

**Full citation:** McLeod, L., MacDonell, S.G., & Doolin, B. (2007) User participation in contemporary IS development: an IS management perspective, *Australasian Journal of Information Systems* 15(1), pp.113-136.

<http://dl.acs.org.au/index.php/ajis/article/view/29>

## **User Participation in Contemporary IS Development: An IS Management Perspective**

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### **Abstract**

*User participation in IS development has become an established practice perceived to improve both the development process and its outcomes. Recently, however, Markus and Mao (2004) have highlighted the need to revisit user participation in light of the changing IS development environment. A survey of New Zealand organisations with 200 or more full-time employees was undertaken in order to obtain an updated assessment of the actual practice of user participation in IS development projects from the perspective of IS management. The results suggest that user participation continues to be a dominant aspect of IS development for IS managers. The paper provides empirical data on the common reasons for having users participate and the form and types of user activities in development. The responding IS managers perceived user participation to be beneficial to IS development in their recent IS projects, and many intended continuing or increasing their current levels of user participation in the future.*

### **1. INTRODUCTION**

The participation of users in IS development has been an important focus of interest within the IS literature since the early 1980s (Ives & Olson, 1984), when a perceived 'user relations problem' (Friedman & Cornford, 1989) led to calls to better articulate user requirements or improve user influence, concerns with democratising IS development, and attempts to align the social and technical aspects of development (Knights & Murray, 1994). For example, the development of a 'participatory design' philosophy in Europe and Scandinavia encouraged active user participation both to improve the system developed and to allow users to co-determine the effect of the system on their workplace (Clement & Van den Besselaar, 1993; Iivari & Lyytinen, 1999; Mumford, 1997). Socio-technical approaches to IS development, such as ETHICS (Effective Technical and Human Design of Computer-Based Systems) (Mumford, 1997, 2000) or Multiview (Avison, et al., 1998), made user participation

an important part of design. Other development approaches emerged that emphasised user participation, including joint application design (JAD) (Carmel, et al., 1993; Davidson, 1999), prototyping (Baskerville & Stage, 1996; Beynon-Davies, et al., 1999), and information engineering (IE) (Beath & Orlikowski, 1994).

In addition to these specific user-centred approaches, the notion of 'user participation' (as distinct from user involvement; Barki & Hartwick, 1989; Barki & Hartwick, 1994a) has become commonly used to describe the activities performed by users or their representatives in IS development. Extensive support for user participation in IS development can be found in both the IS academic and practice literature (e.g. Johnson, et al., 2001; Reel, 1999). Indeed, it has become institutionalised in IS development practice through education and training, standard reference texts, standard methods of IS development, and standards or best practice prescriptions such as ISO Standard 13407 (ISO, 1999), IEEE Standard 1233 (IEEE, 1998) and SWEBOK (Bourque, et al., 2004). However, this institutionalisation of a somewhat abstracted perspective of user participation (as represented in standards, textbooks and the like) presents a rather simplified view of the concept. As Symon & Clegg (2005, p. 1142) caution, the term 'user participation' can be problematic as "different constructions of 'user' and 'participation' are possible and inevitable".

A number of authors have conducted meta-analyses of empirical studies examining the relationship between user participation and IS success (Cavaye, 1995; Hwang & Thorn, 1999; Mahmood, et al., 2000). Overall, it seems that while in some studies user participation was found to positively influence IS outcomes, many studies were inconclusive. In terms of specific empirical studies, a number have identified a significant positive relationship between user participation and IS success (Coombs, et al., 1999; Doherty, et al., 2003), user satisfaction or acceptance (Foster & Franz, 1999; Lin & Shao, 2000; Lu & Wang, 1997), project completion (Wixom & Watson, 2001; Yetton, et al., 2000), project performance (Aladwani, 2000), system impact (Lynch & Gregor,

2004) or data quality (Zeffane & Cheek, 1998). Case study evidence also suggests that active user participation is an important component of successful IS development (Butler, 2003; Wastell & Newman, 1996; Wilson, et al., 1997). Similarly, lack of user participation is perceived to contribute to IS failure or abandonment (Clegg, et al., 1997; Johnson, et al., 2001; Keil, et al., 2002; Newman & Noble, 1990; Pan, 2005; Sauer, 1999; Schmidt, et al., 2001).

The perception that user participation can play an important role in influencing IS project outcomes has meant that it has become an established practice within many organisations, with users playing an increasingly important role in IS development. For example, Howcroft & Wilson (2003b) describe an organisation in which user participation became so entrenched in the IS development culture that it was inconceivable that an IS project would be developed without the participation of users. In a survey of Irish project managers Kiely & Fitzgerald (2002) found that users played a substantial part in development in two thirds of IS projects.

Given the modern, dynamic IS development environment of short-term business needs, rapid application development, Internet, multimedia and e-commerce applications, packaged software and outsourcing (Barry & Lang, 2003; Sawyer, 2001; Schmidt, et al., 2001), the nature and extent of user participation may well be changing (Markus & Mao, 2004). Empirical knowledge of the current forms of IS development practice is needed (Barry & Lang, 2003; Ljung & Allwood, 1999), including knowledge related specifically to user participation. Cross-sectional surveys are a useful tool for gathering descriptive information from a large sample on current practices (Fitzgerald, et al., 1999; Markus & Mao, 2004). This paper reports the results of a survey conducted on IS development practice in recent IS projects in New Zealand organisations. One of the primary objectives of the study was to obtain an updated picture of actual user participation practices in IS development.

The remainder of the paper is structured as follows. First, we review prior literature on the nature of user participation in IS development, including its benefits and limitations. We then outline the development of our survey instrument and the data collection procedure used in this study. Subsequent sections present and discuss the results of the survey, before some concluding remarks are made about the findings.

## **2. THE NATURE OF USER PARTICIPATION**

There are potentially many reasons why an organisation may choose to have users participate in IS development. The decision may rest with one of the many groups within an interest in the project (such as top management, the IS function, users, an external consultant, or an external development company). An organisation may have an organisational policy on user participation, or it may be established practice within the organisation. User participation may be a requirement of the standard method of IS development being used or it may be

appropriate given the characteristics of the project (Wilson, et al., 1997).

