allowing subordinates to make certain decisions) or project chartering (managers setting the parameters within which subordinate decision making can occur) (Markus and Tanis, 2000).

How changing contexts challenge the buy-in explanation

The basic assumptions of the buy-in explanation of participation effects are even more suspect in today's IS development contexts, which typically affect many more stakeholders than can effectively participate in development, and which may affect some stakeholder groups that cannot realistically participate at all. In the first place, today's IS

projects often affect many more stakeholders than was the case when IS participation theory was first proposed. In the 1980s and early 1990s, systems were often developed and implemented on a very local basis (e.g., within a department). With the rise of enterprise software and changed beliefs about the value of standardization (Ross, 2003), the scope of IT projects has increased, often encompassing entire organizations. An implication of this trend is that a lower proportion of affected users have opportunities to participate in development (or in software configuration—the analogous activity for package installation). For example, Roberts et al. (2003) described a massive ERP system installation project in the Motorola Semiconductor Products Sector; although the Release 4 configuration team had as many as 200 members at its peak, this number was just a tiny fraction of the "5,700 people in 11 functional organizations, eight countries, and 21 sites" (p. 61) affected by the system.

Not only do today's IS projects tend to affect *more users* relative to the number who can participate in development, they also tend to affect *more types of users,* including whole groups who may not be available to participate in development activities. In the early 1990s, Grudin (1991) pointed out that the development life cycle of software vendors differs considerably from that of in-house IS organizations because vendors do not have as good access to their intended users (external customers) for requirements determination. More recently, Cavaye (1995a) reported that external customers often do not participate in the development of interorganizational systems. Furthermore, when business customers do participate in development projects, managing their participation is different from and more challenging than with in-house clients (Corbett et al., 1999). Today, many in-house IS development projects involve systems such as buy- and sell-side e-commerce portals for use by external customers or other business partners. Such users often cannot be involved in early development activities, although they may have a role in beta tests and pilots.

Implications for IS participation theory and research

The buy-in explanation contains a conceptual gap between the psychological experiences of participants and system success defined in terms of system adoption and use by intended users (who may not all have had the opportunity to participate in development). This gap is much larger today than it was when IS participation theory was first formulated as a result of the increased scope of systems development and installation projects. A clear direction for new theoretical development is to hypothesize a link between user participation during system development and system acceptance and use as a function of who participates and who does not. Key to such theoretical development is a fine-grained conception of participants in terms of their structural positions in the organization (e.g., executive champions, process owners, functional area or business unit managers, employee end-users, business customers, end-consumers) and participants' proportions of various affected stakeholder groups.

System quality

A second explanation in traditional IS participation literature for the link between participation and system success focuses on *participation's effects on system quality*. Participation improves system quality by giving developers the information they need to produce a high-quality design (Browne and Rogich, 2001; Byrd et al., 1992; Tiwana, 2003). A corollary of this theory is that, because participation is expensive and takes time, it should *only* be used when it is truly needed, that is, when the development project is large (Yetton et al., 2000), the task to be automated is complex (McKeen and

Guimaraes, 1997), or the system to be developed is conceptually new (e.g., not a replacement) (Maehring, 2002; Tiwana, 2003).

Unresolved issues in the system quality explanation

A key issue unresolved by the "system quality" explanation of participation effects is the gap between system *requirements* quality and *system* quality. (See Figure 3 for a graphical depiction of the theory and its logical gap.) Just because participation activities provide developers with information they need to build a system that meets users' requirements does not mean that the system developed will actually incorporate those requirements. Qualitative research on participation in development provides ample evidence of, and several reasons for, a gap between the input provided by user participants and the solutions actually delivered by developers. For example, user input is said to have a low "signal to noise ratio" (Keil and Gallivan, 2003), and developers are described as having objectives other than meeting users' requirements, such as maintaining technical credibility and producing an aesthetic design (Gasson, 1999; Urquhart, 2001). For the system quality explanation to explain system success, additional causal processes, such as the technical design process (in which an artifact is produced taking into account various technical and economic constraints) or developers' psychological processes (e.g., willingness to adopt users' suggestions) would be required.

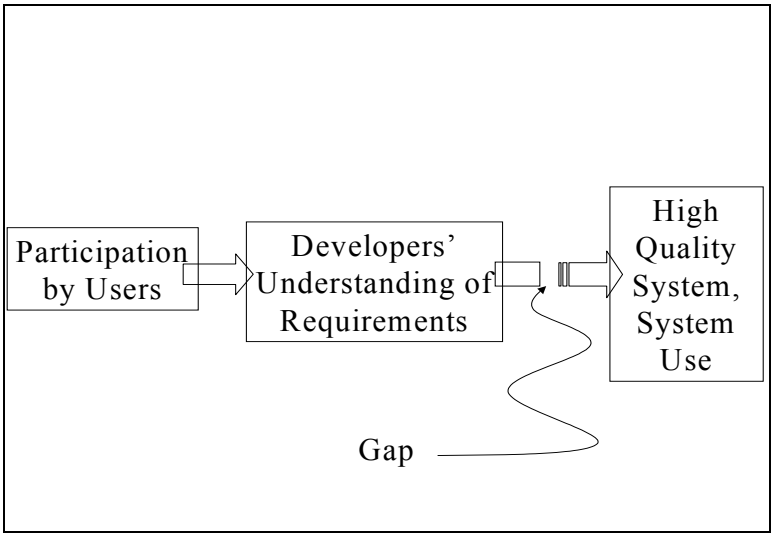

Figure 3. System Quality Explanation

This gap highlights the importance of considering system *developers* as participants in development, on par with user participants in terms of potential importance. Conspicuously absent from traditional IS participation research (but present in a growing body of qualitative research and normative literature) is serious conceptualization of developers' roles in creating (or not creating) opportunities for users to participate, in selecting participants, in structuring participation encounters (e.g., using or not using prototypes, selecting tools and languages for representing requirements) (Akkermans and van Helden, 2002; Mouakket et al., 1994; Poltrock and Grudin, 1994), and so forth. Only if the motivations and actions of developers are examined along with those of users

can the link between users' participation in development and the quality of the resulting system be adequately explained.

How changing contexts challenge the system quality explanation

A sizable body of normative literature on IS development, much of it written after traditional IS participation theory was first formulated, casts doubt on the basic assumptions of the system quality explanation of participation effects. In the normative literature, not only is the focus very much on the motivations and actions of developers rather than users, but also system quality is conceptualized quite differently. High quality systems satisfy not only users' task requirements, but also their social and humanistic requirements, such as work-life quality. The need for socio-technical solutions emphasizes that participation is not just a means to the end of good requirements analysis, but also a social *relationship* between developers and users.

