WAP Applications in Ubiquitous Scenarios of Work

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INTRODUCTION

European users have eagerly adopted novel forms of digital media and related information and communications technologies (Stanton, 2001), making them a part of their increasingly varied and segmented cultures (Brown, Green, & Harper, 2001). For example, the young are active consumers of music, videos, movies, and games; businessmen on the other hand need more and more working tools and applications that enable connectivity when they are on the move. A not very dissimilar scenario is envisaged on troops in action where work on tactical and strategic information and mission management, command, and control, including real-time mission replanning, are essential. All these users rely on the Internet, i-TV, and mobile phones, and they have adapted all of these into the fabric of their lifestyles, or in short, their mobile life. But, functionality cannot be the main driver for design as mobile life is also deeply founded upon shared values and worldviews of the users, pleasure, enjoyment, culture, safety, trust, desire, and so forth (Rheingold, 1993).

For example, WAP (wireless application protocol) technologies seemed to provide a powerful tool to the mobile worker. However, it is well known the fraud of WAP mainly due to the scarce usability, high usage cost, and inadequate range of the services provided together with intrinsic limitations of the device itself (insufficient memory storage, low battery autonomy, poor screen resolution, etc. [Cereijo Roibás, 2001]). However, some WAP applications have been widely used by Italian users. The success of this system of applications is due to its efficiency, effectiveness, and relevance for some specific work purposes. Each of the services will be analysed, describing the expected use of each service and the actual use of it by Italian users.

BACKGROUND

Many efforts have been devoted to design valuable tools for the mobile worker, but so far only a few of them have been successful. Surprisingly, most of the mobile applications originally designed as work tools (chat, message board, etc.) have found a fertile market in entertainment. There seem to be two main causes of this failure: the lack of usability of the applications provided and, above all, the failure to create realistic usage scenarios.

The European Commission (EC) and European Space Agency (ESA) jointly set up an expert group on collaborative working environments that met for the first time in Brussels on May 4, 2004. The expert group discussed the vision of next-generation collaborative working environments (NGCWEs). The vision drawn by the expert group was that NGCWEs will deliver a high quality of experience to coworkers, and will be based on flexible service components and customized to different communities. Mobility, interaction among peers (systems and persons), utility-like computing capacity and connectivity, contextualization and content, security, privacy, and trust were among the RTD challenges in nine areas identified by the experts.

FROM THE MOBILE ENTERTAINMENT COMMUNITY TO THE NOMADIC WORK TEAM

If there is always an uncertainty about the most suitable use of a new service, the case of wireless applications is not an exception (Flynn, 2002). As will be explained for each case, the following applications have been created to work in different platforms: WAP, WEB, and SMS (short-message

service). They were supposed to find wide use within the increasing Italian mobile community for entertainment purposes. However, they have been used more and more as work tools. Obviously, some services such as the multimode chat have had and still have a strong use for entertainment purposes ("Now There is the 'Wappario,' 2000). Users that need to communicate with their colleagues in real time when they are out of the office are largely using mobile chat as a working tool. There is no experience of the above-mentioned phenomenon in the classical Web-only chat services.

THE USE OF WAP AND SMS APPLICATIONS AS WORKING TOOLS

Who, Where, When, Why, and How

Supposed target users of multimode applications (Burkhardt et al., 2002) were thought to be teenagers, but, as recent technology history has shown, consumers' behaviour and use of technology have contradicted predictions. Mobile technologies, ranging from WAP to SMS, from GPRS (general packet radio service) to MMS (multimedia message service), were born to meet the desire of teens, the same people who had made text messaging their preferred medium. However, as had happened for short messages, multimode applications have been used for a purpose that contradicts its unique selling proposition, confirming once more the inner limits of today's marketing of new technology. Outside cubicles, mobility is at the heart of multimode applications, allowing users to make a real personal use of technology. People stopped being slaves of given and prepackaged software: They want technology when it shows to be relevant in real life—not a utopian Internet where they are living nowhere but in wires because without wires, people are free. Relevance is the reason for multimode applications: People want technology relevant to work, dating, participating in TV voting, and chatting. What counts is that technology is at their hands when they need it, and they are the ones giving meaning to it. It is not a chat software waiting for them at a URL (uniform resource locator), but it is a person at home or in the office with a need and a device that can help satisfy it. How these technologies are used is a matter of context: There is no optimized path to be imposed on end users. Multimode applications impose new challenges because end users get more and more demanding. End users do not want technology, but services. Technology is going back behind the scenes.

Mobile Applications for Work and Sharing Knowledge

The services that will be discussed below were launched by the Italian mobile-services provider HiuGO in early 2001 as part of a Blu-branded offering. All applications fully exploited the potentiality of the mobile medium by combining messaging with WAP and later on GPRS browsing. The applications have been tested and corrected according to the company's usability standards both before their launch and after it as data from consumers were collected. Continuous interaction with mobile users included the following activities: monitoring usage and traffic patterns, controlling services requirements, polling end users' expectations, analysing end users' interactions (Schneiderman, 1987), and checking users' satisfaction.

The main methodology consisted of the following:

- Users' perceived value of the services provided (questionnaires)
- Self-training with a quick learning phase (usability test)
- Time for task completion (usability test)
- Number of users' irreversible mistakes (usability test)
- Satisfaction of users' expectations (questionnaires)
- Level of users' interaction (usability test)
- Flexibility toward users' personalization (usability test and questionnaires)

Message Board

A message board is a thematic forum with file-sharing options. Users can access the forum via SMS or WAP/GPRS. All functionalities are available and optimized for mobile devices. Users sub-