A number of authors have suggested that 'user participation' is not a homogeneous construct (e.g. Hartwick & Barki, 2001; Iivari, N., 2004; Ljung & Allwood, 1999; Palanisamy, 2001). For example, Cavaye (1995) identifies various dimensions of user participation relating to the proportion of users who participate, the formality of users' participation, their level of responsibility during development, the effect or influence of participation on the development effort, and the level of participation during different phases or aspects of development. Accordingly, individuals may participate in an IS project directly, or indirectly through user representatives (Barki & Hartwick, 1994a; Butler & Fitzgerald, 2001; Ives & Olson, 1984). For logistical reasons, IS projects usually involve user representatives rather than all intended users of the IS (Cavaye, 1995). In a survey of Swedish computer consultants, Ljung & Allwood (1999) found that half of the respondents did not consult the entire user population. Some respondents felt that the complete user population was too large to participate, given the financial or time constraints present in many IS projects. Other respondents felt that smaller groups were important for ensuring that users were heard. The conventional wisdom is that user groups from all organisational levels and functions, and reflecting all levels of expertise, need to be considered for participation in order for that participation to be representative and to capture the breadth and depth of expertise in an organisation (Damodaran, 1996; Ives & Olson, 1984; Newman & Noble, 1990; Pan, et al., 2004; Wilson, et al., 1997).

However, several problems have been identified within the IS literature concerning which users actually participate in an IS project. For example, the increasing numbers and types of affected or intended users in the changing IS development context can increase the difficulty of securing appropriate participation (Markus & Mao, 2004). It may be difficult to identify or access specific users of an IS, particularly in the development of packaged software (Iivari, N., 2004; Kujala, 2003; Ljung & Allwood, 1999). The people chosen to represent the users may not have the same job descriptions or work tasks as the staff they are meant to represent, particularly if they are not chosen by the users themselves. The same representatives may be involved in several projects within the organisation, because of their interests or prior experience, so that the IS function loses direct contact with the wider user community (Ljung & Allwood, 1999). In short, users can be a diverse group with different, and possibly conflicting, interests and needs (Asaro, 2000).

User participation activities may be performed individually or as part of a group (Barki & Hartwick, 1994a). Participation may involve formal groups or teams (e.g. steering committees, reference groups), individuals in a formal advisory capacity (as official liaison between the project team and the application domain), official meetings or seminars, or informal relations, discussions and tasks (Barki & Hartwick, 1994a; Butler & Fitzgerald, 2001; Cavaye, 1995; Damodaran, 1996; Heinbokel, et al., 1996; Ljung & Allwood, 1999). User input may be sought

through seminars, workshops or meetings, questionnaires, interviews, observation, email or bulletin board (Butler & Fitzgerald, 2001; Gallivan & Keil, 2003; Ljung & Allwood, 1999; Palanisamy, 2001). Some participation activities are believed to produce better IS outcomes than others, e.g. using non-technical approaches in requirements determination or observing users at work (Markus & Mao, 2004).

Users or their representatives may have various levels of responsibility in IS development (Barki, et al., 2001; McKeen & Guimaraes, 1997). They may participate in an advisory role (as a group or individually), as part of the project team, be given sign-off responsibilities at various stages, or be given full responsibility for development (Butler & Fitzgerald, 2001; Cavaye, 1995; Dodd & Carr, 1994; Heinbokel, et al., 1996; Ljung & Allwood, 1999; McKeen & Guimaraes, 1997; Palanisamy, 2001). In a survey of IS users, Hartwick & Barki (1994) found that activities reflecting overall responsibility for development were more important than hands-on activities or activities reflecting users' evaluation of work done by IS staff, in terms of influencing users' attitudes to the IS. Empirical studies have shown that organisations where users and IS staff are held jointly accountable appeared to have higher perceived project success rates than the average (Wastell & Sowards, 1995).

The influence that users can have on how the IS project is managed and on the final design of the IS product varies, ranging from no influence (where users are not asked, are unwilling to participate, or have no impact) to strong influence (where the user department pays for and/or controls the development) (Damodaran, 1996; Hartwick & Barki, 2001; Hunton & Beeler, 1997; Ives & Olson, 1984; Palanisamy, 2001). In between these extremes, their influence often depends on the role they play in development (e.g. project leadership, as part of the team, given sign-off responsibility, or in an advisory role only), how well they are represented (e.g. few or unrepresentative users participate), when and how frequently they interact with the project team, and the amount of consideration given to their contribution by the project team (e.g. whether their contribution is considered, taken seriously, ignored, misunderstood, or not even solicited) (Butler & Fitzgerald, 2001; Cavaye, 1995; Gallivan & Keil, 2003; Hartwick & Barki, 2001; Iivari, J., 2004; Iivari, N., 2004; Ives & Olson, 1984; Ljung & Allwood, 1999; Lynch & Gregor, 2004; Palanisamy, 2001; Saleem, 1996).

The stage(s) in the IS development process at which user participation occurs can also impact on the project outcome (Lin & Shao, 2000; McKeen, et al., 1994; McKeen & Guimaraes, 1997; Saleem, 1996). Empirical studies have shown that user participation in the early stages of development can have greater impact on user acceptance of an IS than participation at later stages (Foster & Franz, 1999; Kujala, 2003; Pan, 2005). Participation throughout the entire development process may similarly increase the likelihood of user acceptance (Butler & Fitzgerald, 1999b; Butler & Fitzgerald, 2001). User participation is most likely to occur in early stages of (traditional) development, such as problem definition and requirements determination, and in latter stages of

development, such as testing and installation. Users do not usually participate in physical design and coding (Butler & Fitzgerald, 2001; Cavaye, 1995; Foster & Franz, 1999; Heinbokel, et al., 1996; McKeen & Guimaraes, 1997; Wastell & Sowards, 1995). In the modern IS development context, however, users may participate in a wider variety of technical and non-technical activities than may have been previously the case (e.g. business process redesign, IT infrastructure development, project management or change management) (Markus & Mao, 2004).

The benefits of user participation are well rehearsed in the IS literature. In an early and influential paper, Ives & Olson (1984) argued that user participation can improve system quality by providing more accurate and complete user requirements, by providing knowledge of the business context, avoiding unacceptable or unnecessary system features, and improving user understanding of the IS. Further, they suggested that user participation may lead to greater user acceptance by creating realistic user expectations of the IS, by providing a forum for conflict resolution about design issues, by fostering feelings of ownership and commitment, and by decreasing resistance to change. Subsequent studies (some of which were based on empirical data) have reinforced these potential benefits, which are summarised in Table 1. User or business participation is also emphasised as an important part of IS development within the New Zealand IS practice literature (Bell, 1998; Newman, 2004; Smith, 2003).