The normative literature on IS development covers two participatory democracy approaches—the UK and Scandinavian approaches—and the user-centered design approach, which originated in human-computer interaction and software usability engineering. Both the UK (Hirschheim and Klein, 1994; Mumford and Weir, 1979) and the Scandinavian (Clement and van den Besselaar, 1993; Iivari et al., 1998; Iivari and Lyttinen, 1999) participatory democracy approaches have their origins in systems thinking (Checkland, 1981; Langefors, 1973; Trist, 1981) and in movements promoting democracy in worker-management relationships, often in unionized settings (Iivari et al., 1998). Aiming for a high degree of user control over the outcomes of system design, both approaches advocate mutual learning between developers and users, in which users teach developers about their work practices, and developers educate users about technical possibilities. Participatory design has been observed to foster high-quality relationships between developers and users (Butler and Fitzgerald, 1997), but it may be ideologically incompatible with some cultural settings (Carmel et al., 1993).

A well-documented user-centered design approach is known as contextual design (Beyer and Holtzblatt, 1998; Holtzblatt and Beyer, 1993). Contextual designers adopt an anthropological stance, observing users in their work settings and partnering with them in a "sense of shared quest" to build systems that are both useful and usable. Unlike traditional IS software development processes, contextual design does not employ formal modeling tools. Developers draw pictures as conversation aids and invite users to try working prototypes in the course of doing their work, providing immediate feedback. In recent years, user-centered design principles have been incorporated into ISO documents. ISO 13407 advocates active user involvement and iterative design and evaluation and specifies common user-centered design activities and methods by which these activities can be performed (Maguire, 2001). The principles have been widely adopted by leading software development firms like IBM and Microsoft (Vredenburg, 1999).

Implications for IS participation theory and research

The system quality explanation of participation's effects contains a conceptual gap between the surfacing of users' requirements and the creation of an IT artifact that satisfies those requirements. In traditional development contexts, this gap can be addressed somewhat by factoring in the behaviors and psychological processes of developers. However, a growing body of normative literature on system development highlights two additional factors. First, certain kinds of *participation activities,* designed or

led by developers, are believed to result in better outcomes than other participation activities. Examples of hypothesized high-quality participation activities include observing users in their workplace, using non-technical approaches for eliciting and representing requirements, and employing the technique of cognitive elaboration (Majchrzak et al., forthcoming). Second, high-quality relationships between developers and users can be not only a means to the end of eliciting good requirements, but also a *goal or an outcome* of user participation. These considerations represent clear directions for the modification and extension of IS participation theory. The next section further explores relationships between developers and users as an explanation for participation's effects.

Emergent interactions

A third explanation in traditional IS participation literature for participation effects on system success focuses on *emergent interactions between developers and users*. Participation activities sometimes result in "good" relationships between developers and user participants, that is, relationships conducive to participants sharing valid requirements information and to developers incorporating users' requirements in system design (Akkermans and van Helden, 2002; Butler and Fitzgerald, 2001; Davidson, 1999; Kawalek and Wood-Harper, 2002; Lane et al., 2003; Waring and Wainwright, 2002). However, participation activities sometimes also result in negative outcomes, such as poor relationships between developers and users (Bashein and Markus, 1997; Urquhart, 2001), conflicts that may not be resolved (Robey et al., 1989), lack of mutual learning (Newman and Noble, 1990), uncreative process designs where reengineering was desired (Cooper, 2000), and failure of users to accept the system (Keil and Gallivan, 2003). Various factors have been shown to contribute to the unpredictable outcomes of participation, including user participants' motivation and incentives (Cooper, 2000), their lack of technical knowledge (Newman and Noble, 1990; Tiwana, 2003), developers' attitudes and views of their role (Bashein and Markus, 1997; Beath and Orlikowski, 1994), and organizational policies and culture (Butler and Fitzgerald, 2001).

Unresolved issues in the emergent interactions explanation

A key issue unresolved by the "emergent interactions" explanation of participation effects is the gap between participation's functional outcomes (e.g., system requirements quality, system quality) and its relational and affective outcomes (e.g., participant satisfaction, user participants' perceptions of developer credibility, participants' commitment to adopt and use the system). (See Figure 4 for a graphical depiction of the theory and its logical gap.) The easiest assumption is that both kinds of outcomes vary together. If the relationship between developers and users is good (poor), the result should be a high- (low-) quality system. But deeper analysis leads to the conclusion that participation can have different effects on the two types of outcomes. For example, through "groupthink," participants might become highly satisfied with a system that satisfies their desires but does not meet organizational needs (Markus, 1981), one that is insufficiently radical to meet organizational objectives (Cooper, 2000; Markus, 1981), or one that is too radical for organizational acceptance (Markus, 2004). Consequently, the emergent interactions explanation (like the buy-in explanation, but for different reasons) cannot bridge the gap between participation's role in the development of a system and its effects on system acceptance and use.

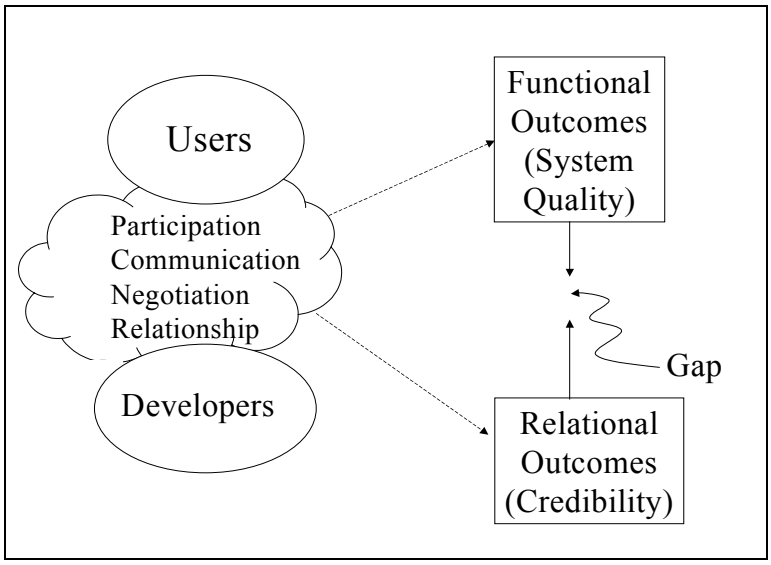

Figure 4. Emergent Interactions Explanation

How changing contexts challenge the emergent interactions explanation

Unfortunately, today's varied IS "development" contexts make it even more problematic that the emergent interactions explanation does not establish a linkage between outcomes like system quality and outcomes such as changed relationships and system acceptance. For one thing, when a system is developed through iterative prototyping with extensive user involvement (Markus et al., 2002) or when developers work in JAD (joint application development) sessions with groups of users who are (theoretically) empowered to make important system design decisions on the spot (Davidson, 1999), the boundary between developing a system and building relationships between developers and users or securing user acceptance is often unclear.

