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International Conference on Information Systems (ICIS)

December 1997

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Abstract

There are many in the information systems discipline who believe that user participation is necessary for successful systems development. However, it has been suggested that this belief is neither grounded in theory nor substantiated by research data. This may indicate that researchers have not addressed fully the underlying complexity of the concept. If so, this is indicative of a deficiency in understanding user participation in information systems development as it occurs in organizations. In order to enhance the extant understanding of participative information systems development, the present study adopts a qualitative, case-based approach to research so as to provide an in-depth description of the complex social nature of the phenomenon as manifested in one organization. The results of the study illustrate that a high degree of direct and indirect user participation did not guarantee the successful implementation and use of information systems in the organization studied. Such participatory development practices did, however, result in the development of systems that adequately captured user requirements and hence satisfied user informational needs. It was clear that despite the perceived negative impact, which the new systems would have on user work-related roles and activities, the existence of an organization-wide participative policy, and associated participative structures, coupled with a favorable organization culture, generated a participatory development climate that was conducive to the successful development of information systems, while not guaranteeing it. That said, the central conclusion of this study was that user dissatisfaction with developed systems centered on the poor management of change in the organization.

Keywords: User participation, user involvement, user representation, participative policies and structures, organizational culture, political conflict, change management, systems implementation, IS development strategies.

1. INTRODUCTION

The conventional wisdom within the information systems community suggests that user participation is central to the successful development of information systems. Ives and Olson (1984; pp. 586) report that "It is almost an axiom of the MIS literature that user involvement is a necessary condition for successful development of computer-based information systems." Nevertheless, these researchers proceed to argue that the relationship between user participation and successful systems development is neither grounded in theory nor substantiated by research data. This argument has been re-iterated by Cavaye (1995) following a comprehensive review of research in the area. It is clear from Cavaye's analysis that the phenomenon is not well understood; indeed the same has been said of the information

systems development process as a whole (Lewis 1994; Lyytinen 1987; Myers 1995). Researchers in other disciplines provide some indication as to why this situation exists. Pondy and Mitroff (1979), for example, point out that organizations are extremely complex systems. Accordingly, Daft and Weick (1984) argue for a conceptualization of organization-based phenomena that operates at a higher level of system complexity and which incorporates organizational activities and variables that have not been captured in other less complex approaches. Leonard-Barton (1995) echoes this perspective and maintains that confusion about the benefits of user participation has arisen, in large part, because many studies have treated the topic simplistically. In order to avoid such pitfalls, Cavaye argues for qualitative, case- based empirical research that allows researchers to capture the "rich picture" of user participation in the appropriate context. Cavaye concludes that such approaches to research can overcome many of the limitations and weaknesses of extant empirical studies, and hence offer the best route to the attainment of an understanding of the phenomenon.

In line with the foregoing perspective, the objective of the present study is to contribute toward a fuller understanding of the concept of user participation in the development of organizational information systems. The research study extends Cavaye's descriptive framework by integrating additional dimensions relevant to the phenomenon in order to generate a meta-analytic framework that provides a suitable reporting mechanism for the study's research results. In so doing, it attempts to forge a direct link with previous studies and hence contribute to the cumulative body of research and theory in the area.

Several dimensions to the concept of user participation have been delineated in previous research. Section 2 begins with a discussion of these. However, the main point of departure for this study is Cavaye's survey and analysis of past research; accordingly, a review of her research framework is presented in section 2.2. In section 3, the research approach and method is discussed. The following section then provides a description of the embedded units of analysis of the case, and subsequent to this, the case findings are analyzed and discussed. Finally, the implications of the findings and the conclusions from the study are presented.

2. USER PARTICIPATION, INVOLVEMENT AND SUCCESS IN INFORMATION SYSTEMS DEVELOPMENT

In the past, research into user participation or involvement has been conducted on the basis of illustrating a link between such concepts and success in systems development (McKeen et al. 1994). As Cavaye illustrates, this research has not offered conclusive proof of a link between the concepts of user participation and system success (cf. Ives and Olson 1984). Part of the problem rests with poor definition of the concepts under study. In order to address this deficiency, Cavaye emphasizes the importance of providing a clear definition of the concepts of participation and involvement as they lend themselves to ambiguous use and are thus capable of several interpretations (cf. Selznick 1949).

