

INFORMATION SYSTEMS FOR E-GOVERNMENT

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Abstract: Building information systems for e-government is a task using models. Information systems are acquired in different ways. The researches in e-government area are limited to some opportunities. The paper discusses the categories of research. The basic research in the paper is on the achievement of Bulgarian e-government in the sector of payment. The research is supported with statistical data.

Keywords: e-government, e-banking, information systems.

1. INTRODUCTION

To solve the technical problems in realizing information systems for the government needs means to answer next questions.

Can the technology be effectively integrated into existing operations and procedures? Can it be packaged to interconnect with related systems? Does it comply with the interface standards that are adopted within the organization or by the integrators responsible for other major systems used by the organization? Are there fundamental difficulties in adjusting the human interfaces in a concept-demonstration system to conform better with organizational culture and practices? Can the new technology scale up appropriately to expected and potential operational levels?

What re-engineering is needed with respect to the prototype concept-demonstration system? Are certain capacity limits expediently "hard-wired" into the prototype, for example, in order to simplify implementation? Can the prototype system handle the full range of categories of inputs, or does it handle only a representative set?

2. MODELS FOR THE PROGRAM MANAGER IN SEEKING INNOVATION IN GOVERNMENT APPLICATIONS.

Models play an informal but essential role in developing and managing successful long-term research programs. Little real data on research-program management exist, which means that managers generally plan and decide largely on the basis of personal experience and organizational culture [1]. The models identified here are intended to organize and express concepts that are generally present in the culture of program management in various organizations. The design of information systems is an area of ongoing exploration. One recent trend has been the development of centralized data warehouses, which contain data extracted from operational transaction systems, to facilitate retrieval or analysis. Such warehouses could provide short-term benefits, such as improved understanding of the cost of programs and how agencies use resources, and long-term benefits, such as better understanding of the impact of programs and support for enhanced planning of new programs. Frequently, information is stored in multiple systems, which necessitates special techniques for locating and retrieving it. This entails developing improved algorithms for finding information resources, selecting the appropriate sources for a given query, representing their content, and merging the results.

1. The supply chain, or technology food chain, is an identification of stakeholders and the relationships between them. This model is useful in understanding the respective roles and interests of stakeholders in the process of developing and delivering capability.

2. The dimensions of risk are categories of engineering or market strategy. Engineering includes, for example, the scalability of a component or system, usability and adoption issues, and robustness of internal interfaces.

Government information systems are acquired in several different ways. If off-the-shelf components such as operating systems, network components, and office-productivity tools can be used, they are obtained from IT vendors. If custom engineering is necessary (to fill in where off-the-shelf components are lacking), contracts are typically let with large commercial systems integrators. Integrators themselves often have incentives to incorporate off-the-shelf components into systems, thereby limiting the extent of new engineering. Many government agencies are using "seat management" approaches in order to provide state workers with a base level of common, largely off-the-shelf services (desktop computer, office automation and other basic software, network connectivity, and support). In traditional basic research programs, research teams often operate independently of any particular end user.

Today three categories of research are apparent, which might be handled quite differently with respect to research management, government sponsorship, and engagement with industry. The categories are these:

1. Broad infrastructure. These technologies are important for all users of IT, whether commercial or government.

2. Governmentwide use. There are important developments that could be applied broadly across many government programs but that might not necessarily apply in commercial settings. Many of these technologies fall in the category of middleware.

An example of an unsolved problem here is that of developing one or more authentication schemes that government agencies can use to authenticate citizens for various categories of transactions. Where government is successful in developing technologies of this sort and stimulating their uptake, wider commercial use may be an important consequence.

3. Mission-specific. There are many technologies with narrower applicability that address more focused government technical problems.

3. SOME E-GOVERNMENT RESEARCH AREAS

Government applications present challenges for information-management technology. Governments hold large amounts of heterogeneous data from a wide variety of sources - textual information, demographic data, geographic data, image and video data and in databases with many different schemas. They also present a heterogeneous computing environment, with numerous types of computer platforms, database systems, information retrieval systems, and document-management systems.

A second class of problems is that of metadata and interoperability among data sets and information systems. Without agreement on the format and meaning of data it is not possible to transfer information from one system to another or combine information from multiple systems. The XML "meta standard" for metadata has been widely embraced because it provides an effective approach to achieving commonalities. XML itself only provides a language for describing data and relies, therefore, on the success of social processes to obtain consensus on representation within specific domains of common interest. With respect to semantic issues, there is less progress, though the XML standard at least enables communities to "speak" a standardized language in addressing semantic issues.

Many e-government systems must provide information and services to a range of users: experts within the government, experts outside government, and the general public. Even when the user population is segmented by capability and interest, success in delivering services depends on the development of appropriate human-computer interfaces. HCI is an inherently multidisciplinary research area, drawing on ideas from psychology as well as computer science. Government systems need to be usable by a wide range of individuals and organizations with heterogeneous needs, cognitive abilities, and hardware and software. How can we create systems that allow users, whether they be students, journalists, local community groups, government workers, or policy makers, to access the wealth of government information in a way that is useful to each of them? Providing "universal access" means building systems to work well with a diverse user population and making appropriate facilities available for populations with special requirements—such as disabled citizens, speakers of languages other than English, and those located at remote sites.

A variety of infrastructure components provide an important foundation for e-government, starting with basic network-communications capabilities. Internet technologies are in widespread use, and both government and the private sector continue to press the Internet industry to provide yet more—greater capacity, for example, and improved security and reliability. These demands continue to stimulate research and development, which has already resulted in dramatic increases in network bandwidths.