Second, although some participation literature gives the impression that users participate mainly via requirements analysis and testing/prototype evaluation, today's IS projects can involve users in a wide variety of technical and non-technical participation activities that could have different relationships to functional and relational outcomes. For example, user participation in development projects today can easily extend into business process redesign and IT infrastructure development. The first author interviewed an executive in a business process outsourcing firm that helped a customer company reengineer the joint business process. Both the outsourcer and the customer had to do software development and integration work as part of this project, but they also had to co-develop several other related changes, including IT infrastructure, business rules, and business processes. (Part of the work was sent offshore to the Philippines.) To make those changes, the outsourcer created a team in which IT people and representatives of affected work areas worked side-by-side on all aspects of solution development. Reflecting on that experience, the interviewee commented on how difficult it was to separate system development from other kinds of activity:

> "So it's hard to know what part of these things are under this bucket you would call 'an IT initiative' and what is sort of 'a business process initiative' and what is an initiative that requires infrastructure to exist with your vendors in other

> companies, right? … IT and the services and the business processes are all intermingled." (Unpublished transcript of interview on 8/27/03)

Such intensive and extensive participation could affect the quality of the solution designed, the relationship between the outsourcer and customer, and the acceptance and use of the solution. Other participation activities common in today's development contexts could have more localized effects. For example, numerous authors have focused on user participation in system development *project management activities* (Barki et al., 2001; McKeen and Guimaraes, 1997; Nidumolu, 1995; Yetton et al., 2000), which can be expected to have greater effects on project completion and budget/schedule performance than on system quality and user acceptance. Similarly, user participation in *change management* activities such as planning or scheduling conversion and planning, scheduling, or conducting training (Kappelman, 1995) is much more likely to affect system acceptance and use outcomes than it is to affect system development project performance or system quality. As an example, Roberts et al. (2003) described an ERP system installation in which a relatively small number of user representatives participated in software package configuration, an activity likely to be related to project outcomes and system quality. In the same case, a much larger number of users participated in planning for rollout and training, and thousands of affected users participated in training and communications about the system—activities likely to be related to system acceptance and use, but not to system quality.

Not only do today's IS projects involve a highly varied range of participation activities, they also typically involve several actor groups in addition to users and in-house IS personnel, including human resources management personnel, external management or IT consultants, and technology vendors. Interactions *among all these parties,* as well as their interactions with users, are likely to have important, but as yet poorly understood, consequences for the functional and other outcomes of "system" development projects.

Implications for IS participation theory and research

The emergent interactions explanation contains a conceptual gap between participation's functional outcomes (e.g., system quality) and its other outcomes, such as relationships between developers and users and system acceptance and use. This gap is exacerbated by current trends in IS development, which increase the number and types of project modalities (e.g., prototyping and outsourcing), participants (e.g., internal and external, technical experts and change agents, users and managers), and participation activities (e.g., software selection, software configuration, business process redesign, project management, and change management). One clear direction for future theoretical development is to reconceptualize IS participation theory's core concepts and the relationships among them.

Interestingly, the new participation activities afforded by today's IS projects may actually be more "involving" for users than participation often used to be. Being a full-time member of a process mapping or configuration team requires more involvement, in terms both of time commitment and of psychological investment (Hartwick and Barki, 1994), than participation in a requirements interview or a prototype review—common forms of participation in the early days of IS participation theory. This suggests that the dynamics of users' interactions with change agents are probably even more consequential in today's IS projects than they were in the past. However, the emergent interactions explanation is not up to the task of explaining how or why.

Recap

In summary, prior research has offered evidence in support of a link between participation and system success. However, much remains to be understood about how and why participation works. IS participation literature contains at least three partial and conflicting theories of participation's effects. Alone or together, they leave important issues unaddressed. Perhaps the most critical conceptual need is to disentangle participation's effects on various types of outcomes that are currently lumped together under the heading of system success. In addition, changes in the nature of IS project contexts also raise issues about how the core concepts of participants and participation are conceptualized. In the next section, we begin the process of redeveloping and updating IS participation theory by tackling core theoretical concepts and relationships.

New Theoretical Foundations

The purpose of theory development is to aid in describing, understanding, interpreting, explaining, or predicting some phenomenon or outcome (Gregor, 2002). Consequently, a first step in theory building is to decide on which question(s) one is trying to answer. Traditional IS participation research has inquired, "How much and under what contingencies (e.g., task or system complexity) does participation contribute to system success?" In this question, the role of developer is implied, rather than explicit; the focus is on what users do or experience. The normative literature on system development has asked, "How should system developers involve users?" Here, both types of actors are explicit, but the intended outcome is largely implicit (in some cases, to build better systems, in others, to increase users' quality of working life). An extensive body of qualitative research and case studies has questioned, "What happens when developers interact with users during system development, and why?" This question presumes neither a specific outcome nor a particular explanation for it.

Our purpose in theory building is to fuse these questions into a new one: "How can change agents employ participation practices to increase the chances of success in varied IS development contexts?" This formulation requires us to be explicit about 1) the success outcome, 2) actors, including change agents (e.g., developers) and others (e.g., users), 3) activities devised by change agents for others' participation, and 4) hypothesized links between activities and outcomes. At the same time, we must demonstrate the relevance of the changing contexts of IS development and try to bridge the three conceptual gaps we identified in our analysis of prior literature—the gap between participants and affected parties who did not participate, the gap between developers' knowledge of requirements and the quality of the solutions they produce, and the gap between functional outcomes and outcomes related to relationships and acceptance.

In three subsequent sections, we tackle outcomes, actors, and participation activities. In each section, we consider the implications of changing contexts, and we develop propositions that address the conceptual gaps we identified earlier. We conclude our theoretical development with an explicit statement of our assumptions about causality.

Outcomes—development success and implementation success

The emergent interactions explanation of participation effects exhibits a conceptual gap between participation's functional outcomes like system quality and its other outcomes like relationships between developers and users and users' acceptance and use of a system. We believe the best way to close this gap is by breaking the system success concept into two distinct categories of outcomes, which we label *system development success* and *system implementation success,* defined below.

Since the early days of the IS field, the concept of system success has been the subject of much research addressing its definition, components, relationships among components, and measurement in a variety of contexts, such as ERP system installation (DeLone and McLean, 1992; Gable et al., 2003; Seddon, 1997). This work has a bearing on IS participation theory, because it posits a direct causal link between the hypothesized functional outcomes of participation (system quality, information quality) and some of the other outcomes considered in participation research (user satisfaction, system use, benefits from use)—but not other outcomes like conflict, quality of relationships between developers and users, IS specialist credibility, etc. We accept the conceptual separation of functional outcomes from other outcomes, but we expand the set of other outcomes we consider, and we do not posit a direct causal link between functional and other outcomes.

