

# MovieAgent: Challenges in Design and Implementation of Multi-UI Services

*Titti Kallio*

*Sonera Corp., Mobile Applications Development*

*P.O.Box 970, 00051 Sonera, Finland*

*titti.kallio@sonera.com*

## Abstract

In the market there are several different devices and accesses which users can use to reach certain content and information. The designing and implementation of different UIs (user interfaces) for the same content is carried out by several different parties. These are often lacking co-operation, mutual methods or technical tools to ensure the consistency between different UIs. In this paper we discuss the need for the consistency as our findings point that even quite a little of consistency is enough to create a feeling of a one single service.

**Keywords:** Multi-UI, Multi-access, consistency, PDA

## 1 Introduction

In the information technology world there are and will be more and more different devices available in the market. E.g. the features of different mobile devices vary a lot and all kinds of hybrid devices will be seen in the future (e.g. Nyberg & co., 2001; Sage & co., 2001). From the user's (consumer, customer) point of view this means different user interfaces (UIs) and different contexts of use. However, often the content is the same or at least provided by the same content provider. The spectrum in the field from the user's point of view can be seen e.g. like in the table 1.

*Table 1. Possible access portfolio of a typical modern user.*

	Desktop PC	Fixed telephone	Mobile phone	PDA, palmtop, communicator, etc.	Digital TV
Used at home	x	x	x	(x)	x
Used at work	x	x	x	x	
Used when on the move			x	x	

Besides the above-mentioned accesses, i.e. different ways of reaching the information, there are different UI input / output technologies which affect the usage of the device as well (e.g. speech technologies). In this paper the services with multiple user interfaces / accesses are called multi-UI services (nearly like 'multiple-UI' by Hamnes and Nyhus, 2000, p. 2).

The services (or applications) used through different accesses are designed and implemented by several parties. The scenario can be e.g. like this:

- a) There is a company providing the content (e.g. the Bank you use – the content being your account information and general financial issues).
- b) The content party may provide some preliminary design material when the applications are created.
- c) Possibly an Internet Service Provider (ISP) will launch an Internet service for the Bank (together with a new media company).
- d) A telecom operator will provide SMS (Short Message Service) and WAP (Wireless Application Protocol) applications for mobile phones.
- e) A digital TV provider may be involved, too.

Here the service spectrum may be branded as a single ‘Bank services bundle’ or the Bank can be a part of a mobile portal (an offering portfolio provided by e.g. a telecom company, often branded) or the Bank can be integrated into another service like a betting or lottery service where the Bank application is just a way to pay the lottery action.

All these Bank applications are designed and implemented by different groups of people and organisations and the collaboration between groups is often minimal.

There are a lot of usability issues and problems arising from this situation. One may ask if a strong brand and heavy investments in marketing is enough to make users to realise that the content is the same regardless of the access (e.g. CNN news network).

Or is it so that the clear sense of the same content body is enough to create a feeling of the same service through different accesses and user interfaces. An example could be the Unified Messaging concept where you can listen to your messages through a fixed line phone and a mobile phone (text-to-speech technology), read the messages as SMS messages or on a WAP phone screen, read the messages on a Web (World Wide Web) UI on your desktop, palmtop, or communicator. With the Unified Messaging the messages themselves create a very strong feeling of a sole and coherent content base.

How important is the consistency between UIs? And thereafter the method of designing the interfaces? Hamnes and Nyhus (2000) have made an extensive study where they found out that a design practise with consistency rules taken into account is important and e.g. with issues like vocabulary it certainly is quite easy and recommended to create consistency (if your new e-mail message is ‘new’ or ‘unread’ – it should be named the same on all UIs.). But there are problems with the consistency principle, too: there are profound differences between the UIs of different devices and UI technologies (e.g. a desktop PC Web page compared to a small SMS message area compared to a speech recognition UI). Also, the context of use can differ a lot: the UI should be different for the user who quickly wants to see if there is money in his Bank account when purchasing a train ticket (on the move) or the user can be interested in loan offers by the Bank (at home). Is the consistency important between the different usage scenarios? What amount and what kind of mutual elements are creating enough consistency so that the user would perceive the service as one with multiple UIs. Is there a minimum set of UI characteristics to ensure the consistency?

