The role in enabling government to organize and operate itself in a more efficient and cost effective manner by using the information technology

Vatuiu, Teodora and Popeanga, Vasile

Constantin Bracusi University of Targu Jiu

10 May 2008

THE ROLE IN ENABLING GOVERNMENT TO ORGANIZE AND OPERATE ITSELF IN A MORE EFFICIENT AND COST-EFFECTIVE MANNER BY USING THE INFORMATION TECHNOLOGY

Popeanga Vasile

Universitatea "Constantin Brancusi" Facultatea de Stiinte Economice, Str.Victoriei, Nr.24, Targu-Jiu, Gorj, Romania e-mail:vasile_popeanga@yahoo.com

Vatuiu Teodora

Universitatea "Constantin Brancusi" Facultatea de Stiinte Economice, Str.Stefan cel Mare, nr 1, Targu-Jiu, Gorj, Romania e-mail:vatuiu_teodora@yahoo.com

This paper illustrates the value of interoperability in the delivery of Government e-services: Government-to-Government, business-to-Government and citizen-to-Government. It describes the many issues involved in achieving successful interoperability programs—together with the tools, technologies and standards that help make this possible.

The information technology, the delivery of Government e-services, successful interoperability programs

1. Generals considerations

Government systems are generally purchased on a solution-by-solution basis, and driven by the need to acquire the best solution for a specific purpose. The result of this is the creation of a wide range of separate information and data islands across Government—with no easy way of unlocking the valuable information assets they collectively contain to support more useful and productive processes.

Interoperability programs can help resolve these problems. A well-structured approach to interoperability helps open up data and information silos and enable information to be exchanged more easily and usefully between systems. Business applications can then take advantage of that integrated information to provide greater insight, better control and improved operational efficiency in information handling. The net outcome can be better-informed and more time decision–making and related cost efficacy.

E-Government interoperability programs need to be based on a clear set of publicly accessible technical standards and policies that act as a foundation for the overall e-Government strategy. Such technical standards range from those defined by the numerous open standards bodies (like ISO, ECMA, ETSI, ITU and ANSI-accredited developers), to those proprietary standards adopted by companies across the marketplace. For example, HTML and TCP/IP are widely recognized open standards, while Adobe's PDF format, the Microsoft® Office XML file formats and the Java and Win32® APIs are widely accepted proprietary standards. Yet each of these standards provides proven interoperability between different systems and applications.

Successful interoperability programs exploit existing Government investments—and provide a means of enabling those existing systems to participate in a wider ecosystem of information systems. By exploiting best interoperability practice, Government systems are able to achieve improved data exchange and more integrated systems and application access. The result is more effective use of information not only within the public sector, but also between the public sector and citizens and businesses.

Establishing an agreed approach to interoperability can help lead to a step-change improvement in Government services through, for example, internal efficiencies and the provision of better online access. The adoption of interoperability initiatives by various Governments around the world has already provided a powerful means of ensuring true interoperability across public sector systems and between the public, private and voluntary/not-for-profit sectors.

2. Microsoft and Interoperability

As a well-established and recognized industry leader, Microsoft has long embraced the importance of interoperability. It has been one of the leading players in designing interoperable products, licensing its

intellectual property to enable interoperability, developing interoperability standards such as C#/CLI, IPv6, USB, XML and Web services, and collaborating with partners and competitors to provide interoperable solutions (such as the Nokia-Microsoft mobile music solution, the Cisco-Microsoft security initiative, the Sun-Microsoft interoperability Agreement, the palmOne-Microsoft e-mail interoperability effort, and Siebel-Microsoft effort to enhance interoperability)

The European Union's IDA (Interchange of Data between Administrations) program has also acknowledged Microsoft's practical commitment—both now, and in the future—to meet interoperability requirements.

Microsoft has consistently invested in helping customers integrate our platform and applications with a broad array of popular (and even not so popular) hardware, software and networks … As a result of these efforts, Microsoft offers a comprehensive portfolio of interoperability software capabilities, from the operating system to individual applications. Our software works with a vast array of technologies in the marketplace, whether they shipped last week or decades ago. Microsoft software can talk to mainframes and minicomputers from IBM and other manufacturers; other operating systems such as the Mac OS and various UNIXes including Linux; NetWare or AppleTalk networks and native Internet protocols; dozens of programming languages, ranging from COBOL and RPG, through C++ and Java, to the latest experimental languages; hundreds of databases including Oracle, Sybase and DB2; popular business applications like SAP or Siebel; vertical industry standards like SWIFT or HL7; email systems; and infrastructure products providing message queues, directory, management and security.

