



# Evolution of e-records management practices in e-government

## A Turkish perspective

Evolution of  
e-records  
management

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### Abstract

**Purpose** – This study aims to evaluate the new aspects of records management practices introduced by the start of the provision of public services in the electronic environment.

**Design/methodology/approach** – A survey method was used in this research; data were gathered through literature reviews and interviews.

**Findings** – The major findings of the study are that the development of the official communication flow with the opportunities of the electronic environment is a must of the modern state concept. However, meeting the required legal and administrative criteria related to electronic records management applications, filling the gaps, taking action on the examples of the developed, and following the outputs of projects are considered to be quite significant.

**Originality/value** – The paper provides valuable information about the description of the e-records management in terms of e-government, and gives information about the recent developments in Turkey.

**Keywords** Records management, Archives, Electronic media, Digital signatures, Turkey

**Paper type** Research paper

### Introduction

In more recent times, many fields of the service sector have been transferred into the electronic environment and e-government applications have become widespread in order to increase the speed and improve the efficiency of public services, and to accelerate the communication between the government and citizen. However, the transfer of printed records and the services with the same content into the electronic environment and the development of records management applications have taken up time. In order to indicate that records in the electronic environment are authentic and reliable, the records should have a 'qualified electronic certificate'. Having full legal validity in many Western countries as of the mid-1990s, the Electronic Signature Act was not adopted in Turkey until 2004. Following the emergence of 'qualified electronic certificate' providing institutions, the legal and administrative criteria of electronic records management practices were defined.

However, it is impossible to discuss e-records management applications without defining firstly the factors indicating that the records have the characteristics of evidence in the electronic environment. In this context, e-records management applications are discussed along with the development of the arrangements made with respect to the legal validity of the records in the electronic environment. A significant



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number of e-government applications, i.e. the transfer of the communication and the information exchange between government and citizen into the electronic environment via the internet and telecommunication utilities, may be addressed within the scope of e-records management. In this study, the relationship between the e-government, e-records management and the electronic signature applications will be analyzed and the applications in the context of Turkey will be evaluated.

### **State of e-government and electronic records management applications**

The transfer of records management applications into the electronic environment and the development of digital signature and e-government applications gained impetus in the middle of the 1990s. Along with the USA and the UK, a number of countries including Canada and Australia, acted as pioneers to start the provision of public services on the Web (Lee, 2005, p. 99). E-government is mainly concerned with providing quality public services and value-added information to citizens. It has the potential to build better relationships between the government and the public by making interactions between citizens and government agencies smoother, easier, and more efficient. E-government has made significant progress in the last few years, especially in the form of portal-based Web sites that provide citizens and firms with access to public administration and services (Lee, 2005, p. 100).

One of the fundamental parts of e-government application is electronic records processes. Indeed, records have been used traditionally as documentary (print) sources, which have characteristics of evidence for the applications providing the internal and external communication of the institutions (Kunis and Schwind, 2007, p. 191; Rosenfeld and Morville, 2002, p. 221). In the identification of the records, the authenticity and the reliability of the information that it includes, rather than the environment or the format in which it was produced, have been determinative (Reed, 2005, p. 41). With the transfer of the activities into the electronic environment, records management applications have started to be identified within the same environment and e-government works have become widespread with the contribution of information technologies. Today, utilization of electronic records is increasing quite swiftly. According to a study conducted by the Association of Records Managers and Administrators (ARMA), more than 90 percent of the records are now produced in the electronic environment. It is considered that communication through electronic mail, which was starting to be used in the 1970s, has contributed to this high rate (ARMA, 2008; Sundberg, 2007, p. 31).

Electronic records are comprised of digitally coded electronic data, which have the characteristics of evidence like the printed records. Records in electronic environments require a 'qualified electronic certificate' or in a more general sense of the term, a "digital signature" in order to have the characteristics of a record (to have legal validity). Digital signature is defined as a "security mechanism included within a digital record that enables the identification of the creator of the digital object and that can also be used to detect and track any changes that have been made to the digital object". (Glossary of Records Management Terms, 2008). As it is clearly understood from the definition, electronic records are to have a security indicator that is similar to the signature that identifies the authenticity the printed record. In today's world, it clear that digital signature has a profound influence on records management works.

