
User Experience Evaluation in Nokia

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Abstract

Nokia has a long history in designing for experiences, as mobile phones are very personal and experiential devices. We have established processes to take user needs and wants into account when designing new concepts, and we do various types of evaluations with real users during the development process. Experience evaluations are, however, an area we want to improve. In this paper, we describe the user experience evaluation practices in the different phases of Nokia product development process.

Keywords

User experience evaluation, Product development process

Introduction

User experience (UX) evaluation is relatively easy with existing products that people have been using in their daily lives for several months. It is more challenging to evaluate product experiences earlier on, when they are just prototypes or even concepts on paper. Still, we need to take care that each product will allow the intended experiences before the product is on the market. The earlier we can evaluate user experience the more likely it is that a product will be successful.

However, there are several difficulties to overcome. The first impression is often very different from the long-

term user experience, but we cannot run long-term field studies with concepts that do not actually work. We cannot evaluate user experience in the real context when the system is just an idea on the paper. We cannot see how the different parts of the system will create a holistic user experience when we have an idea of one new feature only. It is hard to run iterative evaluations when the target users are on a different continent than the development. It may be difficult to agree a common goal with external stakeholders who influence the UX, e.g. network operators and service providers. For example, when the mobile TV was piloted 2007 in Vietnam there were user experience failures due to incomplete synchronization of key enablers (services, devices, first use, and user guidance). Despite these difficulties, we need to strive for early product development with best possible information about users and experiences.

Nokia has a well-established testing culture for product quality in general, and it is sometimes hard to draw the line between technical and experiential testing. If we try to dig out the actual source for a low rating of an experiential aspect, we will discover a technical problem. For example, a cover material that does not tolerate scratches would show in UX evaluation as well as in technical quality evaluation.

In this paper, we first describe the Nokia product development process from the UX perspective, then discuss the requirements for UX evaluation in a large corporate, and finally, the UX evaluation methods used in the different phases of the Nokia product development process.

Process overview

The UX process in Nokia is seeking both to design for new experiences and to continuously improve existing solutions. The process consists of two principal strategies: UX target setting and UX improvement.

The process starts by examining user needs and behaviors. We innovate new concepts by reflecting user data with market insights and technological opportunities. We start UX evaluations for the concepts as early as possible, since the earlier we can spot the pros and cons of each concept, the more effective the development process will be. Defining UX targets early in the process helps to set common and measurable directions for both research and development. See chapter *UX evaluation for concept ideas* for more details.

UX improvement is continuous process of identifying problems, gaps and new ideas. We do this in all phases of the process, by analyzing the UX evaluation results for concepts being developed, field feedback for existing products, and competitive trends on the market, for example. UX improvement topics are then created and followed-up via systematic analysis and applied in the development. The practical challenge is to link the available ideas to right development activities at the right time. For example, an UX improvement idea can be small (Add function X to feature Y, improve ergonomics of keys by idea Z) or large (use this database to provide this type of new service).

UX improvement process is, first of all, UX management activity. Fundamentally, here we apply

conceptual-analytical research and data gathering techniques [3].

The product development process in Nokia is a continuous cycle of field feedback and development. We use and continuously develop methods to evaluate usability and user experience in the different phases of development. After the product is released, we gather feedback from the field via many controlled and uncontrolled channels. This information can be used for improving the forthcoming products.

Requirements for UX evaluation

We have identified a set of properties that UX evaluation methods should have in order to be applicable in industrial setting. If a method fails to fulfill these criteria, it will be very hard to weave it into the processes to be used routinely.

First, the evaluation method needs to be *lightweight*. In a global company, we need to make data collection from different parts of physical and virtual worlds easy. Tens of Nokia products are coming out every year, and we want to evaluate also competitors' products. This means the evaluation results need to come out like from an assembly line.

Second, the theory behind UX evaluation needs to be *applicable for various types of products and prototypes*. If the evaluation is tied to certain product features, we have to define the set for each product or service separately. A general set of UX elements makes it possible to evaluate different types of products, and to use the same elements in the different phases of product development. Although we would not find actual problem sources with these general UX

elements, they help us to see trends and to benchmark different types of solutions.

Third, we do UX evaluations in order to improve the products. We need to find out the *pros and cons* of the evaluated system. Some UX evaluations aim for finding out the exact emotions that users have at the moment, or whether they see a product masculine or feminine. This is interesting information, but does not directly help to improve the design. This goal may contradict the previous goal, but we need both the general level for comparisons and the more detailed level for finding the sources of problems.