User participation is not without its perceived limitations (Table 2). For example, user participation can increase the complexity of the IS development process, particularly where it is intensive, or may be difficult to implement or manage in practice. The greater the number of users or user groups involved, the longer it may take to reach agreement and the greater the amount of resources required. Even with user participation, user resistance may still occur (Butler & Fitzgerald, 2001; Howcroft & Wilson, 2003a). It has been suggested that ignoring users' suggestions may have worse consequences than not involving users in the first place (Canel, et al., 1997; McKeen & Guimaraes, 1997). However, drawing on a survey of project managers and users involved in IS projects in large US organisations, McKeen and Guimaraes (1997) found no evidence of dysfunctional effects of user participation, even in IS projects where user participation was relatively unnecessary.

In summary, while at an abstract level there is broad and long-standing support for user participation in IS development, a more fine-grained analysis reveals some variation in opinion. Furthermore, actual empirical analysis (as opposed to more speculative commentary) suggests a range of practices and attitudes in terms of user participation. Given that the IS development context continues to change, further empirical analyses should provide valuable insights into the stability or otherwise of these practices and attitudes. This provides the underlying motivation for the research now described.

User participation may ...	Sources
Improve the quality of the IS developed	(Butler & Fitzgerald, 2001; Canel, et al., 1997; Hwang & Thorn, 1999; Kim & Peterson, 2003; Lin & Shao, 2000; McKeen, et al., 1994; Roberts, et al., 2000)
Avoid unacceptable or unnecessary system features from being developed	(Cavaye, 1995; Kujala, 2003; Lin & Shao, 2000; McKeen, et al., 1994; McKeen & Guimaraes, 1997; Roberts, et al., 2000)
Provide a more accurate and complete assessment of user requirements	(Barki & Hartwick, 1994a; Butler & Fitzgerald, 1999a; Cavaye, 1995; Foster & Franz, 1999; Kim & Peterson, 2003; Kujala, 2003; Lin & Shao, 2000; McKeen, et al., 1994; McKeen & Guimaraes, 1997; Roberts, et al., 2000; Wixom & Watson, 2001)
Provide developers and the IS group with knowledge of the IS context, particularly in relation to the organisation and functional unit it is to support	(Butler & Fitzgerald, 1999b; Canel, et al., 1997; Lin & Shao, 2000; McKeen, et al., 1994; McKeen & Guimaraes, 1997; Roberts, et al., 2000; Yetton, et al., 2000)
Improve user understanding of the IS and its features	(Barki & Hartwick, 1994a; Kim & Peterson, 2003; Kujala, 2003; Lin & Shao, 2000; Mahmood, et al., 2000; McKeen & Guimaraes, 1997; Wixom & Watson, 2001)
Increase user acceptance of the IS	(Butler & Fitzgerald, 1999b; Butler & Fitzgerald, 2001; Foster & Franz, 1999; Kim & Peterson, 2003; Kujala, 2003; Lin & Shao, 2000; Mahmood, et al., 2000; McKeen, et al., 1994; Roberts, et al., 2000; Saleem, 1996; Wixom & Watson, 2001)
Lead to user satisfaction with the IS	(Butler & Fitzgerald, 1999a; Canel, et al., 1997; Hwang & Thorn, 1999; Kujala, 2003; Lin & Shao, 2000; Lu & Wang, 1997; Lynch & Gregor, 2004; Mahmood, et al., 2000; McKeen, et al., 1994; McKeen & Guimaraes, 1997; Yoon, et al., 1995)
Help to create more realistic user expectations about IS capabilities	(Butler, 2003; Lin & Shao, 2000; McKeen, et al., 1994; McKeen & Guimaraes, 1997; Roberts, et al., 2000)
Provide a forum for bargaining and conflict resolution	(Amoako-Gyampah & White, 1997; Barki & Hartwick, 1994b; Butler, 2003; Butler & Fitzgerald, 1999b; Canel, et al., 1997; Foster & Franz, 1999; Jiang, et al., 2002; Lin & Shao, 2000; McKeen, et al., 1994; McKeen & Guimaraes, 1997; Roberts, et al., 2000)
Facilitate communication between participants, particularly users and developers	(Amoako-Gyampah & White, 1997; Hartwick & Barki, 2001; Markus & Mao, 2004; McKeen, et al., 1994)
Foster feelings of ownership of the IS by users	(Barki & Hartwick, 1994a; Butler, 2003; Butler & Fitzgerald, 1999b; Hartwick & Barki, 1994; Lin & Shao, 2000; Lynch & Gregor, 2004; Mahmood, et al., 2000; McKeen, et al., 1994; McKeen & Guimaraes, 1997; Roberts, et al., 2000; Saleem, 1996; Yoon & Guimaraes, 1995)
Foster user commitment to the IS	(Butler, 2003; Canel, et al., 1997; Cavaye, 1995; Kim & Peterson, 2003; Lin & Shao, 2000; McKeen, et al., 1994; McKeen & Guimaraes, 1997; Roberts, et al., 2000)
Decrease user resistance to change	(Amoako-Gyampah & White, 1997; Butler, 2003; Cavaye, 1995; Lin & Shao, 2000; McKeen, et al., 1994; McKeen & Guimaraes, 1997; Roberts, et al., 2000)
Ensure the developed IS meets user needs	(Butler, 2003; Cavaye, 1995; Kim & Peterson, 2003; Lynch & Gregor, 2004; Pan, et al., 2004; Yetton, et al., 2000)

**Table 1:** Potential benefits of user participation

User participation may ...	Sources
Increase project duration, particularly where there are large numbers of users or multiple user groups with differing interests	(Canel, et al., 1997; Cavaye, 1995; Iivari, N., 2004; Kujala, 2003; Ljung & Allwood, 1999)
Increase project cost, particularly where there are large numbers of users or better informed users needing more support	(Cavaye, 1995; Iivari, N., 2004; Kujala, 2003; Ljung & Allwood, 1999)
Be difficult to manage or implement, particularly where there are time constraints, large numbers of users, competing user groups, or where users are unable or unwilling to participate.	(Butler & Fitzgerald, 1999b; Canel, et al., 1997; Cavaye, 1995; Heinbokel, et al., 1996; Kujala, 2003; Ljung & Allwood, 1999)
Create or reinforce user resistance to implementation of the IS, particularly where users perceive that their suggestions have been ignored.	(Butler & Fitzgerald, 2001; Canel, et al., 1997; Markus & Mao, 2004; McKeen & Guimaraes, 1997)
Reduce developers' influence in the IS development process, as users exert greater influence.	(Cavaye, 1995; Heinbokel, et al., 1996)

**Table 2:** Potential limitations of user participation

### 3. RESEARCH APPROACH

Our aim was to gain a detailed understanding of organisational practices in relation to user participation in IS development. As such, it was decided that a cross-sectional survey would be the most appropriate mechanism to use in order to achieve the desired breadth of coverage. We chose to use a multi-page Web-based design for our survey instrument. Dillman's (2000) principles for constructing Web surveys were followed in order to minimise the effects of measurement, non-response, coverage and sampling errors. The survey was composed primarily of a questionnaire that solicited information about aspects of IS development practice in New Zealand organisations, including a detailed sub-section addressing the participation of users in the IS development process.

