Usability and the changing producer-user relationship

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New forms of production call for new forms of design work. For the elaboration of the idea of *cultural usability* we have to analyze the ongoing qualitative changes in value creation, that is, products, production and producer-user relationships. The model of the historical forms of production presented by Bart Victor and Andrew Boynton (1998) gives a good starting point for such an analysis.

Victor and Boynton have identified five successive historical types of production each having its own peculiar type of product, producer-user relationship and form of production (Figure 1).

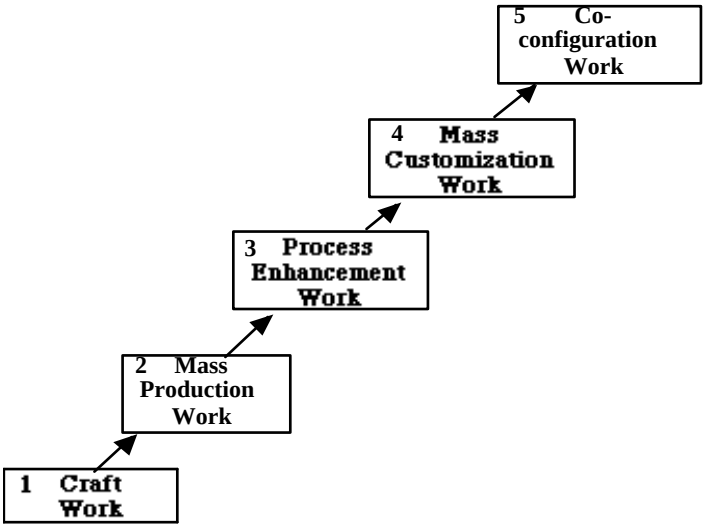

Figure 1. Historical forms of production

While much of design work still is about creating standardized mass products or modular product systems for mass customization, the qualitatively new challenges for developing design practices are probably related to co-configuration production.

The concept of *value star* presented by Solveig Wikström and Richard Normann (1994) is a good visualization of this form of production. According to them, value is increasingly created, not in a chain of successive phases of working up material, but in interaction of a number of organizations representing different specialities. In this interaction, emergent new solutions are created by combining the expertise and resources of the co-operating parties. Four features are salient in this new form of production:

1. The ”product” is a combination of technologies, expertise and resources of several independent actors.

2. The ”product” is under constant co-operative reconfiguration as the co-operating parties create new knowledge.

3. The ”product” and its use involve a redistribution of tasks between the co-operating parties and a change of their mutual division of labor.

4. The ”product” increasingly assumess a role of a boundary object between the cooperating parties functioning as a basis for coordination without any coordinating center. The cooperation takes the form of problem oriented knotworking (Engeström et al., 1999) in which various specialists of the cooperating parties meet to solve a problem or to create new solutions to emerging needs.

The research in the Center of Activity Theory and Developmental Work Research has produced three general observation and concepts that seem pertinent to the producer-user relationships and design practices in this kind of production.

1. The importance of mastering object-tool shifts

Mervi Hasu (2000) observed in her study of the implementation of a high-tech measurement instrument, how it was difficult the designers, to whom the instrument was the object of their work, to shift perspective and to see he instrument as a tool in the practitioners’ work activity. She also noticed that , in the implementation, the new instrument that was supposed to be a tool for dealing with the object of the practitioners' activity, became repeatedly the object of their activity. Hasu concludes that in order to make a new complicated artifact into a tool in an activity, the practitioners and the designers have to learn to master cooperatively the shifting of the artifact from tool to object of development and back. The repeated shift from tool to object and back seems also to be an essential aspect of the open-source software development as exemplified by the Linux operating system, in which the users develop the system that they use as their tool.

2. The ”instrumentability” of a software product

Kimmo Keskitalo has analyzed the implementation of a maintenance work-planning software in an electric power company that runs several power plants. The software is based on the idea of centralized maintenance and team work that differs fundamentally from the existing system. In order to take full advantage of the functionalities of he new system, major qualitative transformations in the work practice are needed. In each phase of the transformation, the practitioners have to find a new way of using the system as an instrument in their activity. Compared to the traditional concept of usability of the system which takes the way of using the system as self evident and given, we could here speak of the ”instrumentability” of the system, the qualities and elements in the system that help the practitioners make the system into a functioning instrument in their activity in the successive phases of the transformation of the activity. We could think of instrumentability as a quality of the system supporting the shifting of the system from tool to object and back.

3. The emergence of usability as a function of an ensemble of technologies

The concept of usability is problematic because it projects the qualities of an activity system into one of its components, a tool. A pivotal feature in the new technology is that it opens up new possibilities, which, however, often can only be comprehended and understood in connection with an expansive transition of existing activity systems. In such a transformation a new object and motive for the activity, new cooperative relations and new subject positions and roles for the actors are created. In such a transformation the usability of an instrument, as Sampsa Hyysalo has noted in his research on the design of medical instruments, can only be analyzed when the new artifact has been integrated in a an ensemble of technologies used in the emerging new form of the activity.

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