Microsoft's practical delivery of interoperability reflects a long-standing drive for continuous improvement in software quality to support better and more predictable software experiences, even in a highly interconnected environment. Microsoft is committed to enabling interoperability between Microsoft products and other companies' technologies to meet customers' present and future needs.

Microsoft Office, for example, is not only a familiar desktop office suite but also provides strong support for interacting with existing information systems, enabling the smart use of data drawn from multiple underlying information systems. Using Office in this way minimizes training (since users are already familiar with Office) and enables more efficient interactions with new and existing data, regardless of the underlying systems in which such data resides.

Beyond the significant development time Microsoft spends to ensure interoperability between old and new generations of software, it incorporates hundreds of industry standards into its products to enhance their interoperability with third-party products and services. Microsoft also participates in many formal and informal industry standards organizations to help define the specifications that are a prerequisite for interoperability.

We publish APIs, protocols and software development kits, and we also license our underlying intellectual property associated with this and other technology, to help others deliver interoperable software. And we work with a wide array of partners, some of them direct competitors, to deliver interoperability solutions that work well with our products. In the last year alone, Microsoft entered into interoperability agreements with AOL and Yahoo! (instant messaging interoperability); Cisco (interoperable security solutions), Oracle (database interoperability), palmOne (e-mail interoperability), Sun Microsystems (Windows Client and Server and Java/.NET interoperability); and Vodaphone (PC-mobile interoperability).

The design and development of the Microsoft platform creates compelling opportunities for third-party software and hardware—something that is only achievable if the platform provides interoperable mechanisms. This is further underpinned by the increasing transparency provided to the industry (for example, documented Windows interfaces and access to the Windows source code for Governments under the Government Security Program).

In addition to the extensive support for open standards across its product range (such as, for example, the features in Microsoft Office System that enable it to use open standards such as XML and Web services), Microsoft provides other products specifically focused on helping ensure interoperability between systems (linking for example the world of XML data interoperability with those of proprietary applications and technologies). These help to ensure the kind of cross-system integration necessary to underpin online service delivery and e-Government programs.
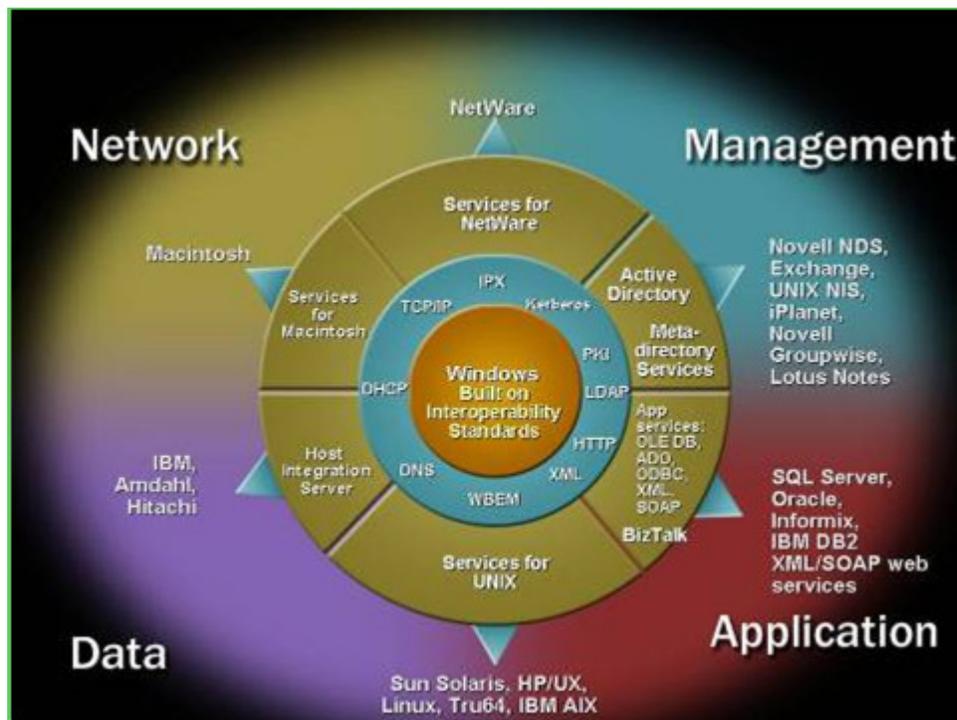
As illustrated in the preceding graphic, the result of Microsoft's commitment is that we offer a comprehensive portfolio of interoperability software capabilities, from the operating system to individual applications. Specifically, Microsoft software can talk to mainframes and minicomputers from IBM and other manufacturers; other operating systems such as the Mac OS and various UNIX derivatives including Linux; NetWare or AppleTalk networks and native Internet protocols; dozens of programming languages, ranging from COBOL and RPG, through C++ and Java, to the latest experimental languages; hundreds of databases including Oracle, Sybase and DB2; popular business applications like SAP or Siebel; vertical industry standards like SWIFT or HL7; email systems; and infrastructure products providing message queues, directory, management and security.