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In spite of the positive environment created by electronic records management applications, there are a number of issues. It is accepted that much more effort is needed than it is in the printed environment with respect to the long-term preservation and security of e-records. The fact that paper, which is the format to keep the records in the traditional environment, is leaving its place to the digital environment whose format and structure changes every day may lead to serious problems. For example, the question on what will happen to the information recorded on punch cards, which ceased to be used years ago or on the floppy disks whose utilization will end in the very near future, is a major point of concern (Duranti, 2001; InterPARES Project, 2008). Lyman and Varian (2000) declared that 55 percent of a typical organization's information, much of which again might be in the form of records, is stored on single user storage media such as hard disc drives. Nevertheless, the protection of traditional medium used for keeping records (paper, etc.) provided the protection of the content as well. In 2003, Darlington and Pearce demonstrated that protection of the media (e.g. the floppy/hard disc or tape) in the electronic environment do not provide automatic access to the information it includes; giving the example of "1986 Domesday project". Within this framework, unless comprehensive solutions are found for such problems prior to the development of e-records management applications, not only business information, but also corporate memory of the organization may be lost (Sundberg, 2007, p. 37).

### **Development of e-government and e-records management applications in Turkey**

The infrastructure for the applications of e-government started to improve in Turkey at the beginning of 2000. The lagging behind in the fields of the internet and information technology are indicated to be among the main reasons for this delay. The present capacity of the information technologies market in Turkey is thought to be \$5.5 billion. The household computer ownership rate is 12.75 percent in Turkey, while 6.6 percent of households are connected to the internet (Bilişim'07, 2008). The recently enacted Law on the Right to Information has enabled the redefinition of the record management applications in Turkey (Bilgi Edinme Hakkı Kanunu, 2003). The Electronic Signature Act and Law on the Right to Information, which together will act as the legal framework for records management works in the electronic environment, were adopted in 2004.

Furthermore, Article 295/A of the Turkish Civil Procedure Code, amended in 2004, stipulates that the data signed with a reliable electronic signature has the equal effect of a receipt. According to this article, provided that a record with a reliable electronic signature is submitted by the parties in a prosecution, this record has the characteristics of "full evidence" that will be binding for the judge. It is impossible to address any electronic record management applications prior to 2004, as the legal conditions for this provision were not in place then (Erturgut, 2004, s. 66).

The aim of the Electronic Signature Act is defined as "regulating the principles related to the utilization and the legal and technical aspects of the electronic signature". The Act applies to the legal nature of the electronic signature, to the activities of the electronic certificate providers and procedures related to the utilization of the electronic signature in different environments. The Electronic Signature Act aims at attributing the electronic record a legal nature (Elektronik İmza Kanunu, 2004). Today, there are four intermediary institutions that provide digital signature service called "qualified

electronic certificate” within the framework of the Electronic Signature Act in Turkey. These institutions are respectively as follows: the National Research Institute of Electronics and Cryptology (National . . . ,2008) which is a public institution at the same time attached to The Scientific and Technological Research Council of Turkey (TÜBİTAK) and the private institutions of E-Güven (E-Güven, 2008), E-Tuğra (E-Tuğra, 2008) and Turktrust (Turktrust, 2008).

However, in recent years, a number of boards have been formed to inspect e-government and e-records management applications in the public sector in Turkey. In this respect the Executive Board of the e-Turkey Project within the State Planning Organization was restructured in July, 2007, and the Information Society Unit, which was previously operating as a Department, was transferred into a Directorate General. (Bilişim’07, 2007, p. 7).

### **E-record applications in Turkey in terms of e-government**

Within the framework of these general definitions, some examples of e-government applications in the public sector in Turkey are presented below. These examples are considered to be significant as they demonstrate the development of the record management applications in the electronic environment and the level reached in Turkey:

- In Article 10/A, appended to the Law No. 4487 and the Capital Markets Law on 18 December 1999, it was resolved that capital market instruments and related rights shall be monitored by a Central Record Institution (CRI), which is vested with legal personality as per the private law. Within the scope of the project that is implemented by the Central Record Institution (CRI) of the Capital Markets Board, the members of the CRI may access the system through qualified electronic certificate that is set up on the smart cards. Furthermore, the application enables the user to view and read the whole text to be signed prior to signature, as stipulated by the Electronic Signature Act. One of the authentic features of the application is that the texts may be signed by several users (Merkezi Kayıt Kuruluşu, 2008).
- The Ministry of Justice implemented the National Judicial Network Project (UYAP), which is an e-government application, in December 2001. With the completion of this project, citizens do not need to go to the Court of Justice in order to be informed about the dates of the proceedings and the progress of the lawsuit. The opportunity to follow the course of the lawsuit on the internet is presented. Moreover, the Advocate Information System, a service provided by UYAP, enables the advocates to follow the existing cases, to bring a lawsuit, to send any kind of documents to the case file, to make any kind of on-line money transfer related to the judicial expenses, payment and other expenditures (T.C. Adalet Bakanlığı, 2008).
- The Central Population Management System (MERNIS) Project was put into practice by the Directorate General of Population and Citizen Affairs of the Ministry of Internal Affairs in 2002, with the support of the World Bank. Population records were transferred into the electronic environment between 1997-1999; an ID number was generated for each citizen in 2000 and 927 birth registration offices around the country started to provide services related to

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population and citizenship issues on-line in 2002. The project also aimed at providing reliable information exchange, swift update of information and increasing the speed and efficiency of the service provided for the citizens. With this project, the different ID numbers that the institutions in Turkey generated for the citizens are unified. The project is listed under the applications of infrastructure for providing public services in the electronic environment (Bilişim'07, 2007).

- Inward Processing Regime (DİR) Automation was put into practice by the Undersecretariat of Foreign Trade of the Prime Ministry in 2005, as an e-government application in Turkey including the electronic signature in the public sector. With this application, import firms may run any kind of procedures in the electronic environment related to the records within the scope of the Inward and Outward Processing Regime conducted by the Undersecretariat of Foreign Trade without any time and space restriction. The mentioned firms may now apply online or offline in the electronic environment, which was previously carried out on paper; these applications may be transmitted to the Undersecretariat of Foreign Trade (export/import lists, tables demonstrating the raw material consumption, etc.), and the Undersecretariat may conduct the whole evaluation process in the electronic environment. The application was put into practice on 1 August 2005 (Hatır, 2005; T.C. Başbakanlık Dış Ticaret Müsteşarlığı, 2008a).
- Another e-record management work within the scope of the e-government applications in Turkey was launched on 1 June 2007 by the Directorate General for the Protection of Citizens and Competition of the Ministry of Industry and Trade. With this application, the procedures for granting a certificate of warranty, post-purchase service qualification certificate (SSHYB) and exemption certificate, as well as the procedures related to the authorization of assignees and to the power of attorney are transferred into the electronic environment. An e-signature certificate is required for carrying out these applications in the electronic environment (T.C. Sanayi ve Ticaret Bakanlığı, 2008).
- The Turkish Patent Institution (TPE) started to accept online application of the patent and the trademark registration with an e-signature in 2007. Citizens aspiring to make an application for trademark registration are presented the opportunity to make their application online with an e-signature, rather than dealing with traditional mail services or going directly to the facilities of the TPE. An electronic signature is a must for the online application for trademark registration to the Turkish Patent Institute (Türk Patent Enstitüsü, 2008).
- The Ministry of Foreign Affairs has transferred its own records and archive system into the electronic environment since the 1990s. All of the in-house correspondence is carried out and the records are archived in the electronic environment. As an up-to-date application, the Ministry conducts an e-government project which is composed of three main parts: Turkish citizens abroad will be able to perform their actions at their homes; they will be able to access easily the forms they need from the electronic archive; and be informed about the points they would like to learn from the databank (T.C. Dışişleri Bakanlığı, 2008).