Finally, we might want to relate the project incentives to excellent user experience, not only to technical quality. This would require a *fair* UX evaluation process that produces some kind of a *UX score*. Fairness means that all different types of products, with different target user groups, would be on the same line.

UX evaluation for concept ideas

Now, let us discuss how we evaluate user experience with the different outcomes of product development process: concept ideas, prototypes, and fully-fledged products.

UX targets are set in the very early phases of the development, and then used as guidance and evaluation criteria throughout the development. UX targets are conclusion of several research activities, such as user research, product feedback, market research and technology analysis.

We have applied UX targets for describing measurable development targets for the development of product portfolios, specific products and services.

When UX targets have been defined, it is important to verify whether the targets are the right ones. Hence, a new early phase UX evaluation activity is the *verification of UX targets*, i.e. do we have the right targets in place? Since the targets always refer to future and may be difficult to properly perceive (without sufficient view to technology and user needs) we have mostly applied expert reviews and expert interviews in studying the validity UX targets.

If the UX target is suitable for evaluation with real users, we run individual interviews and present narrative visualizations of the imagined user experience. We ask the user to walk us through their interpretation of the visual narrative. We then ask a few probing questions to gauge their understanding of this experience and what is in it for them. The findings typically challenge the UX target and provide an opportunity to iterate it to make sure it fulfills real user behaviors and needs.

UX evaluation for prototypes

The in-house UX experts with a background in usability master a bunch of good usability evaluation methods for different types of product prototypes. It is beneficial to use this existing knowledge and just include experiential aspects to the evaluations. Sometimes this works, especially with long-term field trials. In field trials, we can use diaries, experience sampling [1], questionnaires, and focus groups to collect experiential data. Field studies are possible with functional prototypes only.

In early lab evaluations, it is often challenging to collect fair UX data, because the participants are not always motivated to conduct pre-planned tasks, and this affects their experience assessment. Given that we already have evaluated the UX targets and designed the prototype for certain type of use, we need to find a way to motivate the participants to these targets. Selecting the right participants becomes even more important than in usability tests.

When we do not yet have the sophisticated visual design but e.g. hand-drawn paper prototypes only, the experience does not come from the aesthetics but from the functionality and usability. Then, it is important to vividly imagine the usage situations so that the participant can evaluate the usefulness and thereby the value of the system for her/him. With mobile products, the moderator needs to use some effort to dig out the situations that each participant encounters in their daily life, because standard scenarios may be absurd for some participants and they fail to imagine themselves to be in such situations.

UX evaluation for ready products

Nokia has been developing and selling mobile devices for a relatively long time, and reached a large customer base. It is natural to look at the continuous feedback from existing products and users and use this information when designing for future products and experiences.

Original UX targets set in early phases can be reliably measured when products and related services are completed and running. These measurements can be done in various ways, such as collecting feedback data using traditional market and user research methods,

and utilizing the latest technological and community opportunities enabled by Internet. For example, we gather usage data with SmartPhone360 study [4] by logging the actual use of S60 smart phones with volunteers. We also interview people who have recently purchased a mobile phone to gather first-hand opinions about the new models. Combining several types of data and sources gives us rich information to help improving user experience of coming products.

Discussion

In this paper we have discussed UX evaluation activities that have been applied or trialed in Nokia. We have emphasized the early phases of development and continuity across development phases.

Our experiences with UX evaluation methods beyond usability testing are relatively new. We have some successful cases where the methods have been applied throughout the development chain, but also examples where it hasn't really succeeded. However, due to novelty of the cases, we are not able to provide detailed examples, or established theories why something works and something does not.

What we have learned on the way is that a clearly stated UX target considerably helps to communicate and keep the focus right in a big company. When everyone knows the UX target, there are fewer debates on what we are working on, and it is easier for the different teams to work towards the common goal.

In our view, practitioners should keep on trialing new UX evaluation approaches, and make those visible to developer community. We are creating a new discipline, and co-development and knowledge sharing is the best way to make it right.

As described by many, e.g. [2], the exact scope of user experience is difficult or impossible to define, and there is no cohesive UX theory in place. Hence, we are often extending known approaches, combining them and evaluating whether the results help us to define and understand user experiences better.

The research community should strive to formalize and clarify "User experience" so that methods and work practices could be defined, not only for UX evaluation, but to overall management with related topics.

Citations

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