Chapter 5.17
Consumer Value of Context Aware and Location Based Mobile Services

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ABSTRACT

Context aware services have the ability to utilize information about the user's context and adapt services to a user's current situation and needs. In this article the authors consider users' perceptions of the added value of location awareness and presence information in mobile services. The authors use an experimental design, where stimuli comprising specific bundles of mobile services were presented to groups of respondents. The stimuli showed increasing, manipulated, levels of context-awareness, including location of the user and location and availability of buddies as distinct levels. Their results indicate that simply adding context aware features to mobile services does not necessarily provide added value to users, rather the contrary. The potential added value of insight in buddies' location and availability is offset by people's reluctance to share location information with others. Although the average perceived value overall is rather low there exists a substantial minority that does appreciate the added context aware features. High scores on constructs like product involvement, social influence and self-expressiveness characterize this group. The results also show that context aware service bundles with utilitarian elements have a higher perceived value than bundles with hedonic elements. On the basis of the different results some guidelines for designing context aware mobile services are formulated.

INTRODUCTION

In contrast to the tremendous success of mobile voice communication services, the uptake of mobile data services has been slow (Carlsson, 2006). With 'mobile services' we refer to all kinds of innovative services that combine technologies and concepts from the domains of telecommunication, information technology, and consumer electronics. While voice communication has become a commodity and mobile phone penetration has risen close to or even higher than 100% in Europe, the adoption of mobile services is hampered by an apparent lack of added value (Ojala et al., 2003), a mismatch between launched applications and the everyday needs of target users (Carlsson, 2006; Steinfeld, 2004), and ineffective business models (Carlsson, 2006; Steinfield, 2004; De Reuver and Haaker, 2009). However, the introduction of new phones such as the iPhone in combination with flat fee data subscriptions has led to a clear increase in data traffic and use of mobile services and mobile internet. Especially news and video sites, e.g. Youtube, and social media services are increasingly used on the newest mobile phones.

A core value element in mobile services is that they can be used anytime and anywhere, which enables people to communicate or to access information at any location, any time and in any situation (De Reuver, 2008). The intention to use mobile services is however found to depend on the situational context (Bouwman et al., 2008). Therefore, mobile services and applications that adapt to the context may provide greater added value (Bae et al., 2006; Klemettinen, 2007). Context awareness deals with the ability to utilize information about the user's environment (context) in order to adapt services to the user's current situation and needs (Dockhorn Costa, 2005). The most well known form of context awareness is location awareness, which is used to adapt services to the current location of the user (Raper et al., 2007). Navigation services, e.g. in-car personal navigation, are among the most popular location based

services (Berg Insight, 2007). Other examples of context aware mobile services deal with social context. For example presence services like MSN Mobile Messenger allow users to share information on social context like their online or offline status, or availability for communication. Twitter provides a social messaging utility for users to share what they are currently doing or thinking (Twitter, 2009). Context characteristics can also be derived from sensors, e.g. bio-sensors to measure heart rates, and used to adapt or trigger specific service behavior (Klemettinen, 2007; Koolwaaij et al., 2006).

Lately a significant amount of research has been conducted with regard to technological opportunities and possibilities of context aware mobile services (Hegering, 2004). These services often combine multiple forms of context awareness with personal preferences stored in profiles to create tailored solutions to meet users' needs (Klemettinen, 2007). Research focuses particularly on mobile services architectures, context modeling (e.g. Sinderen et al, 2006), context management (e.g. Kranenburg et al., 2006), context reasoning (e.g. Tao Gu et al., 2005), and on building reference applications. Less attention has been given to user evaluations of context aware services and applications. Relatively little is known about the actual added value of different context aware features in mobile services, and about the factors that contribute to user adoption of these services. For example the degree of control with respect to location disclosure is important (Consolvo et al., 2005). However, research in customer needs and behavior concerning context aware mobile services is hindered by the fact that respondents have difficulty understanding the specific characteristics of services that are not yet available. Decisions regarding adoption of context aware services revolve around consumers' perceptions of their potential use and expected benefits and costs, and depend on technology and service characteristics (Bouwman et al., 2007a), personal characteristics (Teerling et al., 2007; Kwon et al.

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