Given the lack of an agreed understanding of the meaning of 'user participation' (Symon & Clegg, 2005), participants were not given a definition of the term (although 'user' was defined as 'an employee of the organisation who interacts with the IS on a day-to-day basis'). We wanted participants to consider user participation in a general sense and without undue influence or constraint from us, so as to be more inclusive of participatory practices that may have been in use.

In the first part of the questionnaire, participants were asked to specify (or estimate) the total number of IS projects that had been undertaken and completed by their organisation during a three-year period. Participants were asked to categorise these IS projects in terms of their size (as measured by their cost), different forms of IS development and acquisition, and different levels of user participation in the development process. For those projects in which users did not participate, participants were prompted to specify the reasons for this.

Participants were then asked a series of questions related to the nature of user participation in their IS projects. This included the most common reason for user participation, the type and form of that participation, and the stages of IS development in which it occurred. Participants were also asked to indicate their level of agreement with a range of positive and negative statements about user participation drawn from the benefits and limitations of user participation identified in the prior studies reviewed above (Tables 1 and 2). In answering these questions, participants could choose from a five-point Likert-type scale comprising "Strongly disagree", "Disagree", "Neutral", "Agree" and "Strongly Agree" options, or alternatively a "Don't know or Not applicable" option.

All participants were then asked to identify any anticipated changes in user participation in IS development in their organisation in the three years to follow. Finally, participants were asked to specify their official position and to classify their organisation in terms of business sector, organisational size, and the size and location of its IS function.

We pilot tested the survey with 20 organisations in March 2004, which produced minor modifications to question wording. The main survey was undertaken during April and May 2004. The target population was those organisations large enough to require IS beyond that which could be achieved by standard desktop applications, to have an inherent need for systematisation and computerised integration of business functions, and be more likely to utilise up-to-date software innovations and development practices. Overall, the survey was administered to 460 New Zealand public and private sector organisations with 200 or more FTEs.

The manager responsible for IS project work within the organisation (typically an IS/IT Manager or CIO) was targeted as the respondent in order to provide both an

organisational view and one informed by knowledge of the organisation's IS development practice. Although single-respondent managerial surveys have their limitations with respect to distance from actual development work (Wynekoop & Russo, 1997), managerial level respondents are more likely to be knowledgeable about organisation-wide issues (Doherty & King, 2001). We acknowledge, however, that it is often management that defines the boundaries of user participation (Howcroft & Wilson, 2003a, 2003b), and that the survey findings represent an IS management perspective on user participation. In order to ensure currency of the results and to ensure more accurate recall by survey respondents, the survey focused on IS projects undertaken and completed (or substantially completed) in the three calendar years 2001 to 2003.

The number of responses received was 113, for a response rate of 25%. Seven responses were unusable, either because critical (demographic) data was missing or the reported organisational size was below 200 FTEs. This left 106 usable responses that formed the basis of subsequent data analysis (although not all respondents answered every question). Characteristics of the responding organisations are shown in Table 3. The 106 organisations in the respondent population represent 17% of the target population and provide a reasonable match with respect to business sector and organisational size. Just over half the organisations reported sizes of IS function of fewer than 10 FTEs, and in the majority of organisations (78%) the IS function was located in one central unit.

<b>Business Category</b>	<b>% organisations (n=106)</b>	<b>Size of IS function (FTE)</b>	<b>% organisations (n=104)</b>
		Fewer than 4	23
Communications & Media	2	4 to 9	30
Construction & Engineering	8	10 to 19	9
Education, Health & Community Services	16	20 to 49	13
Electricity, Gas & Water Utilities	3	50 to 99	16
Finance, Insurance & Banking	8	100 or more	10
Government & Local Government	12		
IT, Business, Legal & Property Services	8	<b>Location of IS function</b>	<b>% organisations (n=106)</b>
Manufacturing & Processing	24	Centralised	78
Primary Industries	1	Distributed	12
Tourism, Accommodation & Food Services	3	Mainly outsourced	8
Transportation, Logistics & Storage	6	Don't know	1
Wholesale & Retail Trade	11		
		<b>Respondent's role</b>	<b>% organisations (n=106)</b>
<b>Organisational size (FTE)</b>	<b>% organisations (n=106)</b>	Chief Information Officer	22
200 to 499	43	IS Manager	45
500 to 999	25	Development Manager	9
1000 to 1999	13	Project Manager	8
2000 or more	19	System Administrator	5
		Non-IS Manager	10

**Table 3:** Characteristics of respondent organisations

## 4. RESULTS AND ANALYSIS

### 4.1 IS Projects

Data summarising the IS projects reported on in the survey are presented in Table 4. The number of projects completed (or substantially completed) over the three year period 2001-2003 ranged from 0 to 230 projects per organisation, resulting in an average of 7 projects per

organisation per year. Five percent of organisations did not undertake any IS projects in that time, while 59% of organisations undertook between 1 and 10 IS projects. Just over half of the reported IS projects (54%) were bespoke developments, while the remaining 46% involved the purchase of packaged software or applications. Further detailed analysis of these responses and others associated with general IS development practices can be found in McLeod et al. (2006).