The terms user participation and user involvement have been used interchangeably in the IS literature. However, in other disciplines, the concepts are accorded separate and distinct meanings (Barki and Hartwick 1989). In order to address this anomaly, Barki and Hartwick argue that the term *user participation* be utilized to refer to development-related activities and behaviors of users and their representatives during the development process, and that *user involvement* be used to refer to the subjective psychological state that reflects the level of importance and personal relevance of the information system to users. These researchers also argue that *user participation* is one of the more important antecedents, or causes, of *user involvement*—contingent on a number of factors which are said to influence the strength of the relationship. Implicit in this conceptualization is the notion that users who do not participate either directly or indirectly in the development process, but whose views are represented by individuals

or groups of other users who do participate, are in fact involved in the development process. The nature and circumstances of such involvement may prompt users to influence the trajectory[1] of the development process and its outcomes, either by influencing their peers or by political action within the organization (see Kling and Iacono 1984; Markus 1983).

As a construct, successful systems development is a nebulous term; hence, it eludes direct evaluation. Accordingly, IS researchers employ surrogate measures to measure the success of development outcomes. For example, Ives and Olson propose system quality and system acceptance as appropriate *outcome variables*. Nonetheless, user satisfaction with the developed system has been widely employed by researchers as a surrogate for system success (Cavaye 1995; Gatian 1994). This study does not attempt to measure system success. Consequently, it does not employ surrogate measures to dimension the construct in relation to the systems studied. Being mindful of the fact that there was not one but several constituencies of social actors with an active interest in the trajectory and outcome of the development projects under research, the study instead relied on the perspectives and constructions of social actors in both development processes and their related environments to indicate the perceived *success* of these endeavors and their outcomes.

2.1 Type and Degree of User Participation

The participative approach to systems development is founded on the belief that the development process is heavily influenced by social, political, and economic factors, rather than technical factors (Budde and Züllighoven 1983; Hirschheim 1985). Greenbaum (1993) points out that user participation may be viewed from several perspectives: *pragmatic*—it is a means to specific ends; *theoretical*—it provides a mechanism for sharing "world views"; and *political*—it allows users to influence and shape their working lives. Previous research indicates that user participation takes many forms—from formal to informal, direct to indirect, and strong to weak. For example, Mumford (1979) suggests that there are three types of participation—consultative, representative and consensual. Ives and Olson, on the other hand, argue that there are several degrees of participation, ranging from no participation at all, to symbolic participation, participation by weak control, participation by doing, and participation by strong control.

2.2 A Model and Framework for Examining the Concept of User Participation in Systems Development

In a study that provided a very comprehensive meta-analysis of previous research into the user participation concept, Cavaye developed a framework with which to synthesize and evaluate existing research. The framework, as presented in Table 1, offers a synopsis of the salient findings of previous research, as reported by Cavaye. In so doing, it indicates the multidimensional nature of the concept. For the purposes of this study, the framework was utilized to provide a mechanism for the analysis and presentation of the qualitative research findings reported herein. Its use also allowed a contribution to be made to the cumulative tradition in the area by forging a link with previous research.

3. RESEARCH METHOD

Recent research on information systems development within organizations has indicated that an interpretivist approach to research on the development process is, perhaps, the most appropriate vehicle for the study of this phenomenon (Kanungo 1993; Myers 1995). Erlandson et al. (1993) argue that interpretive research approaches need

[1]Kling and Iacono (1984) posit that the *development trajectory* of an information system is the sequence of its past social and technical configurations coupled with the sequence of its potential future configurations.

