

Smart Personalisation for Wireless Applications

User-oriented research and application development framework
based on mobile KAIZEN – the learning personal profile

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Abstract. We present the research approach and current status of the ongoing (September 2002 until February 2003) diploma thesis titled “Smart Personalisation for Wireless Applications”. With an interdisciplinary view on the Mobile Economy Triangle of networks, devices and services the thesis analyses and develops use cases, success factors and selection criteria for learning techniques that drive adaptive personalised applications. The ultimate goal is to create more happy users with better personalised wireless applications. Reaching this aim is supported by applying the concept of mobile KAIZEN, the continuous development of a multi-channel learning profile in dialogue with the mobile user.

Our research starts from the hypothesis that, next to utility, usability and pricing, personalisation belongs to the success factors driving user acceptance and ARPU (Average Revenue Per User). We plan to prove this hypothesis by comparing standard versus personalised versions of the same wireless application called MIX (Mobile Information eXchange) that we prototype during the course of the thesis. Due to considerable implementation costs depending on the complexity of the techniques applied, personalisation will only make sense if it results in applications that ultimately generate more profits.

1 Prototyping standard and individual versions of the application “MIX”

The objective of the thesis is the development of a personalised and learning matchmaking application called MIX (Mobile Information eXchange). MIX enables users to meet other people and exchange information based on current user locations and static and dynamic personal profiles. The more people use MIX, the better MIX should be able to match people and information based on situations, locations, profiles and interests.

At the beginning of the application development process we define the most important use cases of MIX that determine the key functionality of the standard version, the basis for “greenhorn users” before any personalisation takes place. The next step is to select and implement a subset of possible smart personalisation techniques from explicit methods (user preferences) to advanced personalisation (including history and individual context profiling, collaborative filtering, etc.). For the implicit personalisation techniques we believe it is important to regularly verify the decisions made by a learning profiles system, for example by requesting explicit, i.e. assured input from the user.

2 Mobile KAIZEN development approach

Mobile KAIZEN, the process of continuous improvement, is the approach well suited for a user-centred development of wireless applications. A learning relationship involving the users means to develop and optimise an application over time. This is what we'll show and evaluate with MIX as one example, during release cycles on the one hand and by individual adaptive personalisation on the other hand. The KAIZEN process is a good basis for rating the different personalisation techniques inside the MIX context, in addition, there'll be a focus group of "friendly users" for gathering specific feedback.

Another module of the diploma thesis will be a Delphi Survey among experts (developers, content providers, device manufacturers, business managers) discussing smart personalisation use cases, potentials and concerns, return and cost as well as projected user behaviour.

3 Enabling Technologies

Regarding the technologies for putting smart personalisation to work we can distinguish between operating systems, protocols, runtime environments and presentation layers, that are the basis for detailed and responsive personalisation. Besides discussing and pointing out the meaning of critical technological milestones for high-adaptive wireless personalisation this section aims at harmonising user requirements and technological concepts including multi-channel profiles and profile synchronization concepts. Another starting point for discussion will be how the limited and diversified hardware and software environments of wireless networks and devices influence the need for and feasibility of developing personalised applications.

4 Performance measurement of standard vs. individual MIX version

The final research issue of the thesis is to measure and compare the performance of a personalised versus a fixed standard version of our wireless application MIX from a user's point of view. We'll evaluate the personal adaptation behaviour of the learning profiles under different quantities and qualities of users up to simulated massive usage situations with the help of user bots. Among the performance measures applied during our research are: number of active users, frequency and intensity (user actions per session) of usage, user satisfaction, usability index score and eventually ARPU generated. The result of this performance measurement is to identify which personalisation techniques noticeably enhance user acceptance.

5 Smart Personal Mobile Software

Smart Personalisation of Wireless Applications might be a valuable contribution towards truly personal, i.e. individual software fitting the personal context and needs. Not losing the user focus but rather learning from and with the user in an ongoing process will be the foundation for launching ARPU-driving wireless applications to the market. We want MIX to become a transparent case study of how to develop smart and successful wireless applications with the right mix of standard and personalised functionality.