Number of projects undertaken by an organisation	% organisations (n=105)	Project costs	% projects (n=2215)
0	5	\$1000 or less	7
1-5	39	\$1,001 - \$10,000	20
6-10	20	\$10,001 - \$50,000	27
11-20	13	\$50,001 - \$100,000	18
21-50	12	\$100,001 - \$500,000	16
51-100	7	\$500,001 - \$1,000,000	7
More than 100	4	\$1,000,001 or more	5
		Don't know the project cost	1
<b>Type of IS development/acquisition</b>			
	% projects (n=2039)		
Purchase of packaged software:			
With little or no customisation	18		
With in-house customisation	13		
With outsourced customisation	15		
Bespoke IS development:			
In-house	42		
Outsourced	12		

**Table 4:** IS project details

## 4.2 Extent of User Participation

Table 5 shows the extent of user participation in the IS development process reported for the more than 2000 projects surveyed across 100 responding organisations. Users participated in close to all of the reported projects (92%) for at least part of the development process, and for more or less all of the development process in 61% of the reported projects. This level of user participation is higher than that reported in Kiely and Fitzgerald's (2002) survey of medium to large Irish organisations, in which users participated in 65% of the projects and played a significant role in 56% of projects. All responding organisations who undertook IS projects reported having at least some level of user participation in at least some of their projects. Of these, 84% always had users participating, 46% for more or less all of the development process. Users did not participate in at least some projects in 16% of organisations.

The most common reason given for users not participating in particular IS projects was that the projects were perceived to be of little or no relevance to users, usually because of their technical or infrastructural nature. Of course, all IS projects (even technical ones) will ultimately have some users, so presumably these respondents were referring to business users. For example, one respondent noted that "technical projects would involve mainly IT professionals, whereas customer-facing projects would involve users". Users

were also not involved in two projects where the IS was packaged software requiring little or no customisation, consistent with findings reported by Butler and Fitzgerald (1999a). Other reasons given for not including users were that development was done overseas; users were unavailable to participate in the development; and it was not organisational policy. In the latter case, the respondent noted that until recently the importance of user acceptance was not recognised by his or her organisation, a reasonably surprising comment given the relatively widespread adoption of user participation practices. In contrast, the first two reasons given are consistent with prior literature which suggests that users may not be able to participate in IS development (or may only be able to participate in a restricted way) because of their geographical location, the architectural layout of the office buildings, or other job commitments (Butler & Fitzgerald, 2001; Cavaye, 1995; Nandhakumar & Jones, 1997).

## 4.3 Nature of User Participation

The most common reason given by respondents for having users participate in their IS projects was because of its fit with the characteristics of the project (27%) (see Table 6). This is consistent with the IS literature that suggests that user participation is important with certain types of projects, such as large, technically complex or cross-functional projects (Butler & Fitzgerald, 2001;

Cavaye, 1995; Howcroft & Wilson, 2003b; Lin & Shao, 2000; Mahmood, et al., 2000; McKeen, et al., 1994; Yetton, et al., 2000). A further 19% of respondents practiced user participation because it was a requirement of their standard method(s), which typically support some degree of user participation (Cavaye, 1995; Damodaran, 1996; Iivari, J., 2004; Kirsch & Beath, 1996; Kujala, 2003; Nandhakumar & Jones, 1997; Roberts, et al., 2000). Overall, 31% of organisations reported that users participated in their IS projects for organisational reasons,

namely because of organisational policy or historical practice within the organisation. The influence of users was given as a reason for user participation by 18% of respondents. This may reflect organisations where the IS function is regarded as a support service to the business, or where users are politically active or have sufficient influence to require participation. No organisations employed user participation because it was the choice of an external development company.

<b>User Participation</b>	<b>% projects (n=2129)</b>
Users did not participate	8
Users participated for more or less all of development	61
Users participated for only part of development	31
	<b>% organisations (n=100)</b>
Users never participated	0
Users participated	100
Users participated for more or less all of development in at least some projects	77
Users participated for only part of development in at least some projects	50
Users did not participate in at least some projects	16

**Table 5:** Extent of user participation

<b>Most common reason for user participation</b>	<b>% organisations (n=101)</b>
Fit with project characteristics	27
Requirement of a standard method	19
Historical practice in the organisation	19
Influence of users	18
Organisational policy	12
Choice of external development company	0
Other	6
<b>Types of user participation</b>	<b>% organisations (n=99)</b>
Mainly user representatives participated	94
All users participated	6

**Table 6:** Nature of user participation

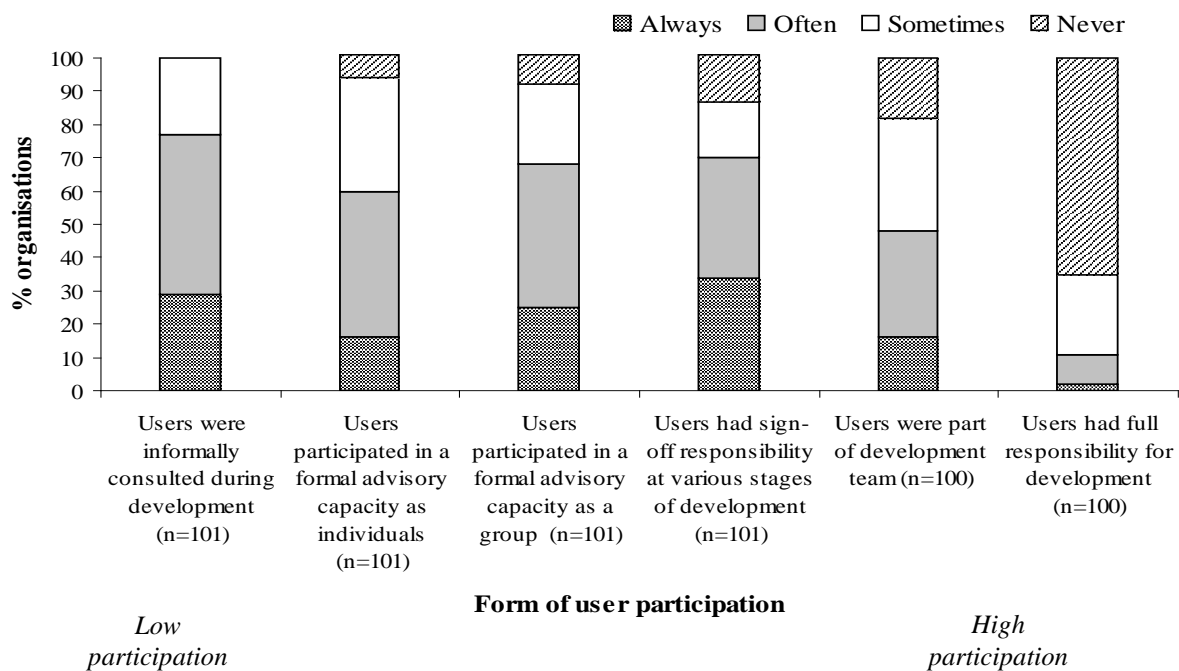
In almost all of the responding organisations (94%), user representatives typically participated in IS development (Table 6). This is consistent with other studies, which

acknowledge the difficulties (or impossibility) of involving all users, particularly given the increasing numbers and types of affected users in the modern IS



development context (e.g. Cavaye, 1995; Ljung & Allwood, 1999; Markus & Mao, 2004). In only 6% of organisations did all users typically participate in the IS projects undertaken. The six organisations who responded in this way were relatively small (with 200 to 499 FTEs) and undertook a relatively small number of projects (five of them undertook four or fewer projects over the three years). However, their projects ranged in size, with 41% costing more than \$100,000, suggesting that in at least some of the projects full user participation may have involved significant logistical issues (Cavaye, 1995; Markus & Mao, 2004).

