

Exploring User Experience Measurement Needs

Pekka Ketola

Nokia

pekka.ketola@nokia.com

Virpi Roto

Nokia Research Center

virpi.roto@nokia.com

ABSTRACT

We conducted an empirical study on user experience (UX) measurement needs at different units and levels of Nokia product development and asked which kinds of UX measurements would be useful in different parts of the organization. In this report, we present the initial results of this study. We found that the needs for UX measures were not only about design details, but mostly about how the different touch points between user and company are experienced along the product experience lifecycle.

Author Keywords

User experience, Measurement

1 INTRODUCTION

In a big corporate like Nokia, measurements play an important role in all phases of product development as they enable systematic improvement of the products. Several company departments are interested in user experience measurement. To make the measurements relevant and useful, we first need to find out the *needs* of different stakeholders for UX measurements before starting to define the metrics.

In Human-Computer Interaction (HCI) field, measurements have traditionally been usability measures, such as efficiency, effectiveness, and satisfaction (ISO 13407); learnability, memorability, error prevention, and satisfaction (Nielsen 1993); effectiveness, learnability, flexibility, and attitude (Shackel 1991, 25); guessability, learnability, experienced user performance, system potential, and re-usability (Jordan 1998). Learnability is the common element that is included in all above measures of usability.

When usability evolved to user experience, the measurements broadened from pragmatic (easy and

efficient) to experiential (delighting). Jordan upgraded his list to functionality, usability, pleasure, and pride (Jordan 2002). Norman set the goal in engaging users in visceral, behavioural, and reflective level (Norman 2003), and Nokia followed these lines with the Wow, Flow, Show model (Nokia 2005).

As UX highlights the emotional aspects, also emotion measurements have been investigated. Most emotion evaluations concentrate in identifying the emotion a user has *while* interacting with a product, and both objective and subjective methods are used to collect this information (e.g. Mandryk et al 2006, Desmet et al. 2001).

UX evaluation can take place also *after* interaction phase. For example, Hassenzahl (2003) has investigated the pragmatic and hedonic aspects of products from the perspective of product appraisal. This model helps to measure user experience in real life, preferably after long-term use.

Gartner (2007b) considers UX measurements from the perspective of return on investment: what is the monetary benefit of spending money on user experience improvement. They study the relations of brand experience, company experience, and the implications to related revenues and costs. User experience is claimed to be a subset of brand experience. According to Gartner research (2007a), the success of UX can be measured in hard metrics and as intangible benefits:

- Increased revenue: More orders per customer, More repeat engagements, More products per order.
- Reduced cost: Fewer support calls, Fewer returns due to mistake or misperceptions, More efficient server use
- Faster time to market due to accelerated development: Increased customer satisfaction, Improved brand image, Positive word of mouth.

2 THE EMPIRICAL STUDY

To our mind, people at different roles and levels of product development are the suitable population from whom to ask their view on user measurements and produced data. We selected to make a phenomenographic survey (Marton and Booth 1997) on the different measurement needs in their proper environment.

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We use qualitative Email survey for data collection (Meho 2006). For practical reasons we invited 42 Nokia people from different corporate functions which we believe have interest in UX measurements, to act as subjects in this study. We sent our short question (below) to selected specialists, senior specialists, managers, senior managers, directors and vice presidents). A total of 18 of them responded within one week

Which User Experience information (measurable data gained from our target users directly or indirectly), is useful for your organization? How?

The question is intentionally very open and can be interpreted in many ways. This way the study participants are not limited in describing their measurement needs, and can address any area they think is valid. Only one participant asked for further clarification for the question.

We analyzed the responses by using the content analysis. The free-text answers were first collected to an Excel document, matching the person, role and response. This grouping told us the key information needs for each discipline (Section 2.1) and the variations between roles within that discipline. Then, one researcher organized and grouped the answers using mind map technique (see http://en.wikipedia.org/wiki/Mind_map). The grouping was reviewed by the other researcher. This led to common grouping of topics across disciplines (Section 2.2). We gave the draft of our report to the respondents to confirm that we interpreted and classified their responses correctly.

2.1. Measurement needs for different groups

In this section we shortly summarize the key needs for each studied group. We will discuss only four groups that answered most actively.

Research (n=3). This group presents people who work with research management or hands-on research, before development takes place. Measurement needs in this group are seen in two main groups:

- How users perceive and use new technologies?
- Which are the most important UX or usability problems in current products and services?

Development (n=4). This group presents people who manage and design concrete products and services, such as product manager or software designer. This group emphasizes the first use of products and services:

- Which functions are needed the most?
- What are the first impressions (overall experience, first use) and level of satisfaction?

Care (n=5). This group presents people who manage and provide numerous product support and maintenance services in online forums and in local support centers. In most cases they have direct connection to customers. This group has very a rich set of measurement needs. Major

point of interest is out of box readiness with products and services.

- How easy it is to start using product and services?
- What is customer experience in support activities?

