UNIT 157 – UPSC - User involvement

User involvement in the field of information system development is usually considered as vital mechanism to enhance system quality and ensure successful system implementation. The importance of user orientation in innovation activities is emphasized in business filed as well as in political and societal discussions. In today's competed and changing market situations, effective way to support market success are innovations originating from the needs of the customers. If users involve into the system development cycle, they can give more information details. As Dodd & Carr (1994) specified users are often ancillaries in this development environment, whereas data services only develop the system in isolation. The effect of user participation on successful systems development has been the focus of attention for information systems researchers since last decades. It is recognized by management scholars that the process of involving users in the design of management information systems is time-consuming and costly and can politicize the issues surrounding the development of MIS. User involvement in information systems development efforts may instigated by assuming that such participation will offer valuable input to various technical decisions to be made. However, their participation may have a greater value because those decisions are more socio-technical than purely technical (Wang, Shih, Jiang and Klein, 2006).

A review of empirical studies on user involvement identified that it was a key variable. User Involvement (UI) "refers to a subjective psychological state of the individual and defined as the importance and personal relevance that users attach either to a particular system or to IS in general, depending on the user's focus" (Barki & Hartwick, 1989, pp. 59-60). The notion of user involvement in the development process had its origin in the period of 1970's. Initially the system researchers focused on "sociotechnical" systems that meant the joint optimization of both technical and social aspects of system design (Fitzgerald, 1997). In the information system, user involvement generally denoted to "participation in the system development process by potential users or representatives" (Barki and Hartwick, 1989).

Though, Barki & Hartwick (1989) suggested to define user involvement as a subjective psychological state that thought a user was involved when the user believes that the system was significant and personally pertinent. Generally, studies relate user involvement to system quality, system usage, user attitudes and user information satisfaction (i.e., the users' satisfaction with the information system and its outputs). According to Barki and Hartwick (1989), the term user

participation should be used "when referring to the behaviours and activities that the target users or their representatives perform in the systems development process. They further recommended that the term user involvement "should be used to refer to a subjective psychological state of the individual and defined as the importance and personal relevance that users attach either to a particular system or to IS in general". User involvement and user attitude are psychological aspects that are in the user's mind, while user participation is an "observable behaviour of users during the development process of a system" (Hwang & Thorn 1999). Lin and Shao (2000) described user involvement as "a psychological state reflecting the importance and personal relevance that a user attaches to a given system," user attitude as "an affective or evaluative judgment toward some object or behaviour," and user participation as "a behavioural construct (the degree of participative behaviours of users during the development process)" as opposed to the psychological constructs of user involvement and user attitudes. Cavaye (1995) explicated user participation as a "set of operations and activities performed by users during system development."

Theoretical models of user involvement

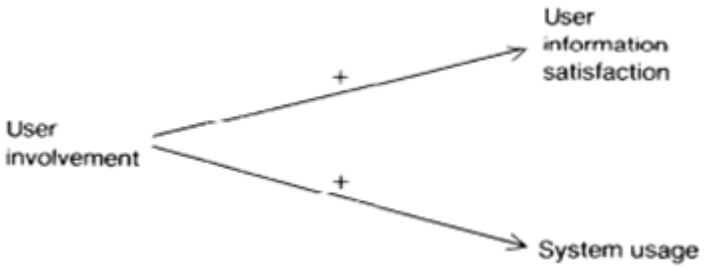
Research work on user involvement is typically based on the assumptions that user involvement in the design of an information system leads to increased system usage, more favourable perceptions of system quality, or greater user information satisfaction. Usually, these constructs are assumed to be indirect indicators of improved decision-making performance, which is the ultimate, but usually unmeasurable, goal of system implementation.