Other relevant work has differentiated between the *process* of system development (e.g., analysis, design, and coding) or of user engagement in development (i.e., participation) and the *product* of system development (e.g., a system) or of user engagement with its product (i.e., system use) (Barki et al., 2001; Kappelman, 1995). We accept this distinction as important and employ it below. However, it is orthogonal to our distinction between system development success and system implementation success, because our two concepts each have both a product and a process component.

Definitions

We define system *development* success as a high quality process of system development (methodologies used, interactions and conflicts, progress against schedules and budgets) and/or a high quality outcome of system development, namely a project, a system, or an IT artifact. Depending on specific research objectives, either the process or product component of system development success might be more relevant. Furthermore, one might hypothesize that a good process leads to good outcomes, or that it need not do so. System development success as we define it could be operationalized in a variety of ways, either objectively or subjectively. For example, from the "product" point of view, system development success could be measured as budget and schedule performance or as perceived system quality; from the "process" point of view, system development success could be measured as developer and/or user participant satisfaction with the process, perceived conflicts and conflict resolution, and so forth.

We define system *implementation* success as a high quality process of preparing the target user community for use of the system (often called "change management") and/or a high quality "change" outcome, namely that the intended users (regardless of whether they participated in development) adopt the system, use it as expected, and/or use it with the desired effects. As with system development success, the focus of research on

system implementation success could be on process, product, or both, depending on research objectives, and researchers could devise many ways to operationalize this category of outcomes.

Addressing the challenges of changing contexts

As defined above, our two categories of outcomes fit the traditional systems development context, but they appear to fit some more recent IS contexts less well. An example is the joint development project between the business process outsourcer and its business customer, mentioned earlier. In that example, the development team designed or redesigned, not just a system, but also a business process and an IT infrastructure integrated with the system. In the Motorola case (Roberts et al., 2003), users participated not just in the configuration of the software, but also in the planning or development of complementary changes like staffing and training.

These examples show that, in many "IS" projects today, it is difficult to differentiate the system from the other aspects of an IT-based business intervention, such as process redesign, physical layouts of the workplace, changes in job design and compensation, or development of IT infrastructure. Indeed, many authors have argued that IT investments deliver the greatest business value when they are combined with "complementary changes" (Barua et al., 1966; Brynjolfsson and Hitt, 2000; Zhu, 2004). Therefore, researchers studying participation in today's new IS contexts might find it valuable to replace the concepts of system development success and system implementation success with the concepts of *solution* development success and *solution* implementation success, respectively, where solution refers to a package of IT plus complementary changes.

Addressing the conceptual gaps in prior IS participation theory and research

The concepts of solution[1] development success and solution implementation success allow us to address the conceptual gap identified in the emergent interactions explanation by explicitly conceptualizing it *as a gap*. In other words, whereas previous IT participation theory has implied (and IT success theory has asserted) a direct causal link between development success (e.g., system quality) and implementation success (e.g., use), we explicitly assume that *participation has a different causal link with each outcome*, such that the link between the two outcomes could be weak, nonexistent, or even negative. A simple example will clarify our reasoning. Intense group processes (like participating full-time for months on system development teams) have been occasionally known to result in conformist thinking (sometimes called groupthink) in which participants become highly attached to a solution of objectively poor quality. Participants might judge their solution to be very successful, even though it fails later when implemented. Conversely, a conformist solution might be deemed a failure by senior executives who were expecting radical reengineering (Cooper, 2000), but the very fact that the solution was only an incremental improvement could also make it an implementation success (Stoddard et al., 1996). This line of reasoning can be formalized as follows:

> Proposition 1. There is no necessary relationship between solution development success and solution implementation success. Participation activities that promote one set of outcomes might fail to promote or even inhibit the other set of outcomes.

The system quality explanation of participation effects implies that high quality systems are those that meet the requirements (of participants). Not only does this explanation hinge on good selection of participants (discussed below), it also depends on the interpretation of the requirements. Developers may consider a system to be of high quality if it fits functional specifications (what the system should do). However, intended users may fail to adopt and use a system that fits functional specifications but does not fit task routines, usability criteria, the social environment, working life quality, and so forth. Given two systems that each meet functional requirements, one that fits the context of use is much more likely to be adopted (i.e., a system implementation success) than one that does not. Therefore,

> Proposition 2. Participation activities that result in solutions of high socio-technical quality, not just high functional quality, are also likely to promote solution implementation success.

Some participation theorists believe that, almost by definition, participation produces designs that fit participants' socio-technical needs. However, as we noted in our discussion of the buy-in explanation, participants do not always constitute the entire intended user community. Furthermore, if participants are poorly chosen or if participation activities are poorly designed or executed, the results of participation are unlikely to be successful. We return to these points below in our discussion of actors and participation activities. In any case, these conjectures, like Propositions 1 and 2 above, can be tested empirically.

Actors

The buy-in explanation for participation effects exhibits a gap between intended users who have the opportunity to participate in system development and those who do not. It also calls attention to the possibility that participants can be of different types (e.g., managerial versus hands-on users) with different abilities to influence the outcomes of solution development and solution implementation success. Early IS participation theory recognized the importance of user participant characteristics such as IS knowledge (Ives and Olson, 1984), but we believe the literature has not really explored the important implications of who the participants are relative to the population of affected stakeholders. Furthermore, the literature has been largely silent on the important characteristics of developers and other change agents. An updated IS participation theory should incorporate a much finer grained conceptualization of both types of actors.

Stakeholders and participants

Traditional IS participation theory and research understand *participants* in terms of the monolithic concept of *users*. Users as participants are typically assumed to be *employees* of the organization engaged in solution development. Furthermore, they are generally viewed as hands-on users or *operational personnel*, although some research has examined the involvement of managerial personnel (Jarvenpaa and Ives, 1991). Both assumptions have implications that must be addressed in an updated IS participation theory.

When participants are understood as employees, their accessibility for participation remains unquestioned. Whereas the software product development literature has emphasized the importance and difficulty of securing the efforts of appropriate participants (Poltrock and Grudin, 1994; Tudhope et al., 2000), traditional IS literature

paid little attention to the selection of "representative" users and the consequences of poor participant selection. Nevertheless, qualitative research has shown the challenges to be significant in IS development contexts also. Mouakket et al. (1994) found that developers select participants informally and favor higher-ranking participants over those who understand the work better. Davidson (1999) reported that users have difficulty making themselves available to participate. In the reengineering literature, having the right participants available full-time was deemed necessary for success (Bashein and Markus, 1997). Koh and Heng (1996) found that an enterprise system module had to be reconfigured because the original configuration team consisted solely of financial representatives who did not understand the implications of their decisions for the operations of the business. Similarly, Markus et al. (2002) described the challenges of maintaining the "naïve user" point of view among those chosen to participate in building a knowledge management system.