In this paper we describe some preliminary findings concerning a service called MovieAgent with several different accesses and UIs.

## **2 The MovieAgent Service**

MovieAgent was launched as a pilot service by Sonera Mspace (Mspace is a pilot environment for new mobile service concepts and technologies). MovieAgent offered

information about films and cinema theatres in the user’s hometown. The service consisted of a Web, an SMS, a WAP and a PDA (Personal Digital Assistant) accesses and user interfaces which all differed from each others. The content (the used database) was the same in every application. Here is a description of different UI features:

- a) Web UI (Fig. 1): on a desktop PC Web page the user could fix his profile, i.e. what kinds of films he was interested in. He profiled himself by choosing film genres, film directors and actors he liked / disliked. The user could also have several profiles like ‘my own profile’ and ‘our profile as a couple (girlfriend-boyfriend, wife-husband)’. There were no movie trailers here.

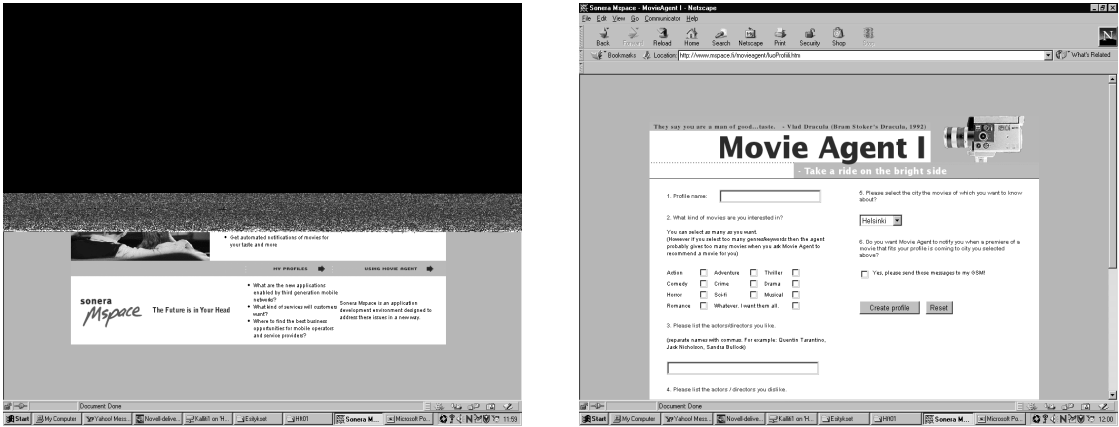


Figure 1. MovieAgent Web version – the front page and the upper part of the profile generation page.

- b) SMS UI: the user where sent recommendations about films (premiere nights) he might like as SMS messages once a week (so called ‘push’ messages which where sent by the service provider automatically). The recommended films were based on the user’s profile(s) and they were films shown in the user’s hometown.
- c) WAP UI: here the user could search for films based on his profile(s) and he could also change the current profile activation (if it is ‘my own’ or ‘our’ profile which is on).
- d) PDA UI (Fig. 2): MovieAgent was a part of a service portfolio, which was offered as a PDA application to be used as a mobile service: the PDA was connected to the network through a mobile phone (the PDA and the mobile phone were connected by an infrared connection). The PDA MovieAgent ‘look and feel’ was different compared to e.g. the Web UI. In the PDA version the user could change his active profile(s) and search films based on the activated profile. However, the most important and visible feature in the PDA UI was the film trailer list: the user could view trailers of the films he was interested in (a mobile multimedia feature).



Figure 2. MovieAgent PDA version: a page with a trailer link list and a film description page (with show times etc.).

