

FINDING USES FOR NEW TECHNOLOGY

Moving with a Magic Thing BY ANU KANKAINEN

Even if we user experience professionals would like to think that new product development is always user-pushed, we have to admit that technology can sometimes be the main driver. Some of the greatest innovations have been technology-pushed. For example, Gore-Tex, the basis of dozens of products, including fabric for outerwear and dental floss, was a technology-pushed innovation.

Another is the short text messaging system (SMS) used widely in mobile communication throughout the world. However, SMS markets might have been discovered sooner if qualitative user research using the methods such as those described in this article had been conducted.

The Method

When developing technology-pushed products, the company begins with a new proprietary

technology and looks for an appropriate market in which to apply this technology. Qualitative user research can provide data that can help find these markets. We use a method called "moving with a magic thing" when our clients look for applications for new mobile technologies. The method was originally developed by Giulio Jacucci at the Helsinki University of Technology, but we have fine-tuned it and applied to fit our client projects.

"Moving with a magic thing" is a field

method. Users are met in their environment and given a "black box" or a mock-up of a mobile device. They are told what functionality the device has and are asked to go about their life as they would normally do. However, they are also asked to think aloud and show what they would like the magic device to do for them as part of their daily activities. Every time the users come up with an idea to use "the magic thing," the UX specialist takes a picture of them using the mock-up and asks a few follow-up questions about the discovered use case.

Since observing is time consuming and people can be uncomfortable when observed for a few days in a row, we can also use a "moving with a magic thing" photo diary as a method to collect more use scenarios. After the initial observation day where the users are being accompanied by a UX specialist, they seem to understand the idea behind the method quite well, based

User photo and description [this first part of the table is used to describe the user: demographics and personal interests]				
Use scenario number	Importance for the user (scale 1-5)	Frequency (daily, weekly, monthly)	Picture	Use scenario
#1 [Method: observation or photo diary]	[How important to the user is it to have this function, on a scale from 1 (not important at all) to 5 (very important)?]	[How often would the user use this function if he/she had it on their mobile device?]	[Insert picture of user acting this use case]	<p>Why: [What is the motivation for the action described in this use case?]</p> <p>Where, with whom and when: [Where is the user when performing the action and with whom?]</p> <p>What: [What does the user want to do with the mobile product?]</p> <p>Outcome: [By performing this action, how does the user react, what occurs immediately, and what does the user do next?]</p>

Table 1. Template to report use scenarios resulting from the "moving with magic thing" study.

on our experience. They are given a digital camera for a week and asked to take pictures of the situations where they would use “the magic thing.” At the end of the week, users are interviewed based on the photos they have taken.

This method results in high-level “use scenarios” that do not come from brainstorming activities conducted in a meeting room but are based on user observations in real contexts. We have created a template to report the use scenarios discovered in the study (Table 1). Having a template is essential for consistency purposes, especially when conducting similar studies across countries and with several different UX teams.

The use scenarios are analyzed and the client gets insights into what kinds of users might need the new mobile product and for what purposes they might use the product. Also, the importance and frequency of the use scenarios can help choose appropriate markets for technology-pushed mobile products (see example in Table 2).

The Theory behind the Method

The reporting template (Tables 1 and 2) that we use for documenting “moving with a magic thing” studies uses concepts from a theory explaining user experience. According to this model, user experience is defined as a motivated action in a certain context. Moreover, the

user’s expectations and previous experiences influence his or her present experience.

By using the reporting template, the UX experts who conduct “moving with a magic thing” studies can report the motivation (why the user interacts with the technology and what she wants to be the result of interaction), the action (what she wants to do with the technology), and context (where, with whom, and when she is when interacting with the technology). Moreover, the experts include photos to help the reader empathize with the user and better understand the context in which the interaction occurs.

The “action” concept in the UX model can be explained on two levels: what and how.



