

# Chapter 10

## Quality of Experience Factors for Mobile TV Users

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### ABSTRACT

*This chapter helps the professionals involved in the Mobile TV industry to methodically engineer the Quality of Experience (QoE) of Mobile TV users. Its objective is to investigate the factors that influence the QoE of Mobile TV users. It also discusses the issues for strategic implications for the Mobile TV industry. We retrieved and categorized the majority of the critical works focusing on QoE for Mobile TV users. Then, we considered them and proposed a comprehensive road-map for improving the QoE of Mobile TV users. We present an approach to produce improvements to the Mobile TV customer experiences. This chapter proposes a seven-stage “road-map” to improvement, which develops the existing models. This study remains to be seen how the presented QoE factors— both amongst technologies and Mobile TV actors – will affect the potential for Mobile TV amongst various types of users. The proposed road-map can help to bridge gaps between other studies that have either focused on QoE for mobile TV or have addressed frameworks for mobile TV.*

### INTRODUCTION

Nowadays sophisticated devices such as smart phones are available in the telecommunication markets. Users can access telecom services at any Universal Personal Telecommunications (UPT) terminal on the basis of a personal identifier (user mobility). For this reason, networks supporting user mobility provide suitable services according to the user’s service profile. In the context of mobility, consumers use their mobile applications for fun, games, music, at work etc. and distribute these applications to their community. Some consumers also use their cell phones for invoking various mobile multimedia applications such as Mobile TV. Mobile TV provides television-like content through a mobile device and holds a limelight as the next killer application of wireless technologies. Mobile TV brings together two contemporary social developments:

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- (1) Enhanced end-user mobility and
- (2) Novel forms of access to media content.

In the business landscape of mobile TV, there are several actors already involved (Marilly et al., 2007):

- *Broadcasters* who provide TV channels.
- *Aggregators* who bundle TV channels into clusters.
- *Broadcast network operators* who provide access to their own broadcast networks (terrestrial, satellite or cable) to deliver the TV channels or clusters to end-users.
- *Mobile operators* (operating a cellular network).
- *Mobile service providers* (operating a mobile portal) who are now offering Mobile TV programmes in a unicast mode.
- *Content providers*, advertisers or even access service providers (ASPs)/Internet service providers (ISPs) who directly offer content to be delivered through the network.

Mobile TV is mainly consumed in leisure time. As a consequence, users do not want to spend much time to find out how to use it. Therefore, usability issues are major concerns of mobile TV users. So, much research focuses on results clarifying the users' needs and motivations regarding Mobile TV. According to Repo et al. (2004) the commercial success of a TV product depends on the users' requirements and its viability. Schuurman et al. (2009) summarized the literature regarding Mobile TV. In particular, they conducted a meta-analysis on user-studies from mobile TV-trials, surveyed a panel of 35 trial as well as non-trial mobile TV-experts and conducted a user study with 405 respondents. They compared the views from these four sources regarding context (possible mobile peak times, usage duration and usage goals) and content for Mobile TV. This comparison left them with a better understanding of different views regarding Mobile TV, which paves the way for a more user-centric approach. According to Buchinger et al. (2011) a *User Centered Design* (UCD) must be applied to any Mobile TV product. UCD involves users in the design and development process for a better understanding of their needs, tasks and expectations (Hanington, 2003; Eronen, 2003). Eronen (2003) states that for new devices and applications, the focus of Human Computer Interaction (HCI) research has to shift more to user experiences, which are relevant for the use of the product according to user's needs.

The aspects of UCD correlate with the understanding of User Experience. According to Hassenzahl and Tractinsky (2006) *User Experience* is a “consequence of a user's internal state (predispositions, expectations, needs, motivation, mood, etc.), the characteristics of the designed system (e.g. complexity, purpose, usability, functionality, etc.)”. Jumisko-Pyykkö et al. (2008) state that for mobile phones, the user interface and its usability often depend on the usage model and its layout “and the context (or the environment) within the interaction occurs”. Consequently, based on these factors improved design solutions for Mobile TV can be developed and then evaluated by their usability, and the level they satisfy user needs.

Quality of Experience (QoE) is a subjective measure of a customer's experiences with a service such as TV broadcast. QoE systems try to measure metrics that customer directly perceives as a quality parameter. For example, a potential metric for Mobile TV is the time for a new channel to be played when changing channel on Mobile TV. QoE takes into account the effective *Quality of Service* (QoS), but also considers every factor that contributes to overall user value such as suitability, mobility, flexibility,

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