Respondents were asked to indicate how frequently various forms of user participation occurred. The distribution of responses for this question is shown in Figure 1, with the various forms of user participation ordered from left to right in increasing levels of participation (and, to some extent, increasing levels of responsibility conferred on the users). The first four forms involve relatively low levels of user participation and, apart from where users have sign-off responsibility, limited accountability. In contrast, user participation and levels of responsibility are higher where users are part of the development team or they have full responsibility for development.



**Figure 1:** Various forms of user participation

The proportion of organisations who reported using the latter two forms of user participation (development team membership or full responsibility for development) is noticeably less than the forms with lower levels of participation and responsibility. This is consistent with other empirical studies which report that user-led development is less prevalent than other forms of user participation (Barki & Hartwick, 1994b; Dodd & Carr, 1994; McKeen & Guimaraes, 1997; Wastell & Swards, 1995). All but one of the 101 organisations informally consulted users during the development process to some extent. The proportion of organisations not using a particular form of participation increases moving through the range of forms of participation from left to right in Figure 1. Notably, 65% of the organisations never gave users full responsibility for development.

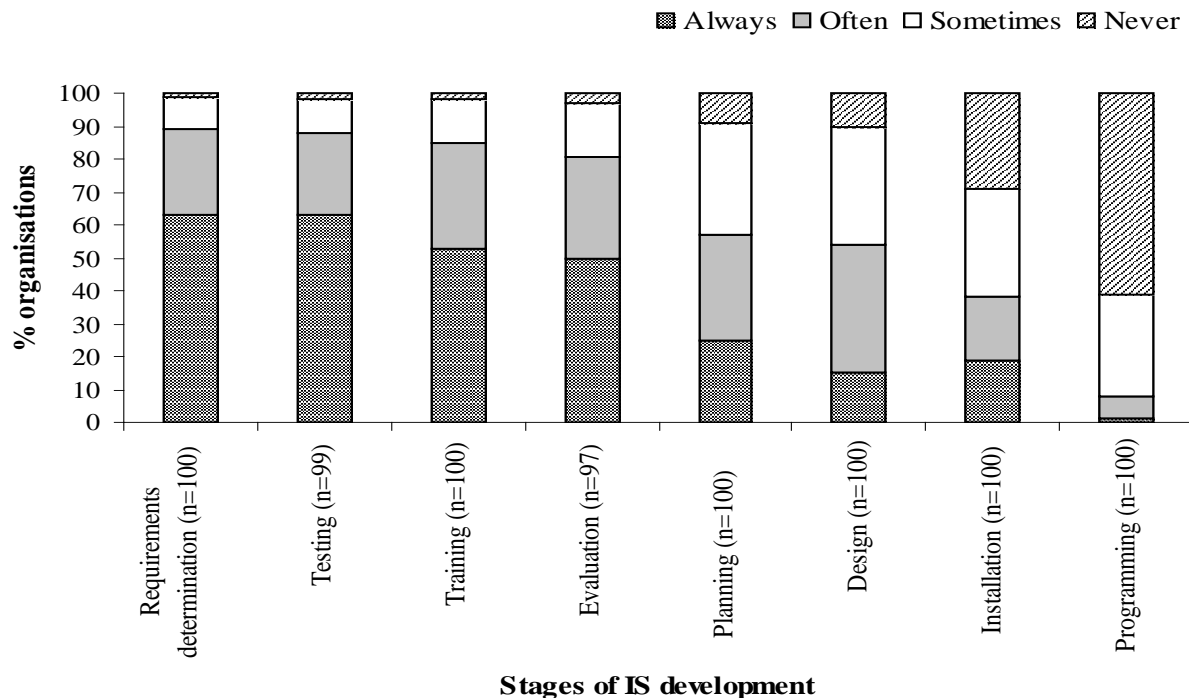
Seventy-seven percent of the organisations informally consulted users during development on a regular basis (often or always). Between 60% and 70% of the organisations regularly involved users in a formal advisory capacity and/or gave them sign-off responsibility at various stages in development. Users were regularly part of the development team in 48% of the organisations

and users regularly had full responsibility for development in 11% of the organisations. The proportion of organisations that always used a particular form of participation varied from 2%, where users always had full responsibility for development, to 34%, where users always had sign-off responsibility at various development stages.

It should be noted that the form of user participation within a given project or organisation does not necessarily bear any relationship to attaining the benefits of user participation. Within the IS literature, it is generally accepted that users need to perceive that their participation (or that of their representatives) is meaningful in order to realise such benefits (Butler & Fitzgerald, 2001; Cavaye, 1995; Hunton & Beeler, 1997; Lynch & Gregor, 2004; Markus & Mao, 2004; Saleem, 1996). While users are more likely to perceive that they have had greater influence where they have had full responsibility for development or been part of the development team, IS projects in which users are consulted and their input seriously considered can still achieve the benefits of user participation.

Respondents were asked to indicate how frequently users participated at different stages of IS development. The distribution of responses for this question is presented in Figure 2. Users most often participated in requirements determination, testing, training, and evaluation. The majority of organisations (between 80% and 90%) regularly (often or always) involved users in each of these phases of development. This is consistent with reported practice where, apart from the elicitation of requirements, users tend to be involved in the latter stages of IS development. Organisations less commonly involved

users in the planning, design or installation of IS projects. Just over half of the organisations regularly involved users in planning (57%) and design (54%). Fewer organisations (40%) regularly involved users in the installation of IS projects. As might be expected, only 8% of organisations regularly involved users in the programming for IS projects. These results are consistent with previous empirical IS literature (Butler & Fitzgerald, 2001; Cavaye, 1995; Foster & Franz, 1999; Heinbokel, et al., 1996; McKeen & Guimaraes, 1997; Wastell & Sewards, 1995).