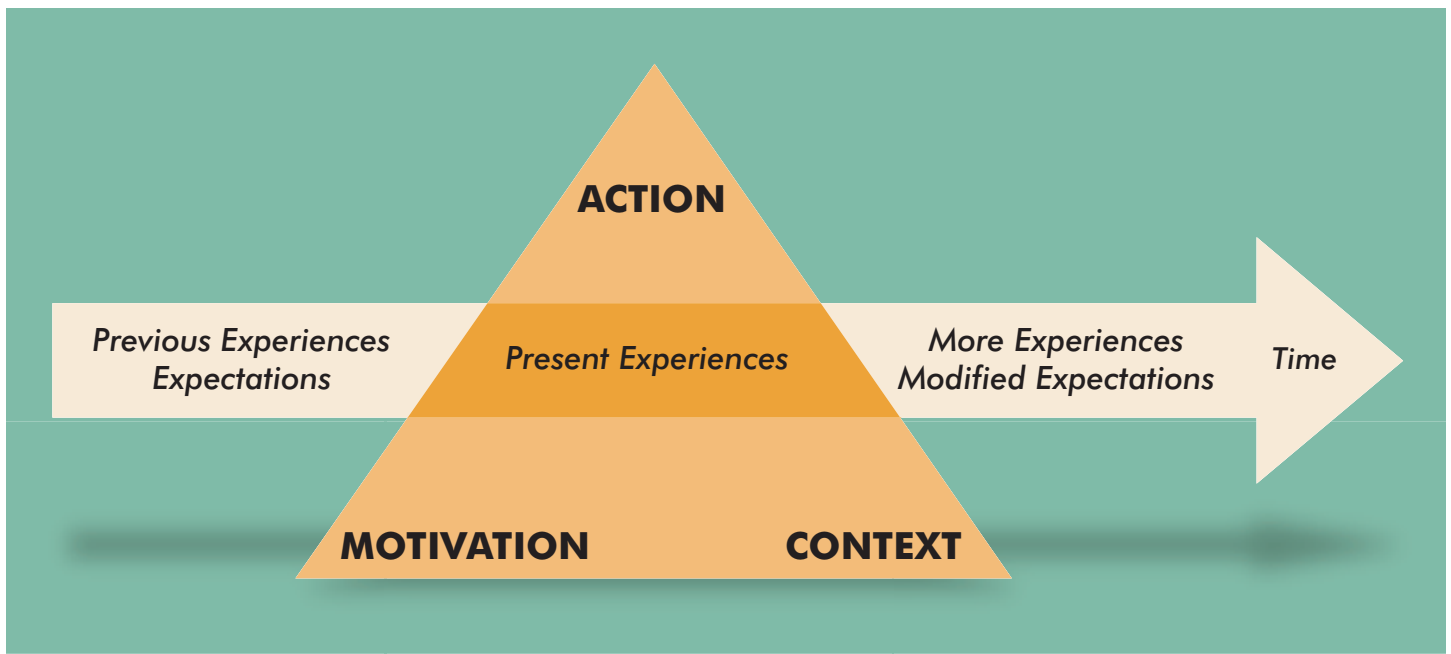
HEIDI				
Heidi is a 25-year old journalism student in Tampere, Finland. She is into design and fashion. She likes to travel and explore new places. She is also into new technology. She reads science fiction books that envision new technology scenarios. In order to support her hobbies, Heidi works part-time in a clothing shop in Tampere. Heidi’s boyfriend lives in San Francisco, USA. He works full-time and buys Heidi the latest technology gadgets as presents.				
Use scenario number	Importance for the user (scale 1-5)	Frequency (daily, weekly, monthly)	Picture	Use scenario
#1 (from observation)	3	monthly		<p>Why: Heidi is visiting her brother in Helsinki. She is interested in architecture but her brother does not know a lot about the buildings in Helsinki.</p> <p>Where, with whom, when: In Helsinki city center with her brother on Saturday.</p> <p>What: Heidi and her brother are walking downtown Helsinki. They chose a route that Heidi’s mobile device recommended. Heidi points the device at different buildings and the device displays information about their history.</p> <p>Outcome: Heidi obtains interesting information about Helsinki buildings and enjoys the walk.</p>
#2 (from photo diary)	5	daily		<p>Why: Heidi loves to follow fashion and she likes to “sniff” trends from her surroundings.</p> <p>Where, with whom, when: Alone walking from home to the Tampere University on a Monday afternoon.</p> <p>What: Heidi is walking downtown Tampere. She notices a girl wearing a nice jacket. Heidi points her mobile device at the girl. The device displays information on the jacket’s designer, fabric, and stores in Tampere where it can be purchased.</p> <p>Outcome: Heidi learns more about the latest street fashion. She saves the information so she can later visit the Web site of the jacket’s brand</p>