Viewing participants as operational users is equally problematic. Research on software project risk management (Barki et al., 2001; Nidumolu, 1995) suggests that there are roles for both managerial and operational personnel as participants in system development projects. This research also implies that the roles of the two types of participants might be different and therefore have different relationships with system development success. For example, managerial participants are involved in project management activities (thus possibly influencing project outcomes such as schedule and budget), and operational participants might be involved in requirements elicitation (thus possibly influencing system quality). Similar arguments can also be made about the possible roles of managerial and operational participants in solution *implementation* success.

Based on the above analysis, we conclude that an updated IS participation theory needs fine-grained characterizations of stakeholders and of participants. *Stakeholders* are those who are likely to be affected by a solution, whose acceptance and use of that solution could be problematic, and who are therefore logical candidates for participating in solution development or implementation. *Participants* are the subsets of stakeholders who are actually given the chance to participate in solution development and/or implementation activities. Both stakeholders and participants can vary in numerous ways, including employee status, managerial rank, membership in various stakeholder groups, and IT knowledge and skill—all of which might be consequential for solution development or implementation success. Selection of good participants from among the affected stakeholders can be challenging, and the composition of the participating group (i.e., their representativeness relative to the population of affected stakeholders) is plausibly related to both solution development success and solution implementation success.

Change agents

An updated IS participation theory also needs fine-grained analysis of who actually selects participants from among affected stakeholders. In traditional IS participation theory, the role of creating opportunities for users to participate is largely assumed to be that of the IS professional. However, it is increasingly clear that several actor groups play this role, and that how they play it is potentially consequential.

In many projects and organizations, managerial stakeholders, rather than IS professionals, select participants for system development, package implementation, and

reengineering projects. Alternatively, managerial stakeholders may employ external consultants or vendors to take over these roles from in-house IS personnel (Kettinger and Lee, 2002; Markus and Robey, 1995). In addition, professional change managers, often drawn from the human resources management or organizational development (OD) functions, may be prominently involved in today's large IT projects (Roberts et al., 2003).

Furthermore, how change agents conduct participant selection seems to matter. Recent qualitative research has emphasized that IS developers can have important influences, either positive or negative, on development and/or implementation outcomes (Gasson, 1999; Urquhart, 2001). IS professionals can approach their change agent role with different orientations, and these role orientations can affect their actions and hence the success of interactions with participants (Bashein and Markus, 1997; Markus and Benjamin, 1996). For instance, although "neutral" faciliatators (such as OD professionals) are supposed to lead JAD sessions, IS professionals often fill the role in practice. Such agents might privilege their own interests and concerns over those of users (Gasson, 1999, Urquhart, 2001).

We conclude that a theory of participation for today's IS contexts needs to include the concept of change agent, as well as fine-grained characterizations of their psychology and behavior. *Change agents* are people who play important roles in designing and executing participation opportunities for stakeholders. They might decide who gets to participate, how they will participate (via interviews, JAD sessions, or on teams), and what participation techniques (e.g., modeling methods) are used. Change agents might also lead teams of participants or facilitate their discussions. Depending on the situation, the role of change agent might be filled by employees (managers, IS professionals, HR professionals) or by external consultants and vendors.

Addressing the challenges of changing contexts

IS participation theory originated in the days when systems were generally developed internally for use by a bounded social group—often a single department. Today, changing IS contexts make it essential to make careful distinctions among types of stakeholders, participants, and change agents. Indeed, specific IS contexts may differ from each other quite considerably in terms of the relevant actor groups.

For example, the relevant "users" of consumer-oriented websites are not the developing company's employees. Consumers can play important roles in website development through focus groups, beta tests, and so forth, but the nature and intensity of their involvement is not comparable to that of employee participants. Therefore, consumer participants need different analytic treatment from employee participants. The same holds true for representatives of an organization's business partners such as suppliers, consumers, and so on.

The installation of ERP packages is much more likely than traditional in-house development to involve the explicit redesign of business processes and other organizational structures (e.g., job designs and compensation). Thus, these projects are likely to include human resource management professionals, management consultants, and so forth. In addition, external technical consultants and vendor personnel often play a role in these projects. Business process and IT outsourcing projects may be further complicated by different cultural contexts and long-distance interactions. As the number

and types of change agents involved in participation activities increase, the possibility of conflicts among them over philosophy, approach, and control also increases (Markus et al., 2000). Such issues could clearly affect the difficulty of conducting participation activities and the likelihood of solution development or implementation success and should therefore be factored into IS participation theorizing and empirical research.

Addressing the conceptual gaps in prior IS participation theory and research

Fine-grained concepts of stakeholders and participants provide a basis for closing the conceptual gap in the buy-in explanation between participants and non-participants by problematizing their selection from among affected stakeholders. In other words, it is not just *that* there are participants and *how much* they participate that matters, but *who* the participants are. This observation can be formalized as:

> Proposition 3: Participation activities are more likely to result in solution development and implementation success when participants include representatives from a larger, rather than smaller proportion of affected stakeholder groups, where stakeholder groups include intended operational users, their management personnel, and relevant external stakeholders.

Once different types of stakeholders (potential participants) are identified, it becomes possible to differentiate the kinds of contributions each can make to solution development or implementation success by their participation. For example,

> Proposition 4: Stakeholder groups differ in their ability to contribute by their participation to solution development or solution implementation success.
>
> > 4a: Managerial and operational employees and external stakeholders can make the same kinds of contributions to solution *development* success through their participation: They can provide useful information about functional and other requirements.
> >
> > 4b: Managerial participants can make a greater contribution than operational users to solution *implementation* success through their participation: Managerial participants are more likely than operational participants to be able to secure the acceptance and use of the solution by others.

Similarly, fine-grained characterizations of change agents can help fill the gap in the system quality explanation between change agents' activities in developing and implementing solutions and the outcomes of their activities. Participation by affected stakeholders does not just happen. Someone has to provide, design, and execute participation opportunities for stakeholders; and how well he or she performs those activities is likely to make a difference in participation outcomes. More formally:

> Proposition 5: The quality of change agents' efforts in designing and executing participation activities is related to solution development and solution implementation success.
>
> > 5a: Change agents of various types (e.g., IS professionals, HR specialists, managerial personnel, external consultants, and vendors) can make greater

contributions to solution development success and solution implementation success when they select participants effectively.

5b: Change agents of various types (e.g., IS professionals, HR specialists, managerial personnel, external consultants, and vendors) can make greater contributions to solution development success and solution implementation success when they focus, not just on developing *solutions*, but also on developing effective *relationships* with participants and other stakeholders.

