

# Mobile Approaches to Electronic Records Management in Transformation of Government Organizations in Turkey: Sample Practice in Ankara University\*

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**Abstract.** In a period when transformation studies of public institutions accelerate due to the transition to E-Government in Turkey, the matter how records management systems can adapt to this new process quickly is evaluated with a development that can be a sample especially for universities. “Modelling of Transition Process of Electronic Records Management and Archiving System in Universities” (e-BEYAS-M)” is a project carried out in Ankara University. The infrastructure, which will provide the adaptation to mobile life in the structure of e-BEYAS, is a mobile signature supported approach supporting e-mail, SMS integration and audio and video applications that provide access to the system by means of smart devices. Particularly with the application of HTML5 integration, making applications in native application appearance and quality on web browser regardless of the operating system of the mobile device will be easier. Thus, both costs will decrease and also application update will be made in one place and distributing the current application to the accessing clients will be easier. Another advantage of HTML5 is that it makes audio, video and information notes on a correspondence or business process work in mobile devices without problems.

**Keywords:** e-Government, Electronic Records Management, Mobile Application, University, Turkey.

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## 1 Introduction

Considering the studies carried out on e-government policies since 2001 in Turkey, it can be said that one of the frequently dealt problems is that the inter-institutional information share cannot be made in electronic media [1], [2], [5], [6], [7], [9]. After execution of public management's work procedures, in accelerating e-government structure, in electronic media, saving and sharing every kind of information and records in electronic media started to be very important. E-government refers to the federal government's use of information and communication technologies (such as Wide Area Networks, the Internet, and mobile computing) to exchange information and services with citizens, businesses, and other arms of government [4]. At this sense, in recent years, access to records have become more important than ever as a part of information access due to the use of devices which can be produced and controlled in e-media in data governance. In fact, stressing the importance of easy and fast information access in the process of making decisions of university managers, Uwaifo emphasizes the necessity of records management for effective dissemination of information [11]. Furthermore, such reality is approved theoretically by all sectors; but the rules that the institutions will follow both in inner and outer correspondence and also in information and records sharing on business processes are not appropriate for a national standard and legislation. The basic step was taken in making legislation arrangements about legal validity of electronic records. After that, the duty of studying on registration, usage and archiving of the electronic records was given to the General Directorate of State Archives with the 2004 dated decision of E-Transformation Executive Board and TSE 13298 numbered standard was published in 2007.\* This standard aims at determining necessary standards for protection of the documental quality of electronic documents that are produced and/or will be possibly produced in the institutions [10]. However, considering e-government applications in public institutions, it is observed that an electronic records management model cannot gain operability in meeting institutional needs especially in the universities in spite of the legislation arrangements made in the level of whole country. Among the main reasons of this situation, not transforming the common solution search into a structure including all steps of electronic records management plays an important role. While the matters needed to be revised, updated or added in legal structure are considered, the necessity of dealing with the subject in detailed administrative, scientific and software development way should not be ignored. In order to overcome the mentioned problems, it is necessary for the universities' shareholders with authority and responsibility to carry out studies together with the software sector. The guide studies on this matter will contribute to transferring the institutional memory to the future in general and contribute to the development of policies and strategies supporting the realization of safe and approved information and records share in public in particular.

In e-transformation period, universities, like any other public institutions, need a structure, which serves in providing basis for records producing, safe and sound storing and sharing of the institutional and unstructured information in electronic media. Universities should develop an appropriate model idea in order to follow and

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\* Elektronik Belge Yönetimi Standardı (Electronic Records Management Standard)-TS 13298, 2007.

store current and past processes in the same system with information and records integrity they belong. Since universities resemble each other in organizational structure, mission, vision and administrative works, similar methods and devices can be developed in operating e-records management systems for applying in these institutions. For this reason, the findings of the study carried out for one university can be used for other universities as well. Based on this thought, the project called “Modelling of Transition Process of Electronic Records Management and Archiving System in Universities (e-BEYAS-M)”\*\* which has been carried out by Ankara University and General Directorate of State Archives, was supported by TÜBİTAK (The Scientific and Technological Research Council of Turkey) in 2011.

## **2 The Structuring and Institutionalization of e-BEYAS Model**

e-BEYAS project aims at developing a model for producing, filing, preserving and archiving the records, which are produced in universities, in electronic media, managing and maintaining the system providing safe and authorized access.

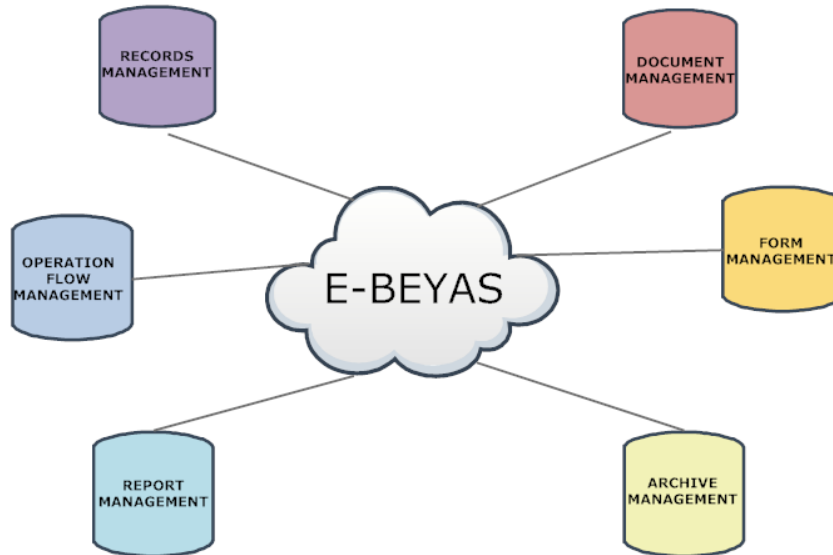
e-BEYAS model is a structure providing integration of ERM (Electronic Records Management) process, which includes an electronic records, document and archive management giving opportunity for data, information and records share within and inter institutions and providing interactive, permanent and safe execution of public services, and ICT (Information Communication Technology) for operating this process in electronic media. In this structure, it is projected that the records with e-signature/mobile signature will be placed in records management database, other documents will be placed in document database and the records of which process are not completed will be placed in archiving database.