Table 2. An example of two use scenarios observed in a “moving with a magic thing” study. The mobile device in the study can be used to provide information about objects it is pointed at.



“What” is a higher level description of the user’s activity and “how” describes in detail the interaction with the user interface. With the “moving with a magic thing” method, we have not tried to study how the users would interact with the user interface. Rather, we have focused on understanding the action on a higher level. Interaction research, such as contextual inquiry, can answer the question “how” after the target group and main use scenarios have been selected—in other words, when the focus has been narrowed. Moreover, interactive prototypes can be built to test the “how” level.

However, a limitation of the “moving with a magic thing” method is that it does not reveal how the usage of the product might change with time (the time arrow in the UX model). As Jane Fulton Suri points out in her inspiring book *Thoughtless Acts*, people use products in unintended ways that reveal new needs. Giving high-fidelity prototypes to users to be used in their own environment for a longer time period is one method to study the time aspect and unintended uses of new products.

Another limitation of the “moving with a magic thing” method is that it does not allow user expectations to influence the user experience. If the technology under study is something very new, people might not have any expectations about it. Moreover, we do not reveal the manufacturer or the brand of the new technology, as that might affect the types of scenarios users generate. Therefore, we cannot use this method to study the expectations that knowledge of the brand might create.

Lessons Learned

The participant profile must be defined carefully before starting the “moving with a magic thing” study. The participants are asked to generate ideas for using new technology, so if you choose advanced users of technology who follow the latest technology trends, the scenarios they come up with may not reflect people’s “everyday” needs (at least not yet) but may be “cool.” The “cool factor” might make the product appealing to other user groups as well, even if the discovered scenarios are not high priority for them in practice. On the other hand, participants who are not early technology adopters (for example, stay-at-home moms), are more likely to produce “everyday” scenarios that would warrant frequent use of the product. Sometimes it might also be useful to study “extreme” users such as illiterate people in Africa. These users may come up with unexpected innovations that will benefit all.

After the study is conducted and documented, it is useful to work with the client to come up with the final conclusions and final presentation. A workshop where the UX experts and client representatives choose the most promising and feasible scenarios to develop further is very useful. This meeting can be followed up with storyboards based on selected scenarios. The client can use the “stylish” storyboards when selling the product to the decision makers, as the narratives and images from the reporting template are often not powerful enough to use in presentations.

Is the Method Reliable?

One might question the “moving with a magic thing” method because the users are

The time and context model of user experience.

highly involved in creating scenarios for a new technology. Can users really know what they need? However, taking the brainstorming into real contexts and involving users makes the method more reliable than if the users and/or designers were to sit around a table and generate ideas.

The user cannot always be the starting point for new products, but this method provides us with a way to involve the user in finding applications for technology-driven innovations. While other UX methods are needed during the concept development process, the “moving with a magic thing” method is certainly a good place to start. **UX**

ABOUT ANU KANKAINEN



Anu Kankainen is a psychologist with twelve years of experience working with engineers, designers, and marketers on a variety of national and international projects focused on mobile technologies. She did her doctoral thesis on user-centered concept design of mobile products at the Helsinki University of Technology. The model presented in this article was developed as part of her doctoral studies. Currently, Anu is a senior user experience specialist at Idean Research in Espoo, Finland, where in addition to mobile technologies, she works with Web, cross media, hybrid media, and home media technologies. She can be reached at anu.kankainen@ideanresearch.com.