The eUser in a Universally Accessible Information Society

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Abstract: This paper discusses some critical issues related to Universal Access to Information Society Technologies, and in particular eServices, and analyses the main factors that are likely to influence in the longer term the establishment of a favourable industrial and market environment for universally accessible products. Additionally, the paper provides a brief overview of the main related initiatives at the European level, and draws conclusions on current opportunities and challenges.

1. Introduction - Universal Access in the Information Society

The Information Society is bringing about radical changes in the way people work and interact with each other and with information \cite{1}\cite{2}. In this context, the “typical” computer user, often considered in the past as a “knowledgeable” worker, capable and willing to use technology in the work environment, and to experience productivity gains and performance improvements, can no longer be identified. Interactive artefacts are being used by diverse user groups, including people with different cultural, educational, training and employment background, novice and experienced computer users, the very young and the elderly, and people with different types of disabilities.

Existing computer-mediated human activities, mainly oriented towards the business application domain, undergo fundamental changes while new ones appear, such as access to on-line information, e-communication, digital libraries, e-business, on-line health services, e-learning, on-line communities, on-line public and administrative services, e-democracy, tele-work and tele-presence, on-line entertainment, etc.

Similarly, the context of use is changing. The “traditional” use of computers (i.e., scientific use by the specialist, business use for productivity enhancement) is increasingly being complemented by residential and nomadic use, thus penetrating a wider range of human activities in a broader variety of environments, such as those of school, home, market place, as well as other civil and social contexts. Finally, technological proliferation contributes, with an increasing range of systems or devices, facilitating access to the community-wide pool of information resources.

The Information Society has the potential to improve the quality of life of citizens, particularly through the provision of appropriate, accessible, usable and effective public eServices in critical domains of citizens’ everyday life, such as Health, Education and Public Administration. However, as with all major technological changes, it can also have disadvantages, leading to the creation of a two-tier society of “have” and “have-nots”, in which only a part of the population has access to the new technology, is comfortable using it and can fully enjoy the benefits. As a consequence, there is a danger that ordinary citizens may reject the new information culture, its instruments and its services \cite{1}.

Universal Access concerns the right of all citizens to obtain and maintain access to a society-wide pool of information resources and interpersonal communication facilities, given the varieties of context [1][2]. Universal Access fosters an inclusive Information Society that values and respects citizens irrespective of social status, gender, age or (dis)ability, and ensures that all citizens have access to the resources of the emerging information society, in a manner which is enabling and satisfying. Therefore, it has a broad connotation involving a variety of factors, such as for example, the availability and affordability of telecommunications infrastructures, the appropriateness and fit-for-purpose of the provided services, the content and quality of the provided information, as well as accessibility and usability by all Information Society citizens. In such a context, the eUser can be defined as any citizen in the Information Society who may potentially benefit from public eServices if these are universally accessible.

This paper discusses the main factors that are likely to influence the establishment of a favourable industrial and market environment for universally accessible products, and provides a brief overview of related initiatives at the European level, drawing conclusions on current opportunities and challenges.

2. Envisioning a Universally Accessible Information Society in Europe

The emergence of the Information Society is associated with radical changes in both the demand and the supply of new products and services. The changing pattern in demand is due to a number of characteristics of the customer base, including: (i) increasing number of users characterised by diverse abilities, requirements and preferences; (ii) product specialisation to cope with the increasing variety of tasks to be performed, ranging from complex information processing tasks to the control of appliances in the home environment; and (iii) increasingly diverse contexts of use (e.g., business, residential and nomadic).

On the other hand, one can identify several trends in the supply of new mainstream products and services. These can be summarised as follows: (a) increased scope of information content and supporting services; (b) emergence of novel interaction paradigms (e.g., virtual and augmented realities, ubiquitous computing); and (c) shift towards group-centred, communication-, collaboration-, and cooperation-intensive computing.

These challenges have been addressed at a technological level by a line of research efforts in Europe over the past fifteen years, which have demonstrated the technological feasibility of Design for all approaches, and of methods, techniques and tools supporting the development of universally accessible Information Society Technologies [3][4].

However, while users’ demand for universally accessible and usable products and services is increasing, available supply still lags significantly behind, due to a variety of factors, including a limited view of the users and traditional focus on the non-existent ‘average’ user, the need for better awareness and appreciation of diversity, and the lack of cost effective technology to deliver products that are designed for all.

As a consequence of the above, there is a need that arises for initiatives targeted towards the creation of a favourable social, industrial, knowledge and technology transfer environment for Design for All. A variety of support measures covering a range of multi-disciplinary and cross-sector related actions have been proposed in the past [1][2][3][6][7].

Today, the eEurope 2005 action plan recognises the compelling need for “an information society for all” in Europe, and various initiatives have been established towards facilitating the “for all” dimension of the above objectives. In the following section, an overview of relevant issues will be presented, highlighting recent initiatives and progress.
3. Building a Positive Environment for Universally Accessible eServices

3.1 Matching Supply and Demand of Universally Accessible eServices

One of the key issues in establishing a favourable environment for Universal Access is to put the users and their needs at the centre of IST developments. To this end, it is important to obtain empirical information on key public eServices domains, and assess the demand and supply match in critical application domains such as eHealth, eLearning and eGovernment. Online public service providers need to improve their ability and readiness to address generic user issues and their domain-specific needs.

Towards this end, the eUser project [12] started in January 2004 and coordinated by empirica, aims at addressing user-related issues and developing a globally accessible repository of evidence-based knowledge, methods and best practice examples. It pursues an extensive programme of active knowledge translation, transfer and dissemination supported by sophisticated online virtual collaboration and knowledge dissemination tools. The project will consolidate both existing knowledge and approaches, and novel data generated by the project through representative population surveys (demand side) in selected old and new Member States, and through comparative analyses of readiness to address user aspects of public eServices in each Member State (supply side). The project will also provide benchmarking and prospective analyses that will be of value for the eEurope 2005 action plan and for EU public administration, public health and education policy.