The above-mentioned examples of e-record applications are among the principal projects of the e-government transfer project of Turkey. Moreover, these applications are considered to be quite significant in terms of improving the speed and the efficiency of the communication between the government and the citizens in public institutions. The transfer of communication and record procedures into the electronic environment and the transfer of record management applications into the electronic environment via the internet and the intranet utilities, bring about an increase in the quality of the services. Further spreading of these applications is expected. The following applications are envisaged to be introduced in the future:

- With the e-insurance project conducted by the Social Security Administration, all of the social security directorates will transfer the procedures related to premium collection into the electronic environment. Citizens will be able to receive their insurance sheets on the internet, and be informed about the premium, and whether his pension is deposited or not, and even when they will be retired without going to the social security directorates (T.C. Sosyal Güvenlik Kurumu, 2008).
- The Directorate-General of National Estate, which monitors and administers the real properties of the Treasury, will start transferring all of the immovables registers in the name of the Treasury into the electronic environment and announcing the citizens which immovables will be put up for sale (T.C Maliye Bakanlığı Milli Emlak Genel Müdürlüğü, 2008).
- The Undersecretariat of Customs will transfer the stages of an article from its arrival at the customs to the completion of exportation or importation procedures real-time into the electronic environment. This initiative aims at facilitating trade and supports export or import firms that will be in a competition in the world markets (T.C. Başbakanlık Gümrük Müsteşarlığı, 2008). The Undersecretariat of Customs of the Republic of Turkey plans to put the GUVAS (Customs Data Warehouse System) Project into practice in the near future. The GUVAS Project aims at collecting information, namely on exports, imports, transits, smuggling, value, tariffs, etc. that are entered on an operational basis in every customs office throughout Turkey on a database to be created within the Undersecretariat of Customs and accordingly, enabling fast and sound transfer of information to the decision-making bodies. It is envisaged that the problems encountered in the related field may be overcome by means of this project.
- In the near future, the Turkish Land Registry and Cadastre Information System will put a project into practice, which aims at running any kind of procedures related to the land registry in the electronic environment. When this project is completed, all of the procedures, namely debt collection, purchase and sale, determination of the assets in property, rentals, transfers, mortgage, etc. will be carried out on the internet. Besides, a major part of the infrastructure works of the other public institutions will be accessible within the framework of this project. For example, the municipalities may be informed about the procedures to be carried out for the sites to prepare their construction plans through accessing this system (T.C. Bayındırlık ve İskân Bakanlığı Tapu ve Kadastro Genel Müdürlüğü, 2008). Some of the initial objectives of the Project are as follows: the transfer of land registries known as “Tapu Tahrir Defteri” (Land Registries),

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which include the past records in the Ottoman period as well, into the electronic environment and enabling due access; the provision of access to the records in the electronic environment that are inaccessible through the current index system, and facilitation of record sharing; the provision of access to the microfilms or digital copies of the records, most of which have the characteristics of a movable cultural property and which necessitate to be protected primarily.

- The Ministry of Agriculture aims at helping the agricultural sector by building an agricultural database and creating a holistic e-agricultural structure with a farmer registration system, a farm accountancy system, animal care system and organic agriculture system (T.C. Tarım ve Köyişleri Bakanlığı, 2008). Farmer Registry System, which is one of the three major projects of Agricultural Reform, has been launched by the Ministry of Agriculture of the Republic of Turkey with the aim of creating an agricultural database and assisting agricultural sector. The demo implementations of the system are being carried out in 150 major locations within 81 provinces (T.C. Tarım ve Köyişleri Bakanlığı, 2008). Another primary objective of the system is to subsidize farmers directly on the basis of the product and the field where they produce their products. The need for agricultural data in order to provide the subsidies appropriately, on time and to the real producer necessitated a detailed database study. The database of Farmer Registry System currently includes comprehensive information from up-to-date names of the settlement units to land registers; from the average age of the farmers to the number and size of land parcels throughout the country; from the number of farmers in each province to the types of land disposition and the manner of cultivation.

E-record management applications within the scope of e-government in Turkey have been limited mostly to government agencies and institutions, examples of which have been above. Even though the central government has set up administrative and legal arrangements on the related issues, the studies carried out for planning, regulating and supervising e-government and e-records management applications have remained insufficient. This situation not only restricts the institutional applications on e-government and e-records management to become widespread, it may also prevent their standardization. The public institutions that are unwilling to provide services for e-government and the individuals who do not wish to benefit from these services in the digital environment may also be added to the present conditions. In spite of these negative aspects, the improvement of e-records management applications within the scope of e-government constantly gain impetus, as it is also touched upon in this study. The recent developments indicate that the problems to be encountered may be overcome, and that the programs which are compatible and coordinated with national and international applications may be developed in the near future.