The Traditional Model: There are various models of user involvement and its impact on user information satisfaction and system usage which have been explicitly tested in previous research. The traditional model theorizes that user involvement leads to increases in both user information satisfaction and system usage. Apparently, involvement will lead users to develop good understanding of the system, and it will be better tailored to their specific needs. Therefore, they will be more motivated to use the system and be more gratified with it than if they had not been involved in its design. Several studies have explored the relation between user involvement and system usage. It has been found that there are mixed results regarding the relationship between user involvement and user information satisfaction. Several studies reported a significant positive relationship.

It is assumed that the user involvement will enhance system usage and user information satisfaction is consistent with the theories of participative decision making and planned organizational change. Ives and Olson debated that user involvement can be regarded as a special case of participative decision making; involvement may lead to improved system quality as well as increased user acceptance, reflected in increased use of satisfaction with the system. Involvement is seen as a necessary condition for decreasing resistance and increasing acceptance of planned change.

It can be supposed that the empirical evidence is diverse regarding the relationships between user involvement, system usage, and user information satisfaction. Nonetheless, the empirical support which has been found for these relationships is reliable with theories of participative decision making and organizational change.

Traditional model

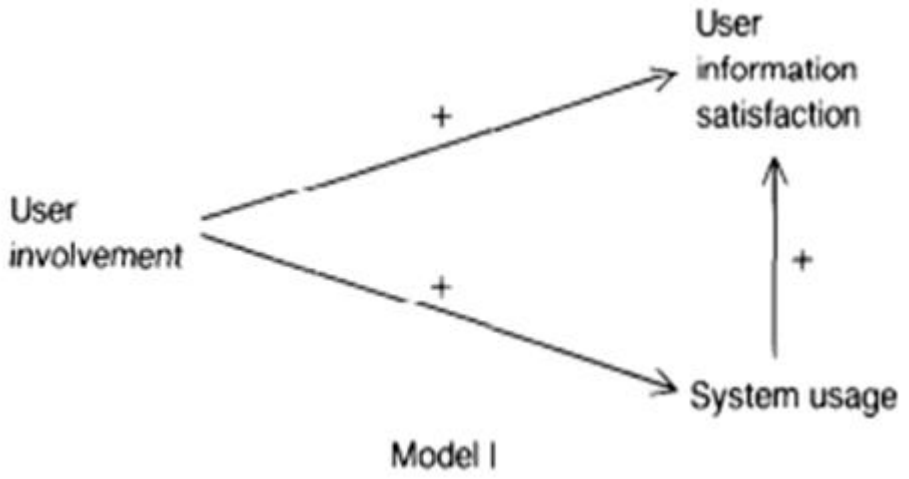


System Usage and Information Satisfaction

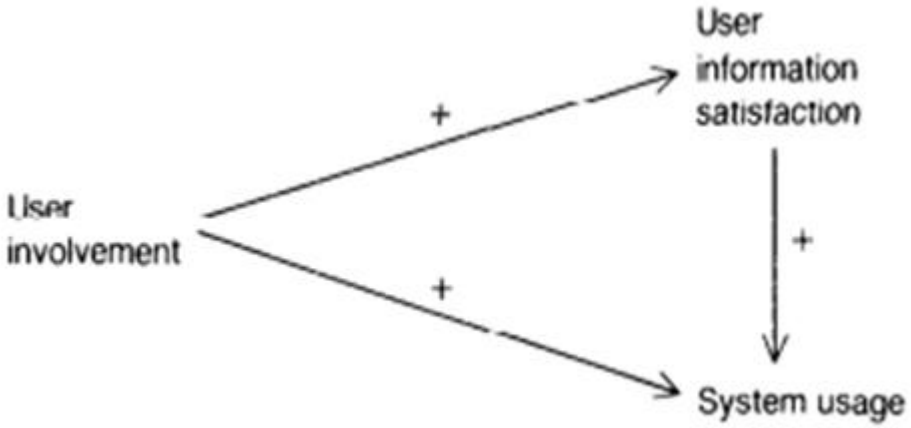
Though the theoretical literature is clear with regard to the causal relationship between user involvement, system usage, and user information satisfaction, it is silent regarding the causal relationship between system usage and user information satisfaction. Building on the traditional model of user involvement and its outcomes, two competing models of the relationship between system usage and user information satisfaction development. In both models, use of the system is expected to be voluntary. Model I conjectures that user involvement will lead to both system usage and user information fulfilment but as system usage increases it leads to improved user information satisfaction. This model is based on the conviction that system use leads users to be more acquainted with the system and to ascertain new uses for it which will, in turn, lead to enhanced user satisfaction with the system.

