

## Chapter 5.4

# How Research can Help to Create Commercially Successful Ubiquitous Services

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### **ABSTRACT**

Ubiquitous computing will change the way people live with technology. At the same time it will also affect the way people access and use services. It is obvious that these new ubiquitous services have a lot of business potential. However, before this potential can be fully exploited, we need to understand the crucial factors behind creating commercially successful ubiquitous services. To do so, research is needed in three important areas. Firstly, we need to understand the basic nature of ubiquitous services, i.e., their unique characteristics. Secondly, we need to know the needs of the customers in order to create value to them so that

they will accept and use ubiquitous services. This can be done by involving users into the innovation process of ubiquitous services. And thirdly, we need to understand the value creating networks developing and commercializing the ubiquitous services as well as to find an appropriate business model for describing them. Value creation is impossible without a successful network business model which is yet to be found. Thus, the aim of this chapter is to describe, examine and give proposals for further research in these three important research fields which can be seen as the prerequisites for developing commercially successful ubiquitous services.

## **INTRODUCTION**

The era of ubiquitous computing does not only change the way how people access and use information. It will also have a profound effect on the way people access and use services. The emerging technologies connected with ubiquitous computing will change the relationship between a business and its customers in terms of three important areas. The technology will offer new ways for achieving awareness; new channels for accessibility; and thirdly, new techniques for responding to customers. This will enable the birth of new kind of services that only make sense when being embedded in the surrounding environment. (Fano & Gershman, 2002.) The successful commercialization of these services is in the key focus of this chapter.

In order to create commercially successful ubiquitous services one must first understand the nature of ubiquitous services and the challenges and opportunities that the new ubiquitous computing technology brings along. This chapter will try to identify the important characteristics of ubiquitous services, which separate them from ordinary service. However, understanding only the nature of ubiquitous services is not enough to make them commercially successful, that is why in this chapter we also want to stress the importance of customer needs, user innovation, value creating networks and the concept of network business model in the creation of ubiquitous services.

Understanding consumers' needs is one essential part in creating commercially successful ubiquitous services. However, in the case of novel products or services characterized by rapid change, as ubiquitous services, typical market research analysis is not very reliable and companies might be having trouble in identifying correctly the future needs of users (von Hippel, 1989). Therefore, to create successful ubiquitous services a new approach of "user driven innovation" is needed to the usually quite technology driven innovation and development of ubiquitous services. The

study of user driven innovation regards users as a resource in the innovation process (Holmquist, 2004). In other words, "users are not considered as a reference group that sets the specifications of a system, but as a source of inspiration that can foster innovation in its own right" (Holmquist, 2004, pp. 1091). In this chapter, we propose involving users, especially those identified as lead users, into the company's innovation and development process, as a solution to overcome the problem of identifying users' needs correctly. This way the needs of the users are the basis of the innovation and design process of a new service from the beginning of its creation.

According to Henkel and von Hippel (2005) most of the users' innovation activity is concentrated among the "lead users" in a user population. Because of the unique characteristics of lead users, they are not as constrained with the present as are the ordinary users, who are unlikely to generate new product and service ideas. Instead, they experience needs that are not general in the market for months or years and for that reason can serve as needs/forecasting laboratory for the companies as well as resources in the innovation process. (von Hippel, 1986; von Hippel, 1989.) Thus, within the research of user driven innovation the focus of this chapter is especially on the theory of lead users. The concept of lead user will be brought to the new context of ubiquitous technology and a theoretical framework building of lead user characteristics in the context of ubiquitous services will be started. Also further research issues will be discussed especially in the fields of lead user identification and lead user integration.

Another key issue in creating commercially successful ubiquitous services is to examine the value creating networks and the way lead users can be integrated into them. The development of new ubiquitous services is changing the business environment in many ways: new possibilities for generating revenues occur and new kinds of benefits appear. But perhaps one of the biggest changes brought by the development of these new

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