Table 1. A Framework for Analysis of the User Participation Concept
(Adapted from Cavaye 1995)

	Related Research Findings
1. Contingencies	
1.1 Organizational variables	
Time for development	User participation may not be possible if there is tight time-boxing of the development project
Financial resources available	Because user participation increases the costs associated with a development project, budgetary restrictions may lead to no user participation or, if it does occur, a lower degree or different type of participation.
Top management commitment	Top management often provide the budgetary and manpower resources (developer and user) necessary for development projects.
1.2 Project-related factors	
Degree of task-structure	Relates to type of business process being supported by the target system. For example, highly structured and well-defined business processes require no user participation to enhance system quality or improve technical content.
Project complexity	All things being equal, a higher degree of user participation is indicated if the project or system complexity (technically or otherwise) is high, cross-functional boundaries are crossed, where systems support interdependent business processes, while a lower degree of participation is required for small systems.
Initiator of the project	User participation is required (to lower user resistance, etc.) If the initiator of a project is not from the user constituency.
Technology available	The availability and use of systems analysis and design tools that are graphical, easy to use, and that allow prototyping impacts on the degree of user participation.
Expected change brought about by the system	Development projects that result in systems that significantly change work-related roles and conditions require more user participation.
1.3 User-related factors	
Willingness to participate	Even if user participation is required, users may not wish to do so.
Ability to participate	An inability to understand the technology, tasks involved, and the system environment impacts on the quality of participation. Effective developer/user communication is important here; a geographically removed user community also affects the degree of user participation.
User characteristics and attitudes	Cognitive differences between developers and users and user attitudes are important to the quality of user participation.

	Related Research Findings
2. Factors within the participation process that impact on the degree and effectiveness of user participation.	
User analyst relationships	Different user-developer backgrounds and divergent "world views" affect project trajectory.
Influence and power relationships	Determines whether development outcomes are arrived at through consensus or fiat.
Communication	Ensures mutual understanding, but affected by relative organizational position of social actors.
3. Variables moderating the participation-success link.	
Perceived control	If the introduction of a proposed system negatively influences control over work-related functions, then user participation may give the users a sense of control over development outcomes and ultimate satisfaction with the system.
Desired level of participation	A user's desired level of participation may not coincide with the actual degree of participation.
Perceived importance and relevance	User attitude is influenced by the extent to which the system is both important and personally relevant to the user.

to be grounded within an interpretive paradigm that will provide the necessary assumptions, rules, direction, and criteria by which the research is to be conducted. A paradigm can be viewed as a set of basic beliefs that deal with first principles. The paradigm that best accommodates the ontological, epistemological, and methodological dimensions of this research is the constructivist/naturalistic paradigm, as outlined by Lincoln and Guba (1985), for example. The fundamental perspective of constructivist philosophy posits that reality is socially constructed. Therefore, investigation of social phenomena should be interpretivist in its orientation so that contextualized meaning can be revealed to enable socially-based phenomena to be understood (Berger and Luckmann 1966). The works of Lincoln and Guba and of Erlandson et al. have been extensively utilized in the application of the constructivist paradigm adopted for this study.

Hermeneutic philosophy posits that the goal of the interpretive act is to arrive at an understanding of the phenomenon under study (Bauman 1978; Gadamer 1975, 1988). Briefly, and in the context of this study, hermeneutics concerns itself with interpretation of social action, the objective being to make sense of such action in the context in which it occurs and, thereby, contribute to an understanding of socially- based phenomena such as user participation and involvement in systems development (Kanungo 1993; Myers 1995; Ricoeur 1981). The hermeneutical philosophy of Gadamer (1975) and of Ricoeur informed the hermeneutic method employed in this study, while Madison's (1988) methodological principles for the interpretive process helped operationalize the method.

In keeping with the constructivist paradigm and the dialectical hermeneutic approach, a qualitative, interpretive, case-based research strategy was adopted for the study. This strategy involved an exploratory, single instrumental case study with two embedded units of analysis-two systems development projects. Purposeful sampling was employed throughout (Marshall and Rossman 1989; Patton 1990). The case design utilized has been described by Yin (1989) as "post-hoc longitudinal research."

Research into the selected case and its embedded units was conducted through the use of individual interview and documentary sources over a period of one month. The research framework of Ives et al. (1980) posits that research into the development process should take cognizance of the environments in which it is embedded. Accordingly, a total of 21 interviews took place with social actors from the development processes (development project managers and developers), the development environment (IS function management), and the organizational environment (user representatives and user project managers who were considered to be representative of "world views" in the relevant user constituencies).

Being a member of the organization chosen for study, one of the authors was what Bødker and Pedersen (1991) have termed a *cultural insider*. Hence, as a member of the general business/user constituency, the company's largest labor union, and one of the company's participative forums, he was intimate with several of the subuniverses of reality that comprised the overall institutional reality (Berger and Luckmann 1966). This provided the researchers with valuable insights into the organization's culture and climate,[2] and greatly aided in the interpretation of the case.