5c: Change agents of various types (e.g., IS professionals, HR specialists, managerial personnel, external consultants, and vendors) can make greater contributions to solution development success and solution implementation success when they work effectively together to design participation opportunities, rather than if they work independently or competitively.

To summarize, our updated theoretical framework makes explicit the concept of actor, which was largely implicit in traditional IS participation literature. More specifically, we differentiate between the stakeholders who are affected by a solution and those who have the opportunity to participate in its development or implementation. This distinction is important because success might depend on which stakeholders are, or are not, involved. In addition, we explicitly identify the role of the change agents who design and manage participation activities for stakeholders. In the next section, we discuss what we mean by the concept of "participation."

Participation activities

The gap in the emergent interactions explanation between functional outcomes like system quality and other outcomes, such as acceptance and use or quality of the relationship between change agents and participants, can be attributed in part to an inadequate conceptualization of the participation concept. Traditional IS participation *theory* made the useful distinction between involvement (the psychological experience of users) and participation activities or behaviors (what users actually do when participating). Participation activities have been characterized in greater detail in *empirical* IS participation research, but these characterizations were never fully conceptualized or related to participation outcomes. Similarly, extensive discussions of participation techniques in the *normative* literature have not found their way back into IS participation theory.

Our updated concept of participation activities attempts to capture both the behavioral experiences of participants and the considerations of change agents when they create participation opportunities for stakeholders. From the participants' point of view, we explicitly differentiate the types and richness of participation activities. From the change agents' point of view, we explicitly characterize the methods and conditions of participation.

Type and richness of participation activities

Traditional IS participation theory focused mainly on participation in system development and implicitly assumed that more participation was better than less. Empirical IS participation research, however, exhibits the understanding that users can participate in quite different ways. For example, Pettingell et al. (1988) examined participation in different phases of the system *development* lifecycle, such as requirements generation,

design, development, and testing. By contrast, Kappelman (1995) investigated participation in activities related to post-development system *implementation* (testing, planning, or executing installation or conversion of the system, planning or executing training, evaluating system performance). And Barki et al. (2001) studied participation in system development, system implementation, and *project management* (project reporting and liaison activities).

It seems likely to us that these different kinds of participation activities are related to different participation outcomes. Participation in determining system requirements is likely to be related more strongly to system quality than it is to system acceptance and use, because many more factors are likely to influence acceptance, including the quality of training and social influences. However, participation in training (either as a participant or a trainer) is likely to be related to system acceptance and use, but not to system quality. And participation in project management activities is likely to be related to project performance (a system *development* success outcome), but much less likely to be related strongly to system *implementation* success in terms of acceptance and use by non-participants. We conclude, therefore, that the concept of participation activities must be *theoretically* elaborated into different *types*—principally, solution design participation activities, solution implementation (or "change management") participation activities, and project management participation activities.

By the same token, we believe it is also important to differentiate participation activities theoretically in terms of the quality of the experience (e.g., psychological involvement) they can provide to participants. Participation activities are unequal in this regard. One can participate in development either by responding in 20 minutes to a questionnaire about requirements or by joining an ERP system configuration team that meets full-time for many months. The level of personal investment in system development and implementation success is infinitely greater in the second case, as is participants' ability to influence system quality. Scholars have noted that "true participation" involves the ability to make or influence design decisions (Hunton and Beeler, 1997; Saleem, 1996), which not all participation activities give equally.

Empirically, participation researchers have made qualitative distinctions among participation activities; theoretically, they have not. For example, Kappelman (1995) inquired about participating in training sessions as a trainee, as a trainer, or as a scheduler either of one's own or of others' training sessions. Hartwick and Barki (1994) queried about participants having "responsibility" for certain activities, having "main responsibility," and being "the leader of the project team." These distinctions are similar to those found in the organizational behavior literature on job design (Hackman et al., 1978), in which improving jobs by including a planning or decision-making component is believed superior to (i.e., more conducive to job satisfaction than) merely increasing the variety of tasks a worker performs. Because the quality of participation activities is likely to be related to participant experience and solution success, we believe it is important to differentiate theoretically among participation activities in terms of their *richness*, that is, the extent to which participants are likely to experience them as personally meaningful and consequential (ability to have an influence). Specifically, we believe that participating in a planning or decision-making role (e.g., designing training programs) provides a richer participation experience than participating in an operational role (e.g., training others or being trained).

Tradeoffs are to be expected between the number and type of affected stakeholders who can participate in solution development or implementation and the type and richness of the participation opportunities that change agents can provide to them. Although only a handful of an organization's employees can be involved richly as full-time members of a website design team, a much larger number of external consumers might be able to participate more thinly by providing input during beta testing.

Methods and facilitating conditions

The type and richness of participation activities are relevant to understanding the experience of participants and participation's linkages with solution outcomes. It is also useful to characterize participation activities in terms of the choices *change agents* make when they design them. One aspect of participation activities that is relevant to change agents is the *methods or techniques* used to engage participants (Holtzblatt and Beyer, 1993). For example, system developers can choose to involve participants via paper versus working prototypes (Markus et al., 2002) or via large group requirements generation sessions like JAD (Davidson, 1999) versus smaller, functionally-organized forums. They can select highly technical system design representations such as data flow diagrams or the business process mapping techniques believed to be easier for non-technical participants to understand (Beath and Orlikowski, 1994; Davidson, 1999; Mouakket et al., 1994). They can employ third party facilitators (Davidson, 1999) and pursue cognitive elaboration techniques (Majchrzak et al., forthcoming). Similarly, change agents concerned with solution implementation can choose between "just-in-time" and "just-in-case" training. They can use a train-the-trainer approach or use only expert trainers.

A second dimension of participation activities from the change agent's point of view concerns *facilitating or constraining conditions* that change agents can sometimes manipulate to increase participation effectiveness. An example is the location of participation. Contextual developers believe in working with potential system users in the users' workplace (Holtzblatt and Beyer, 1993). But that strategy is often impractical for ERP system configuration teams that involve potential users all over the globe (Roberts et al., 2003). There, participation might occur in a team room remote from the workplaces of *all* affected users. Another example concerns the time and resources required for stakeholder participation. Qualitative research suggests that the inability to take time away from full-time job responsibilities is a major barrier to stakeholder participation (Davidson, 1999). That barrier can sometimes be overcome early in a project lifecycle through change agents' skillful lobbying of senior executives to ensure that 1) there is money in the project budget for temporary help to replace participants drawn from operational areas or 2) operational managers have committed to making their best people available for participation. Similar constraining and enabling conditions apply to participation in solution implementation or change management activities.

The example of the business process outsourcing project discussed earlier shows how change agents can sometimes manipulate conditions to increase the effectiveness of participation activities. In that example, the interviewee managed to get IT developers and end-users working collaboratively on solution development by changing their financial incentives.