**Figure 2:** User participation in various stages of IS development

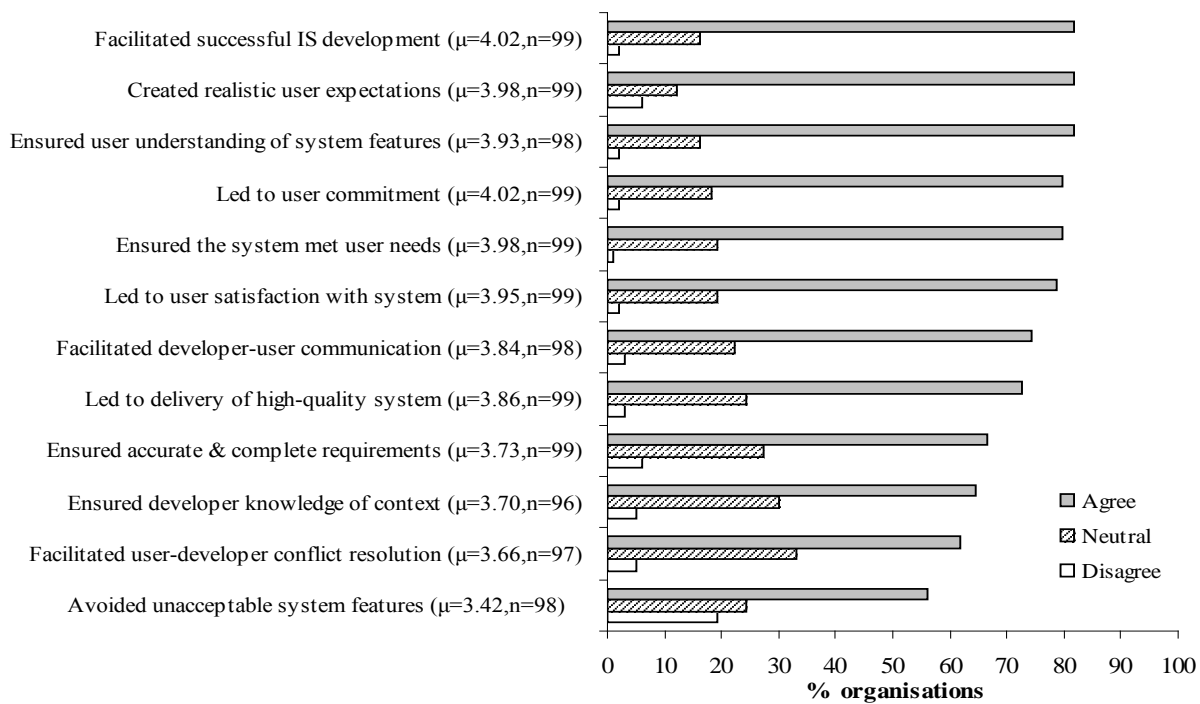
While Markus & Mao (2004) point out that in the modern IS development context users may also be involved in a wider variety of activities than previously, this was only found to be the case in two organisations in this study, where respondents specified that users often participated in either configuration or organisational change management.

#### 4.4 Benefits of User Participation

Respondents were asked to indicate their level of agreement with various positive statements about user participation in their IS projects undertaken over the three-year time frame. These statements are shown in Figure 3, in order of level of agreement. The mean ratings for all statements are above the neutral value of 3, implying that the respondents tended to agree with these benefits of user participation (the 5-point Likert scale labels were assigned a value from 1 to 5).

The majority of respondents (82%) agreed that user participation *facilitated successful IS development*. As one

respondent noted, “It is clear that the projects that had user participation ... from the start have been far more successful”. Meeting user expectations is perceived as an ongoing challenge by CIOs across New Zealand (Bhargava, 2006; Hind, 2002), and the next five highly ranked benefits of user participation focused on aspects of user acceptance of the developed system. These included *creating realistic user expectations of the IS*, *ensuring the developed system met user needs*, and *generating user commitment to and satisfaction with the system*. There was relatively less (although still high) support for the benefits of user participation in facilitating the process of IS development, such as by *facilitating effective communication* and *conflict resolution between developers and users*, *ensuring comprehensive user requirements* and *ensuring adequate developer knowledge of the IS context*. Overall, respondents were least convinced that user participation *avoided unacceptable or unnecessary system features*, although over half of the respondents (56%) still agreed with this statement.

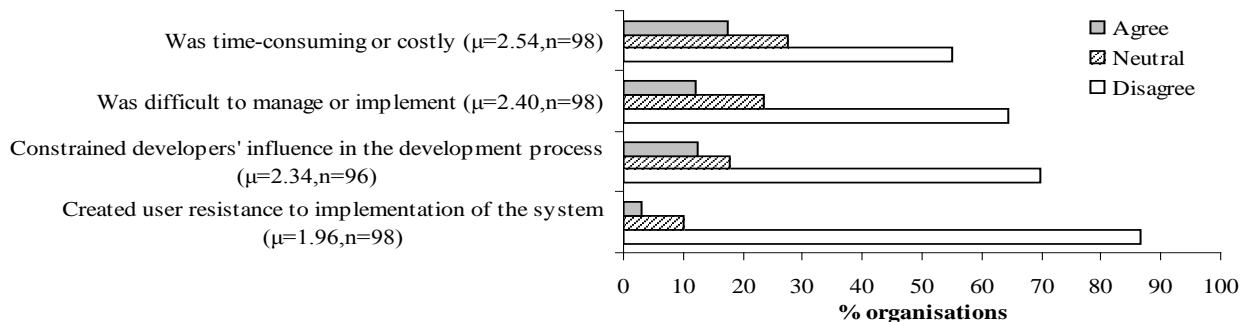


**Figure 3:** Relative agreement with positive statements about user participation

#### 4.5 Limitations of User Participation

Respondents were asked to indicate their level of agreement with various negative statements about user participation in their IS projects undertaken over the three-year time frame. These statements are shown in Figure 4, in order of level of agreement. The mean ratings

for all statements are below the neutral value of 3, implying that respondents tended to disagree with these negative statements about user participation in the projects reported on in this survey. This is consistent with the overall beneficial perception of user participation identified above.



**Figure 4:** Relative agreement with negative statements about user participation

Less than one in five respondents (17%) agreed with the statement that user participation in their projects *was time-consuming or costly*. In fact, over half the respondents (55%) disagreed with this statement. Similarly, only 12% of respondents agreed that user participation in their IS projects had been *difficult to manage or implement*. While some developers (or the IS function more generally) may endeavour to protect their interests in relation to IS development in a specific project, this was not regarded as an issue by most respondents in this survey, with only 12% agreeing that user participation in their IS projects *constrained developer influence in the development process*. Almost

no respondents (3%) considered that user participation in their IS projects actually *created user resistance*.