4. CASE DESCRIPTION

The organization chosen for study is Telecom Eireann, the Republic of Ireland's national telecommunications company (telco). It is a state-owned company with two minority shareholders: Telia, a Swedish telco, and KPN, the Dutch telco. Telecom provides a universal telecommunications service within Ireland, and presently enjoys a monopoly in many of its service areas. There are 10 companies in the Telecom Group, the majority of whom are wholly owned subsidiaries. At present, it employs in excess of 12,000 staff. Being a large company in a highly competitive environment, both nationally and internationally, it has dynamic information systems needs; these needs are fulfilled by its in-house information systems development function-the Information Technology Directorate (ITD), the within-case unit of analysis in this case study. The ITD is a centralized functional unit whose chief responsibility is the development, maintenance, and support of all corporate information systems. Based in Dublin, the ITD has a staff of over 240 spread among its six divisions. The research design also involved the selection of two systems development projects as embedded units of analysis.

4.1 The Structure and Mode of User Participation within the Case

Since its inception as a state-sponsored organization, Telecom has adopted a participative approach to the implementation of organizational policy and decisions. This position was recently underlined when the company reiterated its policy in this area viz. "The process of consultation with unions in regard to all the implications for staff of technological change, is one to which the company remains fully committed."[3] To give effect to this policy, the company has instituted several joint bodies; for example, the Computer Liaison Committee (CLC), whose members are drawn from both company management as well the labor unions, deals exclusively with issues surrounding the introduction of information systems within the organization.

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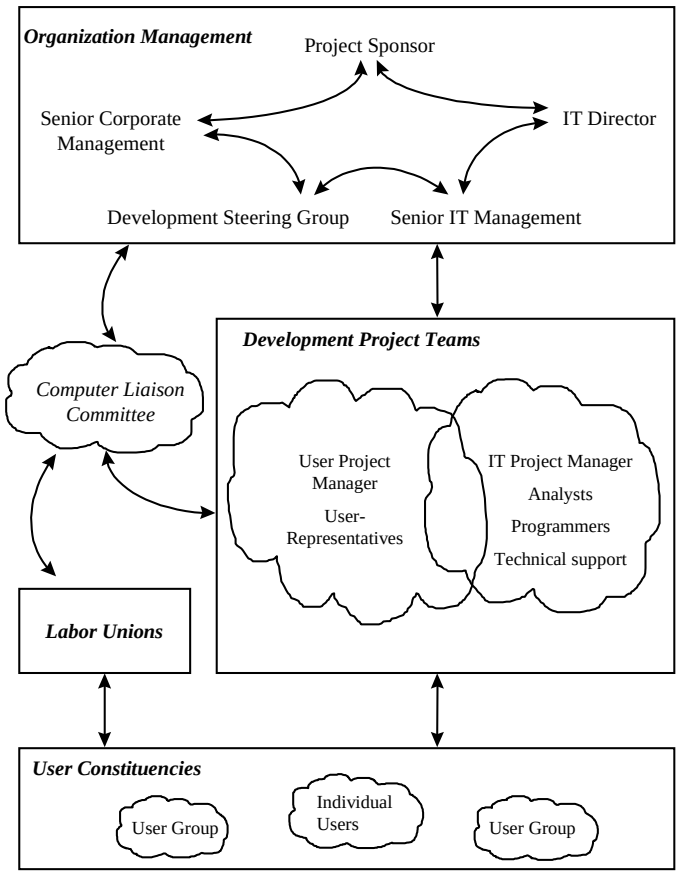
[2]Pettigrew (1990) describes organizational culture as "a phenomenon that involves beliefs and behavior; exists at a variety of levels in organizations; and manifests itself in a wide range of features of organizational life such as structures, control and reward systems, symbols, myths, and human resource practices" (p. 414). Schneider (1990) defines climate as an "incumbent's perceptions of the events, practices, and procedures and the kind of behaviors that get rewarded, supported, and expected in a setting" (p. 384).

[3]Statement of Company Position on Current Industrial Relations Issues, October 1995.