> "It's my best experience of business people, legal people, and IT people completing out (developing) a business process together. And, by the way, how

> everyone got paid was different than we have ever done. The legal people, the IT people and the sales people, all got paid per order. … My legal people, my business people, my sales people and the IT people, all got paid based on (orders), period! And the sales people have to share their commissions with IT and the legal people and nobody got paid till the deal was closed. It's amazing how much business they managed to get and how fast that software shot out and how cheap it was. So basically, they had no choice but to do only the software that mattered to the business process and the customer wanted." (Unpublished transcript of interview conducted on 8/27/03)

In traditional IS participation research, such manipulations of enabling or constraining conditions are often referred to as "top management support." This labeling implies that top management support is a distinctly different concept from "user participation." We believe that treating these two notions as fundamentally separate is a mistake, since doing so ignores the fact that "top management support" for a project *is* a form of user participation (Jarvenpaa and Ives, 1991). In addition, both types of participation (differently labeled) are believed essential to system development success (Barki et al., 2001; Nidumolu, 1995). Along these lines, Akkermans and van Helden (2002) showed that participation and top management support are mutually reinforcing tactics.

Addressing the challenges of changing contexts

Our concepts of participation activity types, richness, methods, and conditions help update IS participation theory for today's IS contexts. When systems were first built internally using the waterfall approach such distinctions may not have been necessary, however, they become essential if a researcher is trying to explore participation effects in new contexts, such as consumer website development and business process reengineering, or across contexts, such as in-house versus outsourced development.
For example, consumer website development might primarily affect the two stakeholder groups of marketing department employees and external consumers. The first group might have the opportunity to participate *richly* in system development, in project management, *and* in solution implementation activities (e.g., communications to consumers). By contrast, external consumers might *only* have the opportunity to participate in system development, and that participation might be *thin* (e.g., through beta testing). Similarly, change agents face different participation activity design choices when engaged in an ERP system installation than when they are involved in a business process outsourcing project. The participation methods they can employ and the enabling and constraining conditions they can manipulate will depend on the context.

Addressing the conceptual gaps in prior IS participation theory and research

The gap in the emergent interactions explanation between functional and other outcomes can be addressed by explicitly recognizing differences among participation activities in terms of their ability to affect different outcomes. More formally:

> Proposition 6: Different types of participation activities are related to different outcomes.
>
> > 6a: Solution development participation is most closely related to the outcome of solution quality.

6b: Solution implementation participation is most closely related to the outcome of solution acceptance and use. Solution implementation participation is more likely to increase solution acceptance and use when the quality of the solution to be implemented is high. Solution implementation participation alone is *unrelated* to the outcome of solution quality.

6c: Project management participation is most closely related to the outcome of project success (a solution development outcome).

6d: All three types of participation could be related to the relational outcomes of change agent-participant interactions (e.g., conflict or its resolution) or change agent credibility.

Participation activities vary on numerous dimensions in addition to their type. The line of reasoning developed earlier in this section suggests that the outcomes of participation are related to the richness of participation activities—and that change agents should explicitly consider the richness of participation activities when they design participatory strategies. In particular:

Proposition 7: Participation richness is related to solution development and solution implementation success.

7a: Other things being equal, rich participation activities (e.g., being a full-time member of a project team or working iteratively with functional prototypes) have a stronger relationship with solution development or implementation success than thin participation activities (e.g., focus groups, one-time prototype demos, beta testing). For example, stakeholder participation in system development by means of working iteratively with functional prototypes is more likely to promote system quality and better relationships among developers and users than participation via responding to a requirements questionnaire.

7b: When rich participation opportunities cannot be provided for certain stakeholder groups (for example, with external consumers or business partners), solution development and implementation success are more likely to result when change agents provide thin participation opportunities for members of inaccessible stakeholder groups than when they provide no participation opportunities.

7c: When rich participation opportunities cannot be provided for certain stakeholder groups (internal or external), solution development and implementation are more likely to be successful when change agents use approaches (e.g., anthropological methods, workplace observation) that provide them with a rich understanding of potential users' needs without requiring extensive stakeholder time commitments.

Change agents have devised (and will continue to devise) many methods and techniques for solution development that can be used in rich or thin participation activities. These methods and techniques are unlikely to be equally suitable for use by or with non-expert participants, and change agents' choice of techniques and methods is a plausible factor in participation outcomes. Specifically:

Proposition 8: Change agents' choice of participation methods is related to solution development and solution implementation success.

8a: When developers choose analysis techniques that are appropriate for users' non-specialist IT knowledge (e.g., business process modeling instead of data flow diagrams), participation in system development is more likely to contribute positively to system quality.

8b: (Proposition 2 restated) When developers choose analysis techniques that capture socio-technical requirements in addition to functional requirements, participation in system development is more likely to contribute positively to both system quality and system implementation success.

8d: When developers use the cognitive elaboration approach, participation in system development is more likely to contribute positively to system quality.

8c: When change agents use a "facilitation" approach rather than a "technical expert" approach to participation, participation in solution development is more likely to contribute positively to both system quality and solution implementation success (because neutral facilitation is more likely to elicit socio-technical requirements in addition to functional requirements than technical expert leadership is).

The conditions under which participation occurs are also relevant to the outcomes of participation. The ability of change agents to manipulate these conditions effectively is likely to be related to solution development and implementation success. This suggests:

Proposition 9: Change agents' manipulation of the conditions of participation is related to solution development and solution implementation success.

9a: Securing the full-time availability of employee participants is likely to increase solution development success.

9b: Conducting participation activities in or near the intended users' workplace is likely to increase solution development success.

9c: Successful lobbying for project schedule and budget resources for stakeholder participation is likely to increase solution development and implementation success.

To recap, our updated theoretical framework reconceptualizes the concept of participation itself. We argue that it is not the mere fact or quantity of participation that matters, but also the quality of participation. In particular, we describe participation activities in terms of participants' behavioral experiences (the types and richness of participation activities) and in terms of the design choices made by change agents (the method or techniques and conditions of participation). In the following section, we make explicit our ideas, implied in the propositions above, about the nature of the causal linkages we hypothesize between participation activities and solution development and implementation success.

Emergent causal processes

Our updated theoretical framework (see Figure 5) posits emergent causal processes both in the links between participation activities and outcomes and in the participation processes themselves.