Quality (n=6). This group consists of quality managers and specialists, working with concrete products or in company wide quality development activities. Respondents in quality are particularly interested in developing the quality measurement practises, and understanding the users' perceptions about both products and support services:

- Which metrics should be applied for experienced product quality?
- What is the perceived performance of products and services?

2.2. Common needs for user measurement

In this section we provide a consolidated grouping across all responses, based on a mind map categorization.

User experience lifecycle

Measurable information is needed not only when the user is using the the product for its original purpose, but also when the user is planning to buy a new device, when the new device is being taken into use and when there is a shift from an old device to a new device.

What should be measured?	Examples of measures
Pre-purchase	The impact of expected UX to purchase decisions
First use	Success of taking the product into use
Product upgrade	Success in transferring content from old device to the new device

Table 1. Measurement areas in UX lifecycle

Retention

Retention is a concept and also measurement describing the loyalty of the customers. It is assumed that good user experience leads to high retention. Retention information would tell us how many customers continue with the brand, how many newcomers there are in customer base, and how many customer leave the brand. Among retention topics we can see non-UX information needs, such as the ownership of previous devices.

What should be measured?	Examples of measures
Expectations vs. reality	Has the device met your expectations?
Long term experience	Are you satisfied with the product quality (after 3 months of use)
Previous devices	Which device you had previously?
Engagement	Continuous excitement

Table 2. Measurement areas in retention

User groups and use of features

“What product features are used by different demographic groups” is the information that is mentioned by respondents from Research and Care organizations. The question has two key themes:

- What kind of differences there are in the use of product function across different user groups?
- What functions are most used (and underused)?

What should be measured?	Examples of measures
Use of device functions	What functions are used, how often, why, how, when, where?
Differences in user groups	How different user groups access features?
Reliability of product planning	Comparison of target users vs. actual buyers?

Table 3. Measurement in the use of functions

Where are the experience breakdowns?

Breakdowns and concrete problems seem to have link to almost all our respondents. A common challenge is to identify breakdowns and measure the improvements.

What should be measured?	Examples of measures
UX Obstacles	Why and when the user experiences frustration?
Malfunction	Amount of “reboots” and severe technical problems experienced.
Usability problems	Top 10 usability problems experienced by the customers.

Table 4. Measurement areas in breakdowns

User experience in customer care and maintenance

Organizations providing customer care and other support need to measure how users experience the given support, for example, was it helpful?

What should be measured?	Examples of measures
Customer experience in “touchpoints”	How does customer think & feel about the interaction in the touch points?
Accuracy of support information	Does inaccurate support information result in product returns? How?

Table 5. Measurement areas in customer care

Experiences with user interface localization

English is the primary language in technology communication, and often English language variants are provided first. There is a need to understand and measure how far this is enough, and what is the value of localized content in terms of user experience.

What should be measured?	Examples of measures
Effect of localization	How do users perceive content in their local language, what does it mean to them, how do they feel about it?

Table 6. Measurement areas in localization

Perceived performance

In product development it is essential to know the performance targets, and how those targets are met in completed products.

What should be measured?	Examples of measures
Latencies	Perceived latencies in key tasks.
Performance	Perceived UX on device performance
Perceived complexity	Actual and perceived complexity of task accomplishments.

Table 7. Measurement areas in device performance

Experiences with new technologies

There are several information needs mentioned by the people who present research teams. Especially the reactions towards new proposed or realized solutions are interesting.

What should be measured?	Examples of measures
Change in user behaviour	How are usage patterns changing when new technologies are introduced
Innovation feedback	New user ideas & innovations triggered by new experiences

Table 8. Measurement areas with new technologies

3 DISCUSSION

Limitations

Primarily the findings should be used as a new data for further UX measurement development and research activities. Our findings are not complete nor universal since the study was conducted in only one firm and with a limited number of respondents.

Attention can be paid to the low response rate, but in the phenomenographic study the high response rate is not as important as the saturation level achieved. Alexandersson's survey (1994) on more than 500 phenomenographic studies concluded that the variation of a phenomenon reached saturation at around 20 research participants. Our number of informants (18) is close to that figure, and we can argue that the saturation took place in our study.

Practical implications

Most of the UX measurement needs are familiar and already handled in existing practises. However, in our view this study provides new information revealing common cross-organizational needs for measurements. When new UX measurements are developed or existing measurements are improved, there should be sufficient cross-functional review to find out who else would benefit of the measures, and who else could be already measuring related topics or collecting similar data. The same finding can be extended to consider also cross-firm perspective, such as for developing UX measures together with business partners, 'third parties' and developers.

Implications to research

To our mind the data from our survey is consistent with the evolution of measurements that are visible in previous research from a few different disciplines. As the discipline of user experience is now forming, it is beneficial for the field to be aware of the kinds of metrics needed in industry. It is also healthy to start UX metrics work from the needs of the audience that will use the results. This hopefully helps UX researchers to establish the boundaries for UX measurements and even for UX as a discipline.

Our research results are still tentative. The current data requires more thorough analysis and discussion that compares our findings with others. Our research will continue to look deeper at the responses and contextual factors (organizational environment), with the aim to develop and generalize useful model for further research and development.

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