4.1.1 A Participative Policy for Information Systems Development

In adherence to this participative approach to the development of its information systems, each systems development project within Telecom has a designated business owner or project sponsor. For larger projects, a development steering group (DSG) is formed from the constituencies of interest within the organization; managers from the relevant business areas and ITD normally comprise these groups. Two project managers jointly manage each project: one is drawn from the business constituency and is the user project manager, the other is drawn from the ITD and is the development project manager. The latter manages the physical development of the system; the former manages business user input into the project in areas such as the provision and management of user- representatives, user groups, user test teams, and infrastructural resources. The development team normally consists of one or more business user representatives and a team of developers from the ITD. The user representatives actively participate in most development activities. Although key users are interviewed to elicit system requirements, user groups are also formed to provide the development team with a core group of users for further requirements analysis and to verify and ensure that the system, as developed, will meet these requirements.



Legend: The double-headed arrows indicate the paths of communication and influence that exist between the different entities/social actors

Figure 1. The Structure of User Participation and Involvement in Systems Development in Telecom Eireann

Figure 1 illustrates the participative structure which operationalizes the company's participative policies in the area of systems development. The structure emphasizes certain positive aspects of the organization's culture and climate and integrates them into the systems development environment. It was clear that this had a positive effect on user attitudes and behavior toward development activities as users were reassured that their voice would be heard, "world views" captured, political conflicts resolved, and potential power asymmetries between developer and user communities negated. The following sub- sections present a descriptive narrative of the background to and salient features of the information systems development processes under study. This provides the necessary contextual depth for a meaningful examination of user participation in this organization.

4.2 The Embedded Units

As already mentioned, two systems development projects formed the embedded units of analysis in the study: the Generic Appointment System and the Geographic Information System projects.

The Generic Appointment System (GAS) grew out of a business need in one key area of the company's operations: its telephone repair service. Business managers across the organization recognized the need to introduce efficiencies into the manner in which repair service workloads were managed, and associated service appointments made with customers. It was hoped that the introduction of this information system would eliminate the occurrence of unproductive visits by operational staff to customer premises when customers were absent. The GAS would also assist supervisors in their task of allocating workloads to their repair teams, which consist of operational staff. Both groups therefore had a keen interest in the development and implementation of this system as it impacted on some of their basic functions. The GAS also supports the operation of the company's 10 fault-handling and repair centers.

The Geographic Information System (GIS) was developed to provide a graphical database of the telephone network in the general Dublin area. Heretofore, the planning and drawing office functions manually recorded network-related details using paper-based records and maps. The business manager responsible for this project recognized that there would be significant improvements, in terms of economic and operational efficiencies, to be gained in using a GIS in this area of the company's operations. However, this also meant that a radical change had to take place in one of its operational business processes. The development of the GIS has posed significant challenges to both business sponsors and developers alike. On the one hand was the issue of change management associated with the fundamental change in work practices/roles of the functional units presently performing telephone network mapping, planning, and record handling duties. On the other was the challenge of developing a highly complex and sophisticated information system within a proprietary application development environment.

Table 2 orders and reduces the qualitative data and presents an analysis of the research results based on Cavaye's framework. This framework has been extended to include several additional descriptive dimensions that provide further contextual detail to the analysis of the concept. It can be seen that the characteristics, impact, and positive outcomes associated with user participation varied little across the embedded units of analysis in the case studied. The following narrative provides a more detailed exposition of several salient aspects of participative development in the case.

4.2.1 GAS and GIS Project Characteristics

A development team that consisted of a project manager, two analysts, the CASE vendor consultant, one programmer, and a user representative carried out the development of the GAS. A CASE-supported RAD development approach saw development take place within a three month time period. However, the implementation of the first phase of the GAS took a further six months. As a distributed IS, the GAS is comprised of eight relational databases that serve up to 180 windows-based PC terminals in fault-handling centers and a further 400 in operational depots nationwide. The project was on time and within budget.