Model II suggests that user involvement will also lead to both system usage and user information satisfaction but that the more satisfied the user is with the system the more he or she will be inclined to use it. This model assumes that as use demonstrates that a system meets a user's needs, satisfaction with the system should increase, which should further lead to greater use of that system. Contrariwise, if system use does not fulfil the user's needs, satisfaction will not increase and further use will be evaded.

Alternate models:



Model I



Model II

The information system while system usage is a behaviour, theory associated with the relationships between attitudes and behaviours provides support for both models. Fishbein and Ajzen's model of attitudes and behaviours proposes that attitudes toward an object will influence intentions and ultimately influence behaviour with respect to that object (the use of the system or its outputs) (1975). This framework can be understood as supporting Model II that user information satisfaction (an attitude) will lead to system usage.

Significance of User Involvement

User involvement is an important aspect in the system development. Many methodologies concern with users in the development phases. It embodies the view of users, not systems analysts, programmers, or the data services organization (Dodd and Carr, 1994). It has several important aspects in information system development.

In the system development, especially in the initial (feasibility) study and design phases, system developers need to observe the existing problems and identify the requirements for the new system. Because usually except system developers who have worked in the current system for a long period, most developers are not familiar with the current system, they cannot have thorough understanding of the system environment. Subsequently if they want to understand the current

system, best way is to communicate with the end-users of the current system. Beyer and Holtzblatt (1995) claim that users are experts in their work and a thorough understanding of the requirements is reached only by promoting effective communication with them during the requirements definition process. It is obliging to establish a channel between the users and system developers for exchanging the information. However, because of limited fund and time requirements, it is incredible to involve all users in the process. So, system developers have to select users carefully aiming to get most valuable information.

Another importance of user involvement is that it can help the system developers to get fast and easy methodologies (Allen, Ballman, Begg, et al., 1993). It means system developers can assess and verify data from the secondary sources to recognise users' requirements, thus, system developers can apply more appropriate methodology. Additionally, user involvement can lead to the simpler methods to design and validate the system software functionality.

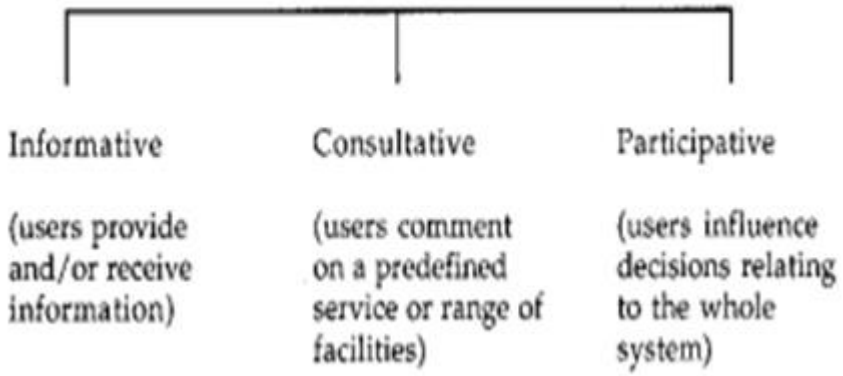
User involvement can offer the more reliable ways to organize features into menus and dialog boxes based on user data (Allen, Ballman, Begg, et al., 1993). In the earlier system development methodologies, system developers seldom to consider the users' working habits, when the new system is applied in the environment, end-users always have problem to manipulate although system developers believe the system is reliable and easy to use.