An important feature of Government interoperability programs is that they interact successfully with systems in use in the wider IT marketplace—notably the private and voluntary/not-for-profit sectors. Government systems do not exist in isolation and need to interact with external systems, taking advantage of the same industry standard applications and technologies that the competitive world of private business enjoys. For this reason, successful Government interoperability frameworks are built on adoption of the systems, specifications and standards in widespread use—including open and proprietary standards—together with published interfaces, file formats and protocols.

3. The New Applications to Portal with E-Government Interoperability Engine

The government of Romania has added new interoperability capacity to its e-government portal and National Electronic System (NES) to support a large range of applications. The NES was built by the General Inspectorate for Communications and Information Technology in 2003 in partnership with Microsoft. The solution employs the Microsoft® .NET Framework development system and Microsoft BizTalk® Server 2004 at its orchestration layer, along with Web services for the delivery of new electronic services. The solution has become an integral part of the government's administration reform programmer and been the impetus for the full realization of e-government in Romania.

 The NES works as a data interchange hub that ensures interoperability with back-end systems across government.

Romania has hundreds of public-sector agencies—from ministries to regional and local government. Each organization has its own procedures, information systems, and Web sites. Traditionally, there was little or

no interoperability among these different parts of government. Processes were usually paper-based, and with the lack of integration, citizens and businesses often had to go from office to office, filling out a number of different forms, to obtain a service.

Romania's transition to the information society started in 2001 with its first 30 e-government pilot projects. Led by the General Inspectorate for Communications and Information Technology (IGCTI) on the basis of the European Commission's eEurope framework, the pilots provided basic online services to citizens and businesses.

One of the key goals of the e-government initiative was to ensure the "back-end" of the public sector—each of the existing systems and processes involved in service delivery—could feed into new "front-end" entry points such as Web sites and mobile devices. This is where citizens and businesses can access and use electronic services.

The difficulty for government deploying online services is to ensure its back end and front end work together in a secure and coherent manner. We needed to resolve this technological issue to create the right environment for e-government and develop one-stop, citizen-centric services. But we also needed to go a step further and ensure that we added new interoperability capacity to the National Electronic System (NES). This would make it easier for third parties to add new applications to enrich the service and make it more flexible for users.

The IGCTI—together with Microsoft and Softwin, a leading provider of computer software and services in Romania—developed an e-government portal (http://www.e-guvernare.ro/) and the NES as a pilot in 2003. The IGCTI and Microsoft worked together to roll out the solution nationally in 2005 with modifications to accommodate specific requirements for local government services. All Romanian public institutions are now legally required to provide access to their online services through the portal and NES.

Built using the Microsoft® .NET Framework development system, the portal runs Windows Server® 2003 and Microsoft Internet Information Services to provide a single point of contact for accessing public services from different government departments. The NES serves as the portal infrastructure, routing service requests to a back-end system using XML-based Web services.

Microsoft BizTalk® Server 2004 is used to call on Web services for interactions between the NES and disparate operating systems and databases from IBM, Oracle, and other vendors used within different government ministries.