Table 2. An Analytic Framework for Research on User Participation
(Adapted from Cavaye 1995)

	Description	GAS	GIS
1. General characteristics			
Type of system under development	Operational support subsystem.	✓	✓
Degree of user participation	Consultative, representative, consensus.	✓	✓
Type of user participation	Participation by advice (indirect) ranging from participation by strong control (direct).	✓	✓
Participation versus involvement	Users immediate to the project team(s) participated, while the majority of users were mainly involved in the development process.	✓	✓
Organizational perspective on participation	Elements of pragmatic, theoretical, and political perspectives existed within developer and user constituencies.	✓	✓
Users participating	User project manager, user representatives, user groups, and individual users employed. Joint staff/management bodies were also involved.	✓	✓
Location of development team	On-site at the business client's offices.	✓	✓
Measure of participation	Pan-lifecycle for user representatives. Individual users and user groups participated at key points in the development process. Users tested the developed system.	✓	✓
2. Contingent organizational variables			
Organizational policy on systems development	Organizational policy on participative development fully implemented.	✓	✓
Influence of organizational culture on team subcultures	Shared organizational culture ensured that the team subculture was receptive to user participation in systems development.	✓	✓
Time for development	Although there was a very tight project time schedule, it did not impact negatively on the degree of user participation.	✓	✓
Financial resources available	Budgetary resources did not affect the degree or quality of user participation.	✓	✓
Top management commitment	A high degree of support existed from organization and IS function management. A high degree of top management support existed in the first phase, but this waned in subsequent phases. There was also a lack of support from senior IS function management.	✓	✓

	Description	GAS	GIS
3. Project-related factors			
Initiator of the project	Business management.	✓	✓
Project complexity	Complex project, several functional groups involved.	✓	
	Highly complex project, functional boundaries crossed.		✓
Degree of task-structure	Medium-level task complexity, moderately defined business process.	✓	✓
Development technology available	CASE workbench (IEF) that fully supported prototyping, significant impact on the quality of user participation; user representative trained in CASE tools.	✓	
	Proprietary development tools. SSADM employed in analysis and design, user representative trained in SSADM.		✓
Expected change brought about by the system	High degree of change for one user constituency. New business process supported.	✓	
	Radical change to user role-related activities in two user constituencies.		✓
4. User-related factors			
User perceptions of organizational climate	Users felt that a favorable development climate existed.	✓	
	Users were of the opinion that the organizational climate was negative; however, they felt that a favorable development climate existed.		✓
Willingness to participate	Users eager to participate.	✓	✓
Ability to participate	The use of dual project development teams (user and developer) greatly facilitated user participation.	✓	✓
User characteristics and attitudes	Very positive attitudes by users. User computer literacy a problem. Shared organizational culture of benefit in accommodating different "world views."	✓	✓
5. Factors within the participation process that impact on the degree and effectiveness of user participation			
User/analyst relationship	Very good. Relationships were enhanced by the existence of a common organizational culture and favorable development climate in project teams.	✓	✓
Influence and power relationships	Several institutionalized checks and balances existed which countered any power asymmetries or political opportunism that may have arisen. This was due to the implementation of organizational policy by all the constituencies involved in systems development. Positive management attitude toward and acceptance of user input.	✓	✓

	Description	GAS	GIS
Communication	High degree of user/analyst communication.	✓	✓
	Greatly enhanced by on-site development training the user representative in IS development method and tools, and the prototyping approach adopted.	✓	
	Some improvement in communication brought about by user training in SSADM.		✓
6. Variables moderating the participation-success link			
Perceived control	The type and degree of user participation gave users a sense of ownership and control over the system as developed, despite eventual reservations over the systems utility.	✓	✓
	Change management difficulties dominated and colored user attitudes toward the system.		✓
Desired level of participation	Good fit between user's desired and actual levels of participation.	✓	✓
Perceived importance and relevance of system to users	Medium to high degree of relevance as evidenced by the change management and industrial relations difficulties.	✓	✓

The GIS development team consisted of a project manager, two analysts, three programmers, two user representatives, and a team of 10 users to input graphical data and carry out test functions. Consultants from the software vendor also participated in the development process. The GIS was built around a proprietary graphical database engine that serves up to 40 high-end workstations. The first phase of the GIS development took almost two years to complete. Implementation and rollout of the first phase took a further year. Project over-runs occurred in terms of both time allocated for completion and budget.