### **E-government applications elsewhere**

It is observed that the activities towards e-government applications in Turkey have advanced to a certain point. However, as noted problems persist in certain fields. At this juncture, it will be beneficial to compare the conditions and problems of the activities towards e-government applications in Turkey with those in other countries at a similar stage of development and see what lessons can be learned.

For example, the study of Xiong (2006) demonstrates that China experiences similar problems to Turkey in terms of the activities towards e-government applications. It is considered necessary for the developing countries to concentrate more on the efforts notably towards raising the awareness on e-government applications and the intensification of their use. Besides, inter-institutional coordination is also one of the priorities to be dealt with.

Studies that have been carried out demonstrate that the problems encountered in Turkey in terms of short and long-term planning of e-government applications are confronted in Botswana (Mnjama and Wamukoya (2007), Mutula and van Brakel (2006)) as well as South Africa. For instance, Mutula and Mostert (n.d.) present an overview of the challenges and opportunities of e-government implementation in South Africa with special reference to service delivery and implications for libraries. However, the extent of the problems expands more in small and medium-sized enterprises as Mutula and van Brakel (2006) point out. Developing plans so as to ensure the efficient usage of the systems developed in printed media also in the electronic environment should be among the priorities of e-government applications in Turkey.

Development of web interfaces that will enable the users to communicate interactively within the e-government applications constitutes another important issue. The study of Huang and Shyu (2008) shows that users encounter problems particularly in terms of navigational aids, knowledge contents and interactive knowledge sharing. As is addressed by Muganda (n.d.) in his study on various African countries, designing systems that are suitable for flexible and cooperative use of e-government applications is considered to be significant. The interfaces used in e-government applications may vary to a large extent from institution to institution in Turkey. At this juncture, standardization of the services to be provided via e-government applications is important for Turkey as well.

Furthermore, it is observed that surveys oriented towards identifying the level of utilization and expectations of the end users in terms of e-government applications are not sufficient in Turkey. In this respect, the work of Me-Yu Wang (2008) towards determining the quality of library information systems in Taiwan are needed to be carried out in the institutions providing e-government services in Turkey.

### **Conclusions**

E-government applications have evolved gradually from accessing information in the public sector to a transfer of communication between the government and the citizens into the electronic environment. An evolution from one-way information transfer to a two-way communication was enabled by the transfer of records management applications into the electronic environment. The adoption of the Electronic Signature Act, the emergence of the “qualified electronic certificate” providing intermediary institutions and the development of the infrastructure elements in the field of telecommunications led to the improvement of the conditions. Today, e-records management forms a structured and legally valid aspect of the e-government applications. Within the framework of these applications, the e-records management refers to the transfer of the structured bureaucracy into the electronic environment. The development of the official communication flow with the opportunities of the electronic environment is a must of the modern state concept.

In this study, the e-records management applications developed within the framework of e-government in Turkey are considered to be significant in terms of overcoming the handicaps between the government and the citizen as well as cutting the red tape; and these applications are thought to be contributory to the development of records management applications. However, it is a fact that the conditions of reliability and durability of the printed environment have not yet been achieved in the electronic environment. Within these conditions, carelessly taken steps would surely lead to a disaster. Particularly in a developing country like Turkey, the relative cost reduction introduced by the virtual environment, the speed and efficiency may lead every administrator to prefer e-government and e-records management applications as an easy solution at the beginning. However, meeting the required legal and administrative criteria related to electronic records management applications, filling the gaps, taking actions on the examples of the developed countries, and following the outputs of projects like InterPARES are considered to be quite significant.

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Sanayi ve Ticaret Bakanlığı'nda elektronik imzalı başvuru dönemi başlıyor (2008), *E-Güven*, available at: [www.e-guven.com/default.asp?ID=41](http://www.e-guven.com/default.asp?ID=41)

T.C. İçişleri Bakanlığı Nüfus ve Vatandaşlık İşleri Genel Müdürlüğü (2008), available at: [www.nvi.gov.tr/Hakkimizda/Projeler,Mernis\\_Genel.html?pageindex=1](http://www.nvi.gov.tr/Hakkimizda/Projeler,Mernis_Genel.html?pageindex=1)

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