Chapter XV
Mobile Applications Development Methodology

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ABSTRACT

The chapter introduces mobile applications development methodology. Mobile applications represent a new application model being introduced to information systems in the recent time. For that reason it represents a good challenge to expand research area of information systems development methodologies with research on mobile applications development methodology. The first part of the chapter introduces classical and a context-aware mobile application model. Based on that, the second part explores the role of mobile applications in information systems with the emphasis on showing the semantic contribution of the use of mobile applications in information systems. The core part of the chapter introduces mobile applications development methodology. The methodology is introduced through development phases and tasks which have to be performed within phases. The emphasis of methodology introduction is on phases of strategy and analysis.

INTRODUCTION

The information society is the society of ongoing progress and technological development. It is enabled by the technological development and progress achieved in the areas of information and telecommunication technology. The information society is enabled by technology, but it is far more than just a technology driven society. It is a complex and multidisciplinary society driven by knowledge, innovations and development. The information society is a service-oriented society in which the effectiveness of the individual and the organisation as such depend on the ability to acquire the accurate information at the right time and react according to the information acquired.

The convergence between several technology sectors offers the opportunity for the emergence of new services. One of the most representative characteristics of the information society is the convergence between information and telecommunication technologies. Mobile applications are the consequence and the result of the convergence mentioned (Müller-Veerse 2000).

There are some characteristics of information society, which endorse the importance of mobile ap-

plications for the information society. Some of them are (Gams 1999; Rupnik 2003):

- *Metcalfe's law*, which defines the value of the network proportional to the square of the number of nodes connected to the network. Due to the fact that there are significantly more mobile devices than the number of computers connected to the Internet, mobile applications represent a high potential for services in the information society.
- *Employees are faced with the demand for higher productivity*. The ability to access information and use applications in the state of mobility will without doubt make a contribution to this area.
- *Ongoing emergence of jobs with direct or indirect demand for application use and information access*. Mobile applications will represent a contribution in this area as well.

Mobile applications therefore represent the consequence and the demand of information society (Rupnik 2001). Mobile applications are undisputedly worth full attention of information system science and information system managers.

MOBILE APPLICATIONS

A mobile application is a computer program running on a mobile device and presenting value to the mobile user. Mobile applications can offer information support in several areas. In our research we focus on business oriented mobile applications providing information support within the information systems to the users when they are mobile, i.e. not present in their traditional working environment. There are two groups of mobile users. The first group are mobile users spending more than a few working time away from their traditional working environment. According to their organizational roles granted they must be informed about unexpected and exceptional situations. On the other hand they also need the possibility of use of simple services and applications while being mobile. The second group are mobile users who belong to mobile workforce users doing their usual work in the state of mobility. We could say that the mobility represents their traditional working environment.

There are different types of mobile devices. The examples of mobile devices are: a Palm device, GSM mobile phone and a notebook. In our research we focus on small devices like GSM mobile phone and Palm devices. Tarasewich, for example, also eliminated the notebook as a mobile device in his research (Tarasewich 2002). The reason for the elimination of the notebook as a mobile device is because it does not reflect the distinct characteristics and limitations of small mobile devices. The relationship between mobile device and mobile application will be discussed more in detail later on in this chapter.

The size is the most significant characteristic and limitation of mobile devices, because it determines other limitations of mobile devices. The most important of them are: battery power, limited storage capacity for the running of applications, low processing power, the size of display and uncomfortable input methods (Panis 2002; Dogac 2002; Ho 2003). The limitations of mobile devices are essential, because they determine the limitations of mobile applications. The limitations of mobile applications and mobility itself make the mobile application model distinct from other application models.

Mobile applications signify the connection of a mobile user with his organization and its information systems. Their scope is not to enable the same level of functionality as classical applications do, but to enable the use of applications and access to the important information and basic level of services in the state of mobility. The services they offer and the functionality they enable should be appropriate for mobility and the needs of a mobile user. We could say that they should offer mobility adapted and mobility suitable services. Mobile applications must provide a basic level of functionality, access to the important information and the possibility to be informed about exceptional, unexpected and other unusual situations happening within an organization he belongs to (Sacher 2001). In the following sub-sections we introduce two mobile application models.

LEVEL 2 (MOBILE APPLICATIONS): CLASSICAL MOBILE APPLICATION MODEL

The classical mobile application model is a basic mobile application model. It is a *pull* application model, which means that its main characteristic is that mobile application is run on the users' demand. The fact that the mobile user has run a mobile application indicates his current informational needs. The disadvantage