### 3 Research Activities

During the MovieAgent pilot several studies were made.

#### 3.1 PDA Study

The PDA pilot users (n=139) received a questionnaire concerning the PDA pilot as a whole. MovieAgent questions were just a minor part of the questionnaire. There were 65 questions all together, including tens of open-ended questions, too. Only 3 of these open-ended questions were about MovieAgent (i.e. which features you liked and disliked in MovieAgent). Furthermore, 30 PDA pilot users were given an in-depth telephone interview.

#### 3.2 SMS Study<sup>1</sup>

An SMS study was made as an SMS query. (These SMS users included also users who did not use the PDA access.) In the SMS query the users were sent short questions as SMS messages and they were asked to reply as SMS messages as well (by using the 'reply' function of mobile phones).

### 4 Results

#### 4.1 PDA Study Results

The PDA questionnaire study gave us the biggest surprise against our hypothesis: when the users were asked about their likes and dislikes in the MovieAgent service (PDA UI), they gave opinions concerning all the other accesses as well. We were expecting the users to give feedback only about film trailer picture / sound quality and maybe some other comments concerning e.g. usage situations. However, 10% of users gave us spontaneous and extensive feedback concerning all the UIs of MovieAgent. These comments were about the profile

<sup>1</sup> The SMS inquiry was organised by Tarja Nordström (Sonera Corp., Mobile Applications Development).

generation and SMS 'push' messages even though the profile-generating feature was *not* a part of the PDA user interface.

The users' comments were like: "Personalisation was a great idea" (note: the word used on the UIs was 'profile', not 'personalisation', so at least some users begin to be familiar with 'personalisation' and 'profile' concepts), "It was nice to create several different profiles", "I want to have the profiling on the PDA, too", and "I did not like the SMS messages feature".

This means that these users' mental models of the MovieAgent service consisted of all the possible UIs: PDA, Web, WAP, and SMS.

The telephone interview confirmed these findings: 6 users out of 30 gave comments about all the MovieAgent UIs although they were asked only about the PDA issues.

## **4.2 SMS inquiry**

In the SMS inquiry the most important results in the connection of this paper were that among MovieAgent users there were different kinds of user groups: the more actively the user used all the features and UIs of the service the more satisfied he was.

Altogether, the results indicate that if the different UIs of the service are connected with few features then that is enough to create a feeling of the same service. The basic mutual feature between the MovieAgent PDA and Web UIs was the profile concept and the user could perform only different manoeuvres through these two UIs. Also, the name of the service was the same in all applications. It seems that these issues are enough to present a coherent and uniform content body, so that the user will not get confused.

## **5 Challenges in Design**

Hamnes and Nyhus (2000) recommend that a collaborative method should be used when designing multi-UI services. That would be the most ideal approach, but considering the everyday life situations where the services are designed and implemented by different companies and people as stated earlier, it would be worthwhile to try to find other approaches as well. Also, it should be explored if the multi-UI feeling (several accesses to a one service) can be created mostly by marketing activities (the name of the service, visual image, etc.).

An interesting field of development is software tools, which can perform scaling operations e.g. to a Web page. These tools e.g. make the Web page smaller to get it fitted on a PDA screen. This brings new challenges for UI design because then a Web page must be designed so that the possible scaling has to be kept in mind.

## **6 Conclusion**

In our studies the most interesting finding was that when the user was using several accesses and UIs of a service and the 'look and feel' and the content of the UIs were different, the users still could see the UIs just as different ways of accessing the same content body. This means that the need for the consistency of multi-UI services needs to be explored more. It would be interesting to find out if there is 'a minimum set' of mutual features in the multi-UI world to ensure the 'multi-UI model' for users since there will be more and more different devices and UIs available in the near future. Also, it seems to be important that the user learns to use all the features and UIs of the service right from the start of the usage, which raises demands for the right actions of marketing departments.

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