In this way, the NES works as a data interchange hub that ensures interoperability with back-end systems across government. A citizen or business accesses the portal, signs on, and fills in and submits a form directed through the NES to the relevant government agency.

With the help of Microsoft Services, the IGCTI is now planning to build a delivery engine for new services to be added to the NES. The new functionality, which is still a work in progress, will support third parties that want to offer new applications through the NES system, giving them the benefit of code and templates. We want to get as many Microsoft partners as possible to back the project to provide an even richer environment then at present.

4. The NES marks the beginning of a general digital reform in Romanian society

The Romanian government is enriching its e-government service by making its award-winning portal fully interoperable for new applications. Its best-value solution, developed in partnership with Microsoft, is breaking down a legacy of silo working.

With interoperability between the NES and new applications, the Romanian government can provide even better one-stop, citizen-centric services. The NES provides a central authentication service so people can access all services using a single password and digital certificate issued by the IGCTI. The portal helps citizens and businesses access public services anytime, anywhere, in a fast, simple, and secure manner.

The first services to go online were primarily aimed at the business community, including the filing of tax and VAT returns and declarations for unemployment, healthcare, pensions, and other social insurance payments. Further services are being extended as more agencies automate their back-office processes and connect their systems to the NES.

The NES makes facilitate the conditions for others to provide electronic services and it possible for all public service providers to interconnect through electronic means. This does not imply the elimination of

over-the-counter service delivery, but it is a necessity for creating an alternative that did not exist before and offering citizens a choice.

Conducting transactions electronically and ensuring the governments front-end and back-end systems work together coherently is also essential for rationalizing costs and improving administrative efficiency.

The portal and the NES are an integral part of Romania's programmed for administration reform and it changes the way in which each and every citizen or company interacts with government. The technological capabilities for integration can help break down the silo approach of service delivery, citing as an example the creation of a single set of accurate data that can now replace costly, overlapping, and redundant data collected manually by different agencies. Together with the migration from paper to electronic workflow, this will result in substantial cost savings and faster and more efficient processes both within and between administrations.

The ability to interact with government electronically further provides a stimulus to Romanian companies to invest in IT and modernize their own business systems, contributing to the long-term competitiveness of the country's economy. Digital certificates have been issued to about 1,400 primarily large businesses so they can use online services, and efforts are being made to register small and medium-sized companies as well.

It is still a young project, but the benefits for the businesses using the NES are already there and they can submit documents from anywhere and receive instant feedback rather than have to come into Bucharest every month to hand in hard copies of their statements.

The NES and the E-Government Portal have been the impetus for the full realization of e-government in Romania. With a common environment for integration and service delivery, the IGCTI has encouraged government agencies to work with the same protocols and concepts for whole-of-government goals.

Conclusions

The NES marks the beginning of a general digital reform in Romanian society and demonstrating that e-government is the best way of organizing public management to increase efficiency, transparency, accessibility, and responsiveness. It also helps to reduce bureaucracy and corruption in the inner management of the public sector and in its daily relations with citizens and business users of public services. The Romanian government's strategic partnership with Microsoft has been a key factor in the success of the NES and portal. Microsoft technologies have proved scalable and flexible for future expansion because of their use of open standards such as XML. Large technology companies usually have their own way of working with the public sector, but with Microsoft, the IGCTI built the system in partnership and could deploy a best-value solution that met its specific needs and requirements.

References

1. Bâra A. - The potential for executive information systems to support the high-level management - Information & Knowledge Age, ASE Bucuresti, 2005, INFOREC Printing House, 2005.
2. Gates Bill, Building Software That Is Interoperable By Design. Executive Memo. See http://www.microsoft.com/mscorp/execmail/
3. Kumar, Anil - Global Executive Information Systems: Key Issues and Trends, Business & Economics, 2000
4. Lungu I, Velicanu M. Bâra A., - GRANT CNCSIS (tip A) Tehnologii informatice pentru integrarea sistemelor institutiilor publice, 2005-2007
5. Microsoft Corporation web page, www.microsoft.com
6. Vătuiu Teodora, Popeangă V., The Building of the Knowledge Economy in Romania by using Information and Communications Technology, 5 th RoEduNet IEEE International Conference, Sibiu, 2006