User involvement can reduce or even eliminate the clash between users and system developers in the system function views. By cooperating with users, system developers find data and information direct from the users; understand needs of the users and help users to have an initial understanding of the new system. After further negotiation with the users, system developers and users can get consensus on the new system.

Lastly, user involvement allows the system developers to know and understand the user's lexicon so the system developers can communicate using the same language (Allen, Ballman, Begg, et al., 1993). For system developers, especially those who are outside the system environment, they do not have experience of current system. However users can be considered as the experts of the current system environment, so developers can know ordinary language used in the environment from users. If system developers can use the same "language" to communicate with the users, system development efficiency can be sped up.

Major issues of user involvement: There are many issues associated with user involvement: Context of user involvement: Since last decades, it has been observed that many information technology (IT) systems have unsuccessful to deliver the benefits expected by the users. Insufficient involvement of users in the design process is cited as a major factor contributing to this underperformance between expectation and reality. All approaches to system design involve users in the design process. The difference between the various approaches lies in the degree to which users are able to influence the system design. In these methodologies users make a considerable contribution to the project but often do not influence key decisions. The danger remains that the eventual IT development will fail to reflect passably real human and organizational needs. Dissatisfaction and two decades of experience of IT failing to deliver the

expected rewards have led to increasing attempts to involve users in a more influence role.



Benefits and pitfalls of user involvement

It has been found in numerous studies that effective involvement in system design produces the following benefits (Robey and Farrow, 1982):

1. Improved quality of the system arising from more accurate user requirements.
2. Avoiding costly system features that the user did not want or cannot use.
3. Improved levels of acceptance of the system.
4. Greater understanding of the system by the user resulting in more effective use.
5. Increased participation in decision-making in the organization.

Evidence showed that that to contribute in organizational decision making is inadequate by itself to accomplish successful IT systems. The quality and experience of the participation are vital determinants of the eventual performance of IT. Hirschheim (1983) observed that the term participation had a variety of meanings across the organizations sampled. He found that the term was used to define everything from merely informing the workforce about a proposed IT project to genuine user-led design. A similar finding was made by Levie and Moore (1984) in an international study of workers and new technology, where despite legislation, the practice of involvement was far from the ideal that one would like to see in effective involvement.

Merits and demerits of user involvement:

Advantages	Disadvantages
Involving beneficiaries empower them	People may not wish to be involved
People are given opportunity to learn new skills and build confidence.	Researchers have to adopt a different role that of supporting rather than doing.
People are exposed to new experiences and opportunities.	Expectations of beneficiaries may be raised only to lead disappointment, for instance if their views are not heard and actioned.
Shapes research according to needs and views of beneficiaries.	There may be conflict between what is expected by research community and that which is

	delivered to users - For instance what is deemed scientifically respectable.
Users can monitor progress of the research, address problems, and provide useful feedback.	A lot of time and commitment can be required to involve users.
Help projects to get better insights into their experience -useful when the project team is considering the potential impacts of approaches and techniques on beneficiaries.	

Factors promoting User Involvement

A focus on users' priorities: Change happened in organisations which not only stimulated users to participate in discussions and decisions, but focused on the issues they recognised as important. This focus operated at three levels; thinking about users as a stakeholder group, opening channels of communication, and enabling users to use those channels to communicate their priorities and concerns.

The role of leaders: The commitment of leaders was significant. 'Leaders' included chief executives, user representatives, trustees and middle managers. Change occurred where leaders gave a strong enough sense of direction whilst allowing sufficient opportunity for change. Effective leaders negotiated the ideologies of user involvement and enabled others to translate them into actions.

Clear statements about involvement helped start discussions or provided a standard against which progress could be measured. Major dimension to vision and commitment was clearness about who the organisation was for and therefore who it was trying to involve. Some companies had only one category of service user. For others this was not a straightforward issue.

