Chapter 3.11
Pervasive iTV and Creative Networked Multimedia Systems

Anxo Cereijo Roibás
SCMIS, University of Brighton, UK

Stephen Johnson
Mobility Research Centre, UK

INTRODUCTION

This article presents a research project carried out at the BT Mobility Research Center with the aim of developing appropriate applications for pervasive iTV, paying special attention to the personal and social contextual usage of this media within the entertainment, work, and government environments. It prospects a future trend in the use of pervasive interactive multimedia systems in future communications scenarios for mobile and pervasive iTV, that is, the use of handhelds as interfaces to extend and enhance the TV experience outside the home boundaries.

The new scenarios discussed in this article are based on the assumption that mobile phones interconnected with other surrounding interfaces (e.g., iTV, PCs, PDAs, in-car-navigators, smart-house appliances, etc.), will be decisive in the creation of pervasive interactive multimedia systems.

With its recent development into becoming an interactive system, TV seems to increasingly replace traditional "passive" TV platforms through active viewers-participation (Lamont & Afshan, 1999). Moreover, interactive television gives viewers the opportunity to extend their UX of television for activities that currently occur more typically on the Web (Steemers, 1998). These activities are consequent to the enhanced communication possibilities that have been enabled by new media: users can browse information, personalize their viewing choices, play interactive games, carry out e-commerce activities (shopping, banking, voting, etc.), and play increasingly active roles in broadcast programs (to the extent of interacting with other viewers).

At the same time, recent technological developments in handsets have converted them into tools for creation, editing, and diffusion of multimedia content. The last mobile phones are equipped with large screen, color display, photo and video camera, and with functionalities as MMS, video call, image, sound, and video editing software. As an intrinsic characteristic of these interfaces, all

these operations can be done in any place, time, and environment. This freedom of action can lead to scenarios of pervasive multimedia interaction. In fact, a nomadic generation of users will benefit from pervasive interactive multimedia systems on many levels, not only by merely having access to TV broadcast on their handhelds or playing active roles in interacting with TV programs. The most challenging aspect of iTV is indeed the creativity and the one-to-one connectivity that this medium can enable. This attribute will allow users to become "multimedia-content producers": They will create content in multimedia formats and share it with others.

This research attempts to identify the mutual influence between technology and society. This phenomenon is particularly evident with social technology designed to integrate into household routines. Making effective predictions about new technology requires exploring the critical disconnections between the ways in which such technologies are produced and the ways in which they are consumed, or rejected (Fischer, 1992; Lee & Lee, 1995).

BACKGROUND

Becoming interactive, TV is replacing traditional "passive" TV platform (Spigel, 1992) through the increase of active participation by the viewers, substantially influencing people's experience with television and their TV-related social behavior (Lee & Lee, 1995).

As shown in Table 1, several network operators in Europe, the USA, Japan, Korea, and Canada are starting to broadcast TV on handhelds. This is commonly defined as mobile TV (Figure 1).

Users' adoption of powerful handhelds with multimedia features together with an increasing interoperability between platforms is resulting not only in expanding the iTV consumption beyond the domestic context, but also in granting a ubiquitous TV presence. We can define this "almost everywhere TV" as "pervasive TV." Pervasive TV is a step to further respect mobile TV as it considers not only handhelds as possible interfaces to receive and interact with TV content, but it includes a whole system of interfaces (TV, PC, mobile phones, public digital displays,

Table 1. Commercial and trial mobile TV worldwide

Operator	Country	Platform	Channels	Trial/Commercial
Bell Mobility	Canada	MobiTV	8	Commercial
Rogers	Canada	MobiTV	9	Commercial
TELUS Mobility	Canada	MobiTV	7	Commercial
Sonera & Elisa	Finland	DVB-H	9	Trial
SK Telecom	South Korea	S-DMB	9	Commercial
O2	UK	DVB-H	16	Trial
Orange	UK	MobiTV	9	Commercial
Virgin Mobile	UK	DAB	3	Trial
Cingular	UK	MobiTV	23	Commercial
Midwest Wireless	UK	MobiTV	23	Commercial
Sprint	UK	MobiTV	23	Commercial