4.2.2 User Participation in the GAS and GIS

User participation in the GAS and GIS development processes ranged from "participation by doing" to "participation by advice" (Ives and Olson 1984). For example, user representatives on the development teams participated as an adjunct to analysts in the requirements elicitation exercises with individual users and user groups. In both projects, user representatives were trained in the IS CASE tools and techniques and participated in the use of these tools. User representatives also took an active role in the implementation of these systems. Other users not on the development teams participated in individual interviews and group sessions with the development teams in the requirements analysis phase. In the GAS project, these users also participated in prototyping activities. In both projects, users participated in testing the systems once developed.

4.2.3 Issues Impacting on the Effectiveness of User Representatives and User Groups

The high level and quality of participation in the GIS project was commented on by one developer who pointed out that "the team greatly benefitted from the presence of user representatives. I was up to speed with user needs all the time." These sentiments were strongly endorsed by developers in the GAS project also. Developers in both projects also articulated the need for more active participation by certain users as it was felt that an increased level of

participation by such users could have helped mitigate many of the contentious change management issues surrounding the implementation of the systems (cf. Hirschheim and Newman 1988; Robey et al. 1993).

Development project workshops consisted of developers and users from a single user constituency from the business area; this participative mechanism possessed certain flaws, however. For example, group workshops on the GAS project were used for political purposes as certain users introduced arguments to oppose or alter system features favored by users who did not attend the sessions and who emanated from other operational areas. User groups also tended to play on the stated objections of absent groups in order to influence the trajectory and outcome of the development process in their favor. Because of the high degree of political infighting between the various groups, the user representative on the GAS project observed there was a need "to have all the user groups affected by the systems development present at each of the workshops; this avoided the emergence of a `them and us' situation between users."

In each project, coordination and control of both developer and user activities was highlighted as being of particular importance. Regular project meetings were considered to be an important mechanism in the achievement of this goal. As expected, such forums helped developers to keep abreast of each others' progress and activities. However, the joint nature of such meetings provided user and development project managers with an opportunity to keep user representatives and developers abreast of external issues such as industrial relations problems.

The role and contribution of the user project managers in both the provision of project-related accommodation, materials, and facilities, and also in addressing business area implementation-related responsibilities and commitments was especially welcomed by the developer constituency. In the past, developers had experienced difficulty in obtaining the required level of user participation in these areas.

4.2.3 Pan-Lifecycle User Participation and the Benefits of On-site Development in the Business Area

Pan-lifecycle participation in systems development refers to the active participation and involvement of users at all stages of the development process. In the GIS and GAS projects, it was facilitated through the policy of on-site development at the business user's offices. Prior to the development of the GIS and GAS, most systems development took place off-site, that is, within the IS function's own business accommodation. Senior IS function management and development project managers recognized that there were significant benefits to be gained from on-site development at the user's place of business. For example, it was thought that this policy would provide opportunities for both formal and informal, direct and indirect user participation, thereby improving user/developer communication and fostering good relations at all levels.

4.2.4 User Participation and Management of Change in Systems Development

The issue of change management associated with the implementation of both systems was found to exert a critical influence on the trajectory and outcomes of the development process. For example, the user representative on the GAS project reported that "staff at the fault handling center felt that their jobs/roles were being whittled away and that the control of the fault handling system was being shifted to the repair teams." This situation engendered a negative attitude toward the new system within one user constituency, and strongly influenced the deliberations of the CLC.

Even though the development project teams were embedded within the user community, and user groups were employed in the elicitation/verification of requirements in what could be described as a fully participative development exercise, problems arose in both projects at the implementation stage. Although the GAS had been accepted

as developed by all the constituencies of interest, the CLC over- rode decisions taken and agreed by the user group. This situation arose despite the fact that one individual on the CLC had been involved throughout the development process as a member of the user group. One developer explained this by suggesting that influential users who did not participate in the development process had voiced their "unhappiness with system features [and that this] prompted the CLC to say no to the implementation of the system." Hence, prior to its implementation at a trial site, several modifications had to be made to the GAS in order to address these objections. A very similar scenario existed in relation to change management issues in the GIS project: here business management were aware of the potential for significant change management problems to develop when the system was implemented. These problems related to the radical nature of the change in work-related roles, responsibilities, and remuneration of one of the user constituencies involved, and although these users were satisfied with the system as developed, they were unhappy with the consequences of its introduction. Therefore, the absence of adequate managerial attention to these issues meant that, although both systems were developed with the cooperation of users, both projects encountered user- related obstacles prior to operation and use.