People in leadership roles who accepted a facilitative rather than a controlling style created the conditions for others to develop and implement change. Some of these leadership roles were formal positions in the management structure or part of a user group structure. Others were informally leading by promoting user involvement amongst users or staff. More user-centred activity occurred where leaders:

i. Were committed to making their organisation more user-centred
ii. Had a broad vision of what a user-centred organisation would look like
iii. Created space for users and staff to debate user involvement and to develop and try out ideas
iv. Asked for and listened to a full range of views
v. Encouraged and supported users and staff
vi. Allocated resources for user involvement
vii. Educated from and with others
viii. Took risks
ix. Balanced getting involved and standing back to get an overview
x. Stepped aside to make space for individual users and user groups

Quality of dialogue: It has been observed that effective communication is two-way communication between users and decision-makers which helps users and promotes change in organisations. An importance on dialogue emphasised that the views of both parties were equally valid. Many users' relationships with managers were characterised by a 'them and us' divide. Disparities in knowledge, resources and power were undeniable but conscious efforts to put these on one side to enable an honest exchange of views were vital for enabling change.

Presence of users: The presence of users in meeting or simply through their use of a service did not essentially mean that they were involved in or influential in what was going on. However, maximising the presence of users in various settings both enabled organisations to change and represented a significant change in itself for some. The presence of users within a range of organisational actions had possible impacts on four levels:

1. To influence formal decision-making.
2. Demonstrating users' interest in getting involved.
3. Opportunities to become part of networks of users and others.
4. Opportunities to learn about each other's experiences and priorities.

Some users realized that involvement was about influencing services to accomplish improvement for all users. They wanted to be involved in activities such as meetings or responding to documents. Others did not expect to become involved beyond their individual use of services even though they might have strong views about them, both positive and negative.

Users valued meetings with staff as an opportunity to make expansion of user involvement user-centred. There was a value for many participants in spending time together. Sometimes the atmosphere is argumentative and users critiqued managers and demanded changes. On other junctures there is an atmosphere of harmony and contributors worked together with equal opportunities to influence decisions.

In small companies, managers as well as front-line staff often knew about the day-to-day experiences of users. This information could be used in service development decisions although other factors could interfere such as restrictions on the use of funds.

Resources: Allocation of human and financial resources permitted change but had to be suitably applied to increase user involvement. A specific budget for user involvement activity clearly enabled change. Sometimes, though, the allocation of money also demonstrated a perceptible commitment to user involvement, beyond its practical use. Although money was important, staff time was key. Specialist posts or designated parts of job descriptions that focused on user involvement did give motivation to communication with users. However, the question of how much time all managers and front-line staff spent getting user feedback and getting people involved was main determinant of the breadth and depth of change.

Policy and funding context: Strategies on user involvement from central and local government and purchasing and funding bodies had represented as a control for change in organisations. Internal responses to changes in the external environment varied depending on; the organisation's stage of development of user involvement, the intentions of the external agency, and the degree of commitment to user-centred user involvement on both sides. External pressure to demonstrate

user involvement led to some tokenistic responses, for example, in one organisation the trustees rapidly agreed a user involvement policy to satisfy a requirement set by a funder.

External support and scrutiny: Involving external investigators and consultants added incentive to the processes of change. External support for user involvement also came from the user movement. Few of the users who contributed in the action research were powerfully connected to independent user organisations. This meant that they lacked external reference points for their own experiences and expectations of involvement. Voluntary organisations, especially in area where user involvement was a contemporary issue, appeared to compete with each other to demonstrate their legitimacy as contributors to policy debates and also with funders who had user involvement as one of their criteria.