3.2 Awareness, Knowledge Dissemination and Networking

One of the critical impediments to the adoption of universal design practice is the lack of general awareness concerning Universal Access and Design for All, as well as the lack of a consolidated common understanding of the dimensions and impact of Universal Access.

Several initiatives have been undertaken in order to overcome this obstacle. In the context of eEurope, the eAccessibility Action Plan focuses on promoting the access opportunities that innovative technologies can offer to citizens in the Information Society, and especially to members of social groups at risk of exclusion, and in particular people with disability and elderly people. The European Design for All e-Accessibility Network - EDeAN (www.eaccessibility.org), which was established in July 2002, in accordance with the eAccessibility Action Plan, to promote awareness and application of the Design for All and Universal Access principles. The EDeAN Network aims to facilitate the exchange of ideas, knowledge and experience, by fostering common activities among the European Union member-states. The exchange and interaction in the EDeAN network is largely organised by topics in special interest groups (SIGs). Five EDeAN SIGs are active (www.edean.org), addressing the issues of Policy and legislation, Standardisation, Curricula on Design for All, Benchmarking and Technology Proactive Assessment.

Another recent activity in awareness raising and consolidation of Design for All methods and techniques was the IS4ALL Thematic Network [5], which elaborated a code of practice for Design for All in the domain of Health Telematics [8]. The code of practice targets industry professionals and practitioners in Health Telematics, as well as the academic community, and is complemented by an on-line training course [5].

3.3 Supporting Industry

The creation of an industrial environment favourable to innovation is one of the key factors likely to impact the adoption and practice of Design for All methods and techniques. At the core of such activities should be the provision of incentives, which need not necessarily be
of a financial type, though this would be critical for Small and Medium size Enterprises (SMEs). They should also include access to research results that would be difficult to obtain otherwise, provision of a suitable infrastructure, availability of tools for the design and development of universally accessible products and services, collaborative R&D activities for technology transfer (see also section 3.4), as well as other policy initiatives, such as the establishment of an Accessibility / Usability certificate.

There is also a compelling requirement for speeding-up current standardisation processes, as well as for more intensive international co-ordination of standards related to Design for All and Universal Access in the long-term. To this end, actions are needed to facilitate co-ordination across efforts initiated in the context of research consortia (e.g., the W3C Web Accessibility Initiative (WAI, 1997). www.w3.org/WAI/), and in national (e.g., HFES / ANSI 1997) and international standardisation bodies (e.g., the new work item on accessibility by ISO 9241 / TC 159 / SC 4 / WG 5).

3.4 Technology Transfer

Effective and efficient technology transfer is another critical target, requiring a range of support measures to be effected. To facilitate successful transfers of technology, suitable mechanisms are needed in the short-term, to the effect of targeted and purposeful exchange of knowledge, know-how and know-why. From the broad range of technology transfer mechanisms which can be considered [6], advanced measures (such as co-operative R&D, joint venture R&D agreements, joint ventures aimed at keeping partners informed, large / small firm agreements) appear more suitable than simpler ones (such as licensing, technical advice, technical support, contract of R&D). This is because advanced measures better suited for the type of transfer that is required in the field of Design for All, i.e., transfer of know-how and know-why. In this context, collaborative, inter-disciplinary, multi-national, multi-cultural and cross-industry R&D activities, involving industry and research institutions, are of primary importance.

3.5 Legislation

Legislation is also needed to provide a framework of operation, as well as the required incentives for both the consumer base and the industry to respectively demand and supply universally accessible services. To this effect, recent experience in the USA with the Americans with Disabilities Act of 1993, the Telecommunications Act of 1996, and section 508 of the Rehabilitation Act in 1988 should be assessed, and similar actions should be undertaken at the European and member states level. Such efforts could also draw upon general rules and recommendations compiled by industrial consortia (e.g., The Telecommunications Policy Roundtable in USA), technical committees (e.g., the Association of Computing Machinery (ACM) Public Policy Committee) and international organisations (e.g., the United Nations General Assembly Standard Rules of 1995), as well as recent advances in Member States (e.g., Germany, [9], Italy [10]).

4. Conclusions

This paper has discussed some critical issues related to Universal Access to Information Society Technologies, and in particular services. It has analysed the main factors likely to influence the establishment of a favourable industrial and market environment for universally accessible products, including demand and supply matching, awareness, dissemination and networking, industry support, technology transfer and legislation. The paper has also provided a brief overview of the main initiatives related to these issues at European level, outlining recent progress and current challenges towards satisfying the
needs and requirements of eUsers in the context of a Universally Accessible Information Society. New initiatives must be undertaken to address such challenges and establish a favourable environment for the articulation of related supply and demand. On the demand side, it is important to increase and improve the eUsers’ awareness of the potential benefits of universal access to eServices, and their needs and requirements in this respect. On the supply side, measures must be taken to ensure that the developed and available services respect and satisfy the eUsers’ needs, and that appropriate access points to such services are provided. Finally, both progress in the citizens’ access to public eServices, and the related obstacles and reluctance, should be monitored (for example, through observatories).

In such a context, National Governments of EU Member States and the European Commission have a catalytic role to play towards the establishment of a universally accessible Information Society in Europe. Some of the prerequisites are critical thinking on the type of Information Society envisaged, political intervention as catalyst for development at the legal and regulatory levels, as well as at the level of industrial and research policy.


References


[12] IST- 502553 – “Evidence-based support for the design and delivery of user-centred online public services” (www.euser-eu.org)