

„Being There, Doing IT“: from User-centred to User-led Development

Alexander Voß, Rob Procter, Robin Williams
University of Edinburgh

Research from such fields as human-computer interaction, participatory design and computer supported collaborative work has acknowledged the importance of actual working practice for the development and operation of information systems. Consequently, a number of approaches have been developed to make the systems development process more “*user-centred*”. However, such attempts have been limited to “*informing prior design*”, that is, they have tried to put more knowledge about the context of use into the artefact. The division between design and use and between “designer” and “user” of information systems has not changed and so the fundamental asymmetries that underlie systems development in terms of expertise and control remain unaddressed. The basic model of innovation remains a linear one of diffusion from inception to use.

Experience from the study of science and technology points to the need to see technological development as involving non-linear processes of negotiation between diverse players that are influenced not only by technical issues but also by social circumstances (Williams and Edge 1996). Artefacts (e.g. information systems) are not generally stable but evolve over time, to some extent in their physical form (or logical configuration) and to a great degree in their meaning within a context of use. Requirements do not exist as an objective given that may be readily captured, but are the result of processes of negotiation, experience with existing practices and artefacts, as well as visions of future practices and artefacts. Processes of *social learning* lead to innovations *after* the initial design and implementation of an artefact as people attribute meaning to it within the context of use, “*domesticating*” the artefact. Also, changes to the artefact itself or the social organisation around it may be taken up in other contexts, a process that James Fleck has called *innofusion* (from “innovation” and “diffusion”, Fleck 1993).

Thus, it may be argued, approaches that focus on the initial stages of development miss the point. There is a sizeable amount of literature that discusses the problems of “bringing the users’ views into design” (see e.g. Axtell et al. 1997). Such problems are hardly surprising if we accept that users’ views evolve as they try to make IT systems work in their particular context of activity. An artefact that stands outside the context of use simply has no *meaning* within the context of use and thus users find it difficult to speak about it. If we want to close the gap between designer and user, between design and use, we have to make the development process itself meaningful in the context of use and vice versa. IT systems developers have to become part of the *working culture* that they are developing systems for and their work has to be part of the overall working practice in that context. Such a reconceptualisation of development work opens up the possibility of long-term cooperation between IT-professionals and other professionals.

Traditionally, users were confronted with the *make-or-buy* alternative (Brady and Williams 1992) of either creating their own applications software or buying a packaged solution. Today, new *pick-n-mix* approaches to technology supply emerge as users combine readily available *standard components* to match their needs. With the right combination of component technologies and social organisation (esp. on-site cooperation with IT professionals), development can take on the character of “*bricolage*” (Buscher et al. 1996), developing systems *bottom-up* instead of top-down. Users are able to play a more direct role in the development of their information

systems, exploiting opportunities for social learning as ideas, experiences, and innovations are shared between individuals and groups. A match between needs and functionality is achieved as *design in use* (Greenbaum and Kyng 1991) becomes a reality. Such a scenario describes a development process that is *user-led* rather than merely user-centred.

Two projects are currently under way at the University of Edinburgh (Voß et al. 2000; Hartswood et al. 2000) that aim to explore the viability of such user-led development processes in the context of large organisations. Setting up user-led development projects with researchers acting as facilitators (and thus participant observers) in a hospital department and in a plant manufacturing diesel engines, we hope to capture some of the social and technical factors that facilitate or hinder such processes. One important issue is the importance that user-led development be kept in alignment with the broader, *strategic concerns* of IT services management. In studies in the financial sector, Procter et al. (1996) observed the emergence of new, specialist groups within IT departments working closely with users and acting simultaneously as *facilitators* and *gatekeepers* of technical change. The current projects will investigate whether such models for the *management of user-led development* are transferable to different organisational contexts. In particular, we are interested in the effects that different needs for *security* (medical records) and *dependability* (production) have.

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Adressen der Autoren

Alexander Voß
 Buschweg 35
 51519 Odenthal