Equality of opportunity: The overall change in one organisation established that equality of opportunity could be realised for users at all levels of the organisation. For example, an active user group and the chief executive shared a vision of the organisation moving towards becoming 'user-led'. Part of being user-led meant that a majority of the trustees on the governing body should be either service users or people from the organisation's constituency of intended beneficiaries. The vision also included the supposition that every position, paid and voluntary, could be held by someone who was a service user and otherwise suitably qualified. This approach had the effect of raising expectations of potential candidates and gave out a clear message to everyone in the organisation that the contribution of service users was needed and expected in all roles.

Continuous monitoring and evaluation: Where members in organisations constantly monitored and evaluated their policy and practice in relation to user involvement this supported the implementation of change. By frequently asking themselves and others what worked well and why, users and managers developed systems of continuous feedback which enabled them to learn and adapt.

Barriers to implementing change: Most of the organisations have positive intentions and practical plans for increasing user involvement. But, progress does not always go according to plan. Implementing change may be problematic or slower than expected.

Fragmentation: Even a strong commitment to user involvement in one part of an organisation was often destabilised by a fragmented structure or approach. Most of the successful, national organisations were incapable wholly to co-ordinate user involvement or to develop an overview which could be used to plan a strategy for change. The fragmentation of user involvement policy and practice was affected by a number of factors:

1. Diversity of activities
2. More than one group of users
3. Complex committee and staffing structures
4. Diversity of priorities, structures, size between regions
5. Disagreement over the meaning of 'user involvement' and whether it included community involvement.

The role of leaders: In most organisations, there was not clear difference between leaders with controlling or facilitative styles. Most individuals used both styles but had a predominant way of working. However, a controlling style of leadership could be obvious even in situations where the

goals and intentions of all the participants, including the leaders, were strongly in favour of increased user involvement. These leaders, who could be professionals or occasionally users, had many abilities such as, a commitment to increasing user involvement and an abundance of ideas and energy. However, these qualities were a tendency to retain most of the control over decisions on user involvement.

Glass ceilings: In few companies, service users were not present above a certain level of seniority in democratic membership structures and in senior management. For example, users could be on some sub-committees, but not on the board of trustees. In some cases, involvement was restricted to periodic consultation about services. Elsewhere, users worked as volunteers assisting paid staff but there is no expectation that they might become employees themselves.

Fashion and rhetoric: Some user involvement initiatives seemed to be more about image than substance.

Involvement of the few: The involvement of a small proportion of service users could present an obstacle to others getting involved. This pattern occurred to different extents in each organisation. Some users were perceived to be unconcerned by staff or actively involved users but might, with the right opening, have spoken up and got involved. This perception of apathy was often based on the experience of trying to get people involved in conventional approaches.

Staff turnover: Three aspects of staff turnover impact user involvement.

1. The departure of staff with specific responsibility for user involvement.
2. Turnover of staff in small teams or in smaller organisations took up considerable staff time both covering for vacancies and in recruitment, selection and induction.
3. Continuity of relationships between staff and service users was crucial. In some organisations support staff acted as advocates, interpreters and facilitators roles that require a good relationships built up over time to be effective.

To summarize, user involvement in the arena of information systems, defined as participation in the systems development process by probable users of their representatives and is measured as a set of behaviours or activities that such individuals perform. The involvement of system users is visualized as a critical success factor in information systems development (Ives & Olsen, 1984). Though some experts view user involvement can be challenging while information systems professionals observe users as incapable to make up their minds and an unnecessary complication to the real processes of design (Oliver and Langford, 1987), and so eliminate users from decision-making wherever possible. Beath and Orlikowski (1994) observed contradiction between the recommendation for "strong user involvement" in a particular development methodology and the degree to which users could be expected to be true co-agents with IS professionals. Some researchers have suggested alternative methodologies which facilitates more significant user involvement in commercial IS development and only part of a methodology may be used (Mumford and Henshall, 1983). Expressive user involvement in systems development and an overall user orientation is critical to the success of any development project. User involvement plays as significant role in management information.