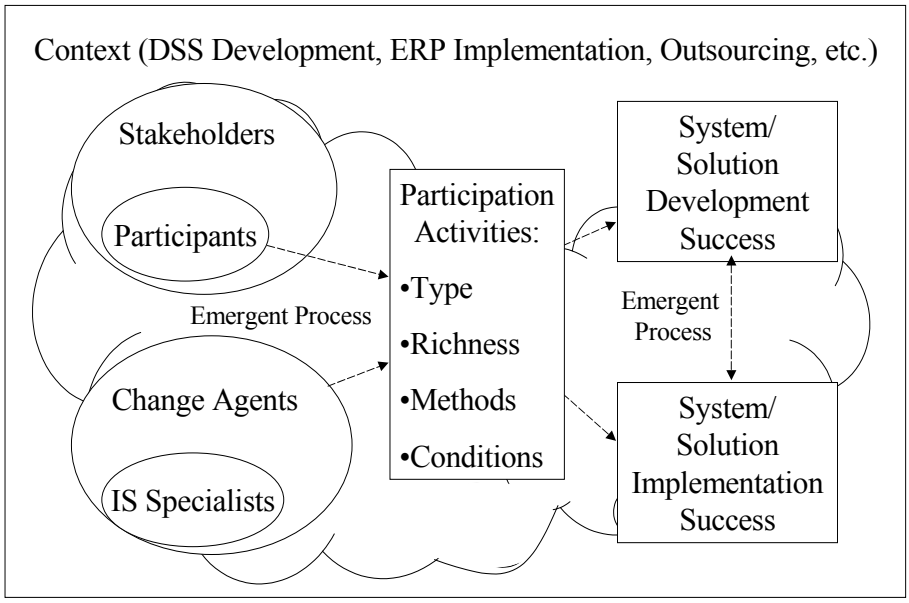

Figure 5. Updated IS Participation Theory Elements

Traditional IS participation theory has the causal structure of contingency theory: the relationship between participation (or involvement) and system success is assumed to be necessary and sufficient, although moderated by contingencies such as task uncertainty or system novelty. By contrast, we do not assume that there is a single causal process relating participation to outcomes. Rather, as discussed above, we assume that participation activities can have different effects on the two major outcomes of solution development success and solution implementation success. At the same time, we believe these two outcomes are weakly interrelated reciprocally. Solution development is an input to solution implementation: other things being equal, poor quality solutions are less likely to be implemented successfully than high quality solutions. Furthermore, solutions that are designed to accommodate the implementation context (that is, solutions that are socio-technically sound) are more likely to be implemented successfully than those designed on purely functional considerations. Therefore, an important rationale for participation in solution development is to feed implementation concerns forward into solution development, thus linking development and implementation.

Describing the relationships in this way is more deterministic that we mean to imply. In our theoretical framework, the links are emergent in the sense that are they are "products of constant social negotiation and consensus building" (Truex et al., 1999, p. 117). We believe that, although well-crafted participation activities can *promote* solution development success or solution implementation success, they are *neither necessary nor sufficient* for success. First, they are *not sufficient* for success, because good

requirements are not always transformed into good products and good products are not always used with the hoped-for results. Second, they are also *not necessary* for success, because it is sometimes possible for gifted (or lucky) developers to craft excellent solutions ("killer apps") that appear to be "self-implementing" (Markus et al., 2002) *without* using participatory processes.

We similarly believe that the nature of the participation process itself is emergent. Although change agents may pursue the design of participation activities and the selection of participants in an intentional, rational way, many factors will remain outside their control. Our assumption of emergent causality in participation processes is, we believe, consistent with a considerable body of literature on the process of participation. For example, Robey et al. (1993) showed that participation activities increase the chances of conflict between developers and users. Unresolved conflict can result in solution development failure, but participation can also provide opportunities that favor conflict resolution (Robey et al., 1993). Power struggles between developers and users during participation can lead to solution failure (Gasson, 1999), but do not always do so. In general, the process of participation can be characterized in terms of actors' *attempts at* communication, influence, negotiation, creativity, conflict resolution, and so forth, all of which have highly uncertain outcomes, as is well illustrated in Lane et al. (2003).

The emergent nature of our hypothesized relationships does not make our theoretical framework a process theory (Markus and Robey, 1988; Soh and Markus, 1995). Process theories posit *necessary but not sufficient* relationships (in a particular temporal order) between inputs and outputs; for example, getting value from IT investments is believed to require well-managed IT expenditures resulting in high-quality IT assets (Soh and Markus, 1995). By contrast, we argue that the relationships between participation activities and outcomes are neither necessary nor sufficient, but merely influential. Consequently, our theoretical framework represents a departure from both the "factor" approach and the "process" approaches to IS implementation research. Instead, our assumption of neither necessary nor sufficient relationships is more similar in spirit with the notions of complex adaptive systems theory.

Discussion—Summary and Research Strategies

In the previous section, we laid the foundations for a new IS theory of participation that can address the two kinds of gaps we noted in the theoretical background section—logical gaps and gaps created by the current nature of IS practice, which has changed considerably since IS participation theory was first proposed. The foundations of our theory are: 1) the separation of the traditional outcome concept of "system success" into two concepts: system or solution development success and system or solution implementation success, with emergent reciprocal relations between them; 2) the explicit articulation of relevant actors, including stakeholders, participants, and change agents; 3) a reformulated behavioral concept of participation activities, characterized in terms of type and richness, methods and conditions; and 4) our hypothesis of emergent (neither necessary nor sufficient, but enabling and constraining) causal processes. Along the way, we articulated a number of propositions that can be investigated in cross-sectional surveys, experimental designs, and case/qualitative studies.

One promising research strategy is to examine our hypotheses about the relationships between participation activities and solution development and implementation success in

cross-sectional field research within a specific IS context, such as traditional systems development, ERP systems installation, or business process outsourcing. We recommend single-context studies here, because we would expect systematic variations across contexts in stakeholders, participants, and change agents.

At the same time, there is a great need for researchers to learn more about how contexts differ from each other both in terms of the participation practices employed by change agents and in terms of the effectiveness of particular participation activities. In such cross-context studies, focusing on a narrow part of the model would seem advisable, such as how change agents select participants or whether there is systematic variation in participation methods used in different contexts (and why).

Far more work should be done, we believe, to evaluate the effectiveness of various participation strategies as a basis for providing guidance to change agents. Some of this research could be (and already has been) done in the laboratory as well as in field studies—comparing different types of participation, comparing richer to leaner participation activities, comparing one participation technique to another. Case/qualitative studies would also be useful for exploring the hypothesized processes either within a single context or across contexts.

In short, we see no dearth of research opportunities engendered by our updated theoretical framework. We also invite others to extend the framework in various ways, such as by incorporating more participation methods and conditions and by developing propositions specific to particular IS contexts.

Participation has long been a central construct in IS theorizing about system development and implementation success, but changing contexts challenge the theory's basic premises and its normative implications. New research in today's contexts—grounded in an enhanced conceptual model—is urgently needed to provide guidance to the next generation of change agents.

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[1] From this point forward, we will use the term solution instead of system wherever relevant, as the more inclusive term.

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