

Flexible and Adaptable Use of Computer Based Systems

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Abstract

Tailoring could be seen as the ultimate kind of participatory design in the sense of rather bringing the user into the design process, tailoring brings the designer into the use process. Since design need to address both technical and organizational issues, it becomes important to understand how the flexibility of technology, work organization, and physical space - in a co-adaptive fashion - mutually support and inhibit each other.

Keywords: Tailoring, co-adaptive, flexibility, integrated approach, organization change.

Introduction

Computer technology is generally considered to be a flexible technology. This may be true from a technical point of view, since the same hardware and basic software may implement a vast array of applications. But if you look at the technology from the users' situation the picture is quite different - poor fit between technology and work is rather common. Also it is becoming generally acknowledged that as systems start being used, new requirements arise. Tailorable, flexible or adaptable software is by many seen as an essential part of handling such problems.

Tailoring could be seen as the ultimate kind of participatory design, in the sense that the end-user him-/herself plays a crucial role in (re-)design. Rather than, as in conventional participatory design, to bring the user into the design process, tailoring brings the designer into the use process.

Since design need to address both technical and organizational issues, a crucial part of the daily use include the ongoing re-design or co-adaptation of technology, work environment in general, and work procedures. In this perspective it becomes important to understand how the flexibility of technology, work organization, and physical space - in a co-adaptive fashion - mutually support and inhibit each other; and, to understand the implications for the role of users and professional designers.

Hans Doorewaard/Trond Knudsen: Technology and Organization: An Integrated approach.

Analysis and development of computer based systems tend to go on within a frame where behavioural, social, organizational and cultural aspects are treated as secondary to technical aspects and thus heavily underestimated in the change process. In other words - technological change is often based on an almost one-dimensional or technocratic base.

Another main problem is the lack of participation of significant groups influenced by the change process. This could be certain groups of employees, management,

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work councils, unions. Such exclusion inevitably leads to a bias in the change process that often creates serious disadvantages for the 'powerless' groups. The question of unbalanced power or influence is not only a threat to democracy as a value of working life, but also represents a lowered efficiency of the organization as important knowledge is not taken into consideration in the change process. The result is a lack of optimal quality in the information technology tools in the organization.

There is a strongly felt need of an integrated approach of development and implementation of information technology in which the design processes should not be dominated by a technocratic framework, but where technological aspects should be incorporated in an analysis of the organization included the work processes and change processes. The redesigning of technology in an organization is a mutual and interrelated process too complex to be sufficiently treated by traditional system development methodologies and tools.

In an integrated approach there is a need for methods and tools which pay special attention to participation of individuals and groups with different relation to the change process, with different competence, power base and roles. Many parties, such as indirect users, users with positions and skills that differ from the formal user representatives, users' clients, management of departments that will be indirectly influenced have traditionally been left out or only been partly involved in system development projects. Our comprehensive approach puts high demands upon participation of these parties in the process of organizational change. Here, experience, various skills including tacit knowledge, and a widened scope is necessary to achieve success in the broad sense.

We want to broaden the scope beyond the traditional limited roles of "users", "developers" (and initiators). Tailorability for The End User is one thing, but how does this afflicts other groups in the organization? To our point of view, making new systems has an important technical part, but the change process is a process of changing labour process and organizations.

Joan Greenbaum/Arne Kjør: Participation in Designing for Flexibility

The words »tailorability«, »adaptability«, »customization« and »flexibility« have been used so much in system development literature that it is almost impossible to clarify their meaning. Coming after a period where standardized applications have proven to be too inflexible to bend to differing work practices, the choice and emphasis on these words is not surprising. Clearly there is a need for systems to adapt to changing work environments, and for those responsible for the design of computer systems to better understand how this takes place. But the degree of flexibility – that is adaptation to organizational and technical changes – varies enormously over time, and we should be cautious of systems that claim that they are easily customized or flexible to different work places. Particularly in the

context of differing European laws, customs and work practices, one should be sceptical of systems that promise open-ended flexibility. Our focus is rooted in the idea that an integrated system design includes more than design of a computer system and a set of organizational procedures for using and adapting the system.

In the panel discussion we will lay out a framework for viewing system flexibility which is broader than the traditional use of the term, and which offers possibilities for rethinking the debates surrounding the idea of tailoring or changing systems to adapt to different workplace practices. This broader view include seeing the computer system as part of the working situation as a whole, that is the intersection of the way work activities are carried out, the way people and equipment are used in physical space, the way work is organized, and last but not least the technical artifacts that we use to support the work to be done.

Further we will discuss different consequences of this view of the design process on the issue of participation.

Wendy Mackay: Customizing user group interfaces

Several studies of customization have identified a group member ('translator') who acts as the centre for customization activity. These people interpret the technology so as to support the work practices of their groups. Translators not only contribute their own innovations, but also seek and distribute innovations made by others. When successful, these systems evolve in response to the group as a whole rather than in response to preferences of a few individuals: the result is a customized user group interface.

Successful support of this process requires changes in the technology, the organization, and the development process. The technology should provide the translator with support for capture, modification and distribution of successful user group work practices. The organization should provide both technical and social support for translator-initiated customization and sharing across groups. Finally, software developers should recognize the value of field-tested user innovations and incorporate them as an integral part of the software development cycle.