#### 4.6 Proposed Changes in User Participation

Respondents were asked to comment on anticipated changes to user participation in IS development in their organisations. Of the 66 responses to this question (Table 7), 44% indicated that there would be little or no change to the current level and form of user participation. Two respondents (3%) commented that there would be less user participation in future. One of these specifically commented on the need for the IS developers to have

“better veto rights on scope creep”. While scope creep might be a function of user participation, it is not necessarily so – it might suggest difficulties in project management rather than being a direct criticism of user participation. In contrast, just over half the respondents (53%) indicated that more user participation in IS development was expected to occur. Some of these respondents also provided information on envisaged changes to the form of participation. Analysis of these responses revealed a number of common themes (Table 7).

Seven respondents (11%) anticipated a significant change towards ownership of IS projects by users in their organisations. These respondents talked about users as increasingly becoming “owners”, “drivers” and “leaders” of IS development. The language they used included terms such as “influence” and “empowerment”. Business ownership of IS projects ties in with the increased alignment of IT with business reported earlier. Both of these seem to have been topics of discussion in the practitioner literature around the time that the survey was conducted (Bell, 2003). For example, Kumove (2003) argues that business owners should be held (at least jointly) accountable for IS projects, on the grounds that when IT is aligned with business, IS projects are the IS components of business projects. Such arguments also appear in the more recent practitioner literature (e.g. Bell, 2005; KPMG, 2005; Paredes, 2005). For example, Cramm (2005) argues that for IT to be viewed as a business enabler, the IT organisation needs to delegate to the business control over the “what” of IT (as compared to the “how”). By this, she includes deriving IT-enabled business strategies and plans, establishing priorities and service requirements, allocating funding and approving vendors.

<b>Changes in user participation</b>	<b>% organisations (n=66)</b>
Little or no change	44
Less user participation	3
More user participation	53
<b>Impact of Changes in user participation</b>	
Greater user ownership of projects	11
Creating more formal roles for users	6
Increased use of user knowledge	5
More development work by users	3
More controlled user participation	3

**Table 7:** Changes in user participation

Three respondents (5%) suggested that participation in IS development by users would increase due to the need to access their knowledge base. In one case, “this is because the nature of those projects demands extensive knowledge of detailed facets of the company's operating environment, and it will be necessary for us to tap into

that knowledge to gain not only a better functional outcome, but also to encourage ownership at the user level.” In another case, it is “critical, given that we don't have an internal IS development team to share and own some of the knowledge”. This latter comment suggests that if the outsourcing of IS development increases, users may become more involved in IS development because of the lack of institutional knowledge and memory among the external IS developers.

Four respondents (6%) talked about creating more clearly defined or formal roles for users in the development process, often including formal approval or sign-off of IS deliverables. Two respondents (3%) suggested that new development tools would allow users to do more development work, including customisation, themselves. Two other respondents (3%) wanted more user participation, but in a controlled way. In one case, apparently, “allowing users sign-off rights tends to slow things down too much”.

## 5. CONCLUSION

This study has provided an updated assessment of user participation in IS development based on empirical data from actual IS projects in New Zealand organisations. User participation was practiced to some extent by all organisations in the survey and in 92% of the reported projects. This level of user participation is higher than that previously reported by Kiely and Fitzgerald (2002). The most common reasons given by responding organisations for having users participate in their IS projects were organisational policy or historical practice (31%), fit with the characteristics of the project (27%), a requirement of their standard methods (19%), and the influence of users (18%). Almost all organisations (94%), had user representatives typically participating in IS development. The six organisations in which all users typically participated in the IS projects undertaken were relatively small and undertook relatively fewer projects.

While users were regularly part of the development team in just less than half (48%) of the responding organisations, the level of user-led development remains low, with users regularly having full responsibility for development in only 11% of the organisations, and 65% of the organisations never giving users full responsibility. In the majority of organisations users were regularly consulted, either informally or formally, and were regularly given sign-off responsibility at various development stages. Users most often participated in requirements determination, testing, training, or evaluation. Just over half of the organisations regularly involved users in planning and design. There was little evidence that the range of user activities was being extended in the modern IS development environment (Markus & Mao, 2004).

On the whole, it seems that the responding organisations that have users participate in IS development are confident of the benefits of doing so. Respondents perceived that user participation facilitated successful IS development in their IS projects, helped gain user acceptance of the developed system and assisted the development process. The results of this survey suggest

that for most organisations the time, financial resources or effort required for user participation (Cavaye, 1995; Ljung & Allwood, 1999) are generally accepted, rather than regarded as a negative consequence of user participation. Only a small proportion of respondents felt that user participation in their IS projects had been time-consuming or costly, or difficult to manage or implement. This was reinforced by the number of organisations intending to continue or increase their current levels of user participation in the future. As one respondent noted, "although participation could be seen as time consuming or costly, it is viewed within our organisation as a positive necessity".

While there is some indication in the IS literature that user participation may produce user resistance in individual IS projects, this would appear to be a rare occurrence based on the results of this survey. In fact, there was relatively strong agreement expressed by the survey respondents that user participation led to user satisfaction with and commitment to the systems developed. This would seem to support McKeen and Guimaraes' (1997) finding of a lack of evidence of dysfunctional effects of user participation. Interestingly, one respondent noted that, in his or her organisation, there was a need for "more acceptance by users that it [user participation] is beneficial". This comment is a timely reminder that users themselves may be reluctant to be involved or may be unconvinced of the value of their participation, and that managers and developers should not take the perceived benefits of user participation as self-evident for all stakeholders in the IS development process.

Overall, the results of this study provide continued evidence for the widespread acceptance of user participation in IS management practice. Despite opportunities to comment on less conventional forms of user participation, the survey respondents generally appeared to reproduce the institutionalised and rather simplified view of user participation discussed in the introduction to this paper. Consequently, more detailed and longitudinal research from a range of perspectives is necessary to explore the subtleties and complexities of user participation, in its various forms, as it is enacted in a changing IS development context (Markus & Mao, 2004). For example, the implications for user participation of increased ownership of IS projects by users, as noted in this survey, deserve closer attention.

## 6. ACKNOWLEDGEMENTS

We would like to thank all respondents to the survey reported in this paper. This research was funded through a Top Achiever Doctoral Scholarship by the Tertiary Education Commission of New Zealand.

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