Government applications of IT often center on the management of records about individuals and businesses. Significant savings can be obtained by removing intermediaries and allowing direct access to these records—by the properly identified parties authorized to view them. Similarly, the accessed records are subject to change only by those authorized to make changes. To ensure the security of such systems and promote trust in them by citizens, several services need to be applied: confidentiality, integrity, authentication, authorization, and audit.

4. INITIATIVES FOR DEVELOPMENT E-GOVERNMENT IN BULGARIA

The advanced level of information technologies in Bulgaria is a precondition for integrating the decision for e-government. On the opposite side are the poor economic results of the country, combined with bad administrative decisions. Technologies in management and in state and municipality authorities are in the process of involving. Most of the data bases used for reports and check up are on a paper. The process for administrative check up is 100 to 2000 times slower

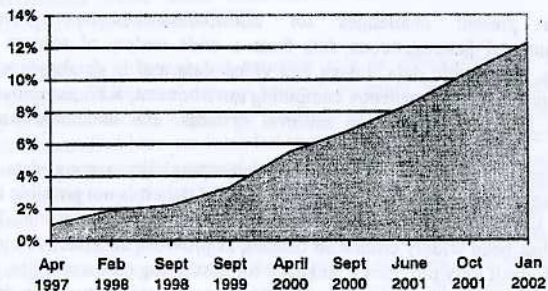


Fig. 1. INTERNET Penetration

The presented results for Internet penetration on fig. 1 are from a survey of Vitosha Agency. The insufficient Internet access in businesses and state administration is a serious reason for the limited usage of government information systems. Positive result is the trend of fast increasing the percent of Internet penetration.

The current situation allows some initiatives for starting the systems forming e-government. The initiatives researched in the paper are:

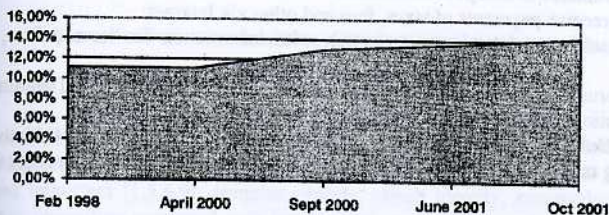


Fig. 2. PC access

1. Developing e-banking services for supporting businesses, state administration and citizens.

The results from the survey at the beginning of 2003 from IDG Bulgaria among commercial banks show some tendencies in using e-banking services in Bulgaria. The most popular and most offered e-services are bank payment cards and PC banking [2]. (Fig. 3). Internet banking is on the third position, phone and GSM banking are less popular. The users of e-banking services are mostly large corporations, administrative organizations and middle size companies. The most popular remote services are banking transactions connected with payment. Relatively low is the rate of using e-banking services for payments to the state budget and to the utility companies like bills for electricity, central heating, telephone. The e-services are still not very popular. The survey figures the predominant result that only 10% of the clients of any bank tend to use e-services.

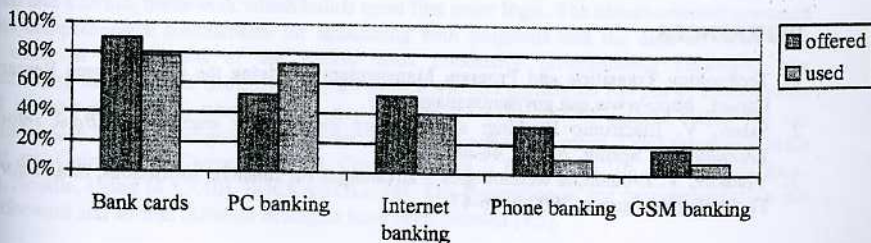


Fig. 3. Relatively distribution of channels for e-banking by offered/used

2. Developing the system E-Pay for e-payments using Internet.

The successful application in real transactions of the system depends on various factors like the security level; technological level of state organizations, citizens and business; organization culture. On fig. 1 the statistics reports that the penetration of Internet for Bulgarian citizens is growing fast. It would be a good base for developing on-line services for citizens and businesses.

3. Developing several sites with Government information.

The initiative grows up in high speed and for several months a variety of informations in these sites is presented.

4. Basic program of the Bulgarian government including

- ⇒ the possibility state structures to accept e-documents;
- ⇒ state organizations to receive payments of taxes, fees and other via Internet;
- ⇒ publishing sites of each administrative organization with information for its activities, contact person, FAQs;
- ⇒ Developing public forums in the sites of state organizations for discussing actual administrative regulations and resolutions.

A reorganization of Bulgarian State administration is planned connected with the initiative for e-government for achieving more effective organization and management. The actions for reorganization are discussed.

CONCLUSIONS

The idea for application the computer network like a mediator between the citizen and the government leads to decreasing the level of corruption and stopping the unscrupulous state administrators.

The first symbolical step in Bulgaria in this direction is publishing the list of credit millionaires in Internet. Now is possible to make full check up via Internet for each company or physical person, registered with Bulstat or with VAT. Information systems giving information from large databases via Internet, like APIS are important contribution to preventing economical frauds. Country with young democracy like Bulgaria made an important step with observing voting results on web page.

E-government has an effect on the transparency of the activities of state administration offices. The activities like auctions, licenses, state commissions with high potential level of corruption would be transmitted in computer network and be accessible for everybody.

The question for access corruption in computerized environment is discussed too.

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