ABSTRACT

The development of interactive products in industry is an activity involving different disciplines – such as different kinds of designers, engineers, marketers and managers – in which prototypes play an important role. On the one hand, prototypes can be powerful boundary objects and an effective way to share ideas, collaborate and communicate across functional boundaries within an organization, but on the other hand the (lack of) ownership of prototypes also plays an important role in the politics and power-relations within an organization. The developers of the interactive prototype, e.g. interaction designers, are in a position to design it in a way that enables and encourages different stakeholders to take ownership over it.

This dissertation consists of a collection of five papers in which I introduce a collaborative approach to prototyping, and describe how designers can design prototypes that invite the participation of different stakeholders based on my involvement in the development process of an interactive product in industry. I demonstrate that involving non-designers in the making and shaping of the prototype enables them to take active part in the reflective learning process of prototyping, and develop a sense of ownership over the prototype. This has several benefits for the interaction designer. Since participants learn about the design space and limitations of the prototype, they are able to give specific feedback and input, which the interaction designer can implement. Moreover, because this input comes at a time when the prototype is still flexible, the interaction designer can immediately implement changes, evaluate and (dis)agree upon them with the participants; in this way potential misunderstandings can be quickly discovered and addressed. Finally, because the prototype is no longer 'owned' by the interaction designer alone, but rather is a shared resource, the interaction designer does not have to sell or defend it in the organization.

Taking this approach means that the interaction designer should consider who will be the (internal) users of the prototype, e.g. other developers, and design it accordingly. Designing a flexible prototype in combination with *supportive tools* to be used by both interaction designers and non-designers during development is introduced as a way to open up the prototyping process to these users. Furthermore I demonstrate how such a flexible prototype can be staged as a *live prototype* in collaborative prototyping workshops to both make and evaluate it with internal and external stakeholders, which effectively turns the prototype into a *platform for participation*.

Overall, this work contributes to the interaction design research literature on prototyping, by bringing to attention that the prototype itself is an object of design, with its users and use context, which deserves further attention. Moreover, in this work I present concrete tools and methods that can be used by interaction designers in practice. As such this work addresses both interaction design practitioners and academics interested in the role of prototypes in the development of new products.