Enhancing Accessibility to E-Government Processes

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ABSTRACT

Many governmental institutions provide their customers with access to documents by electronic means. It is worthwhile to look at both the chances and the risks which this process implies for disabled citizens. Due to legal constraints governmental authorities are particularly responsible to consider the needs of handicapped persons. Our contribution follows the observation that governmental processes mostly are based on forms. We distinguish several processing scenarios, with the use of paper as means of transport on the one end and complete electronic treatment at the other end. This article focuses on approaches that provide access to governmental processes for people with visual impairments. Additionally, we aim to enable electronic government processes in developing countries where citizens have limited experience in handling IT-based processes. We describe an approach to associate synthesized speech to scanned images of printed documents, thus yielding an audio-visual document representation. [Article copies are available for purchase from InfoSci-on-Demand.com]

Keywords: Accessibility; Adaptable User Interface; Assistive Technology; Digital Divide; Identification of Forms

INTRODUCTION

In recent years much effort has been spent in Human Computer Interfaces to improve access for handicapped persons to computer systems (Muller et al. 1997). To a major extent these activities are enforced by legislative constraints that exist in the US, e.g. the Americans with Disabilities Act (United States of America, 1990) as well as in the European Union (European Commission, 2000), and in its member countries, like in Germany (Bundesrepublik Deutschland,
However, in most countries these efforts have not yet reached their final destination. To a large amount these realizations allow the user only to download particular forms, to print them, and to send it back to the governmental institution after some information has been inserted. While for the Web based information systems accessibility aspects are often considered in e-Government platforms, for the procedure of forms filling support for disabled persons is often missing. In many cases it is necessary to process printed documents, yielding a point of media disruption which is difficult to handle for many users with particular handicaps.

In this article, authors want to evaluate possible scenarios and interim steps while implementing electronic processes in authorities. Thus, more is necessary than supporting electronic forms. They want to take a look at the e-Government sector and the efforts to make it accessible. To clarify the special needs we must have a closer look on the impairments and corresponding assistive tools. Therefore, this article discusses in more detail an approach to build interfaces to governmental forms. This exploits different computer science techniques e.g., from the fields of document analysis, language processing, and distributed systems to develop a solution.

Its document representation is based on XML structures and communication is implemented by using Web services, which guarantees independence from software and hardware platforms. In most cases when people speak about documents, they have in mind governmental forms, which are used to provide and to maintain information that is necessary to execute governmental processes. This research affirms the stringent necessity of making e-Government processes available for almost all people to lead them to an autonomous and self-determined life.

**BACKGROUND**

Regarding accessibility to e-Government processes, at first it has to consider the processes that already occur in general. In this aspect, authors explained three main E-Government scenarios in this section showing the diversity of the integration of IT in public authorities. Thereafter, they describe how these scenarios are related to accessibility issues.

**E-Government Scenarios**

In early days, like many private companies public governments also have started to use IT-systems to accomplish their tasks and substituted paper as means of transport of information by electronic documents. The systems comprise of various software to handle the work load in the offices, ranging from text-processing programs, spreadsheet programs, database systems, up to integrated systems like workflow management and archive systems. Moreover, governments implemented information systems for the contact to their citizens, e.g. geographical information systems, or electronic registers, like the register of residents or the commercial register. For one reason, these efforts are motivated by new public laws, e.g. the Directive of the European Parliament and of the Council on public access to environmental information (Directive 2003/4/EC) which obligates any public authority to inform all citizens about all environmental data they have at hand. This task cannot be achieved economically without the use of IT-systems.

Thus, cost and efficiency considerations are another reason for this process of change. In some areas this development has considerably changed the way of interaction between governmental authorities and citizens. The main focus in this article is to evaluate the aspect of accessibility for these newly designed processes.

A first observation is, that the state of progress in the implementation of electronic processes differs from country to country, as well as it appears to be different from city to
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