5. DISCUSSION AND CONCLUSIONS

In the organization studied, it is a policy of management to have information systems developed with the participation of users. User participation in systems development has, therefore, been insititutionalized: it has been integrated into the social fabric of the organization, it is the norm rather than the exception, and is an integral dimension of the organization's culture. It is clear that the high level of commitment by all parties to participative development practices has had a positive influence on the culture and climate of the development environment and, also, on the development trajectory of the systems studied. Participating users felt empowered and non-participating users felt that their perspectives and interests had been taken into consideration. Also, the present study illustrates that such user participation did indeed contribute greatly to the development process and the success of its outcomes. For example, the successful elicitation of what were complex requirements were better apprehended and understood using this approach. Furthermore, the pan-lifecycle nature of participative development ensured that the end product closely matched user requirements and, hence, facilitated a high level of user satisfaction with the developed systems.

There is, however, a caveat to this observation, in that although the organization had institutionalized the practice of user participation in what could be described as textbook fashion, this did not guarantee the operation and use of the information systems once developed. There is a tendency in organizations to view the development process as a mechanism for the resolution of problems of a political nature that impact on the operation and use of information systems. As the findings have illustrated, such political problems tend to be resolved within an organization's industrial relations infrastructure. True, certain battles between users and management and between developers and users are played out within the development process and its environment; however, full-scale development-related wars are fought on organizational battlefields. Hence, it has to be emphasized most strongly that the type and degree of participation employed in the development projects studied gave no guarantee of successful post- development implementation of these systems. This situation arose because the fears of influential users in regard to the changes wrought by the introduction of the new systems in their work-related roles and responsibilities were not addressed prior to development or implementation.

If this study had adopted a simplistic approach and considered the influence of participation on systems development solely, without considering implementation issues as well, a different picture would have emerged. Thus, in any assessment of user participation, a distinction has to be made between the benefits that accrue to the development process and its product, and the impact that participation has on the eventual introduction and use of the product.

Nevertheless, the findings of this study certainly support the argument that user participation is a major contributor to success in systems development.

With some notable exceptions (e.g., Markus 1983; Wong and Tate 1994), the diversity of and tension between users affected by the development and implementation of information systems has received scant attention in the literature. One of the central observations of this study is that users are not a homogenous groups of social actors with convergent views on the trajectory and outcomes of the development process. Rather, users tend to belong to distinct social groupings or constituencies, each with their own particular organizational agenda, collective world views, and socially constructed subuniverses of institutional reality. Hence, the findings of this study indicate that not only do developers have to be sensitive to user/developers issues, they have also to be aware of the potential for conflict between different user constituencies and to play an active role in avoiding and resolving such conflicts.

The foregoing case description, which has used and elaborated on Cavaye's framework, facilitates research to establish a cumulative tradition. It also provides explanatory insights into possible measures that need to be adopted in both organizational and development environments and, more importantly, the development process itself if participative development practices are to provide the required contribution to successful systems development. This is keeping with the recommendation by Barki and Hartwick (1994) that moderating variables between user participation and output criteria be identified and elaborated. For example, the role that technology (in the form of CASE) can play was seen to be significant, especially in relation to improving user/developer communication, aiding the prototyping of requirements specification, and in diminishing the traditional schism between technically-oriented developers and business-oriented users. Also, the importance of the organization's managerial ethos in creating an appropriate organizational culture and climate was much in evidence. Pfeffer (1994) has illustrated that Tayloristic principles shape and influence managerial attitude toward participation by the rank and file in organizational endeavors generally with negative consequences. Therefore, in the absence of explicit policies and structures in relation to user participation in organizations, this dimension of user participation has also to be captured.
Finally, it is clear that there is no easy way to determine the influence of complex social and organizational issues on participative development without examining the operationalization of the concept in detail, and within real organizational contexts. This requires choosing appropriate cases for study and then subjecting them to rigorous examination with the objective of deepening the extant understanding of the phenomenon.

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