### **2.1 e-BEYAS Model**

It is planned that e-BEYAS model include the following modules (Figure 1);

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\*\* “Modelling of Transition Process of Electronic Records Management and Archiving System in Universities Project (e-BEYAS)” The executor of the Project: Fahrettin Özdemirci; Researchers: S. Özlem Bayram, Mehmet Torunlar, Selvet Saraç (TÜBİTAK-SOBAG Project No: 110K592), 2011.

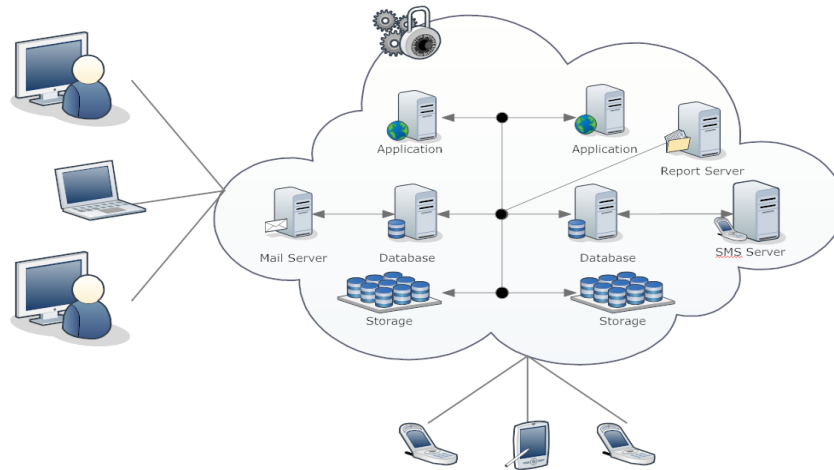


**Figure 1:** e-BEYAS Model

- **Module of Workflow and Transaction Processes Management:** It is the module where hierarchic and dynamic work/transaction flow processes and duty, authority and roles are described.
- **Module of Records Management:** It is the main module where records management transactions, records patterns, records hierarchy, filing, records transaction processes (safe records sending and receiving within and inter institutions, searching records, defining and making index of records, bar code usage, transfer transaction of records/file, assessment-selection-destruction of records/file, etc.) are executed as integrated with other modules.
- **Module of Form Management:** It is the module where the forms requested by legal and administrative arrangements and institutional forms are designed, produced and managed.
- **Module of Document Management:** It is the module where documents produced in the scope of institutional activities except official papers, regulations, instructions, circular, picture; audio, video records, etc. are stored, managed and archived.
- **Module of Report Management:** It is the module where parametric reports such as reports on records producing and management, reports on follow-up, statistics, reports with the purpose of providing data for management information system, etc. can be made.
- **Module of Archiving Management:** It is the module where records/files that lose their currency according to preserving plans and dating back digitized records/files are archived and the one which works as integrated with module of records management.

## 2.2 Software and System Architecture

In e-BEYAS system, two applications, databases, reports and storage servers apiece physically work. These servers are placed as balancing the loads of each other and Raid1 structure will be used in servers. e-BEYAS system includes e-mail and SMS inquiry servers. (Figure 2).



**Figure 2:** e-BEYAS System Architecture

Interface of e-BEYAS application will be written with Java, it will be suitable for HTML5 standard and its database will be on Oracle. Linux operating system will work on application and database servers.

An ICT structuring in the quality of meeting the vision projected for e-BEYAS in Ankara University represents the complete transition to mobile records management. However, it can be said that records management systems supporting mobile applications cannot become widespread in our country. But the structure, which will provide adaptation to mobile life in the context of e-BEYAS, is an approach supporting applications e-mail and SMS integration providing access to the system by means of mobile signature (m-signature) compatible smart devices, and audio and video applications.

## 3 Transition to Mobile Records Management

The most important factors, which will develop and make the connection concept between devices widespread, are continual increase of data amount transferred on mobile lines according to the development of mobile technologies and rapid cost decrease in the infrastructure of telecommunication [3]. Only the 73,61% increase ratio in just one year in the market of smart phones shows that mobile applications will take more place in business world and working life. (Table 1) For this reason, it is estimated that smart phones will take important place in using electronic records

management systems providing the execution of business processes in electronic media, as independent from time, place and office.

Operating System	2011 Units	2011 Market Share (%)	2010 Units	2010 Market Share (%)
Android	46,775.9	43.4	10,652.7	17.2
Symbian	23,853.2	22.1	25,386.8	40.9
iOS	19,628.8	18.2	8,743.0	14.1
Research In Motion	12,652.3	11.7	11,628.8	18.7
Bada	2,055.8	1.9	577.0	0.9
Microsoft	1,723.8	1.6	3,058.8	4.9
Others	1,050.6	1.0	2,010.9	3.2
<b>Total</b>	<b>107,740.4</b>	<b>100.0</b>	<b>62,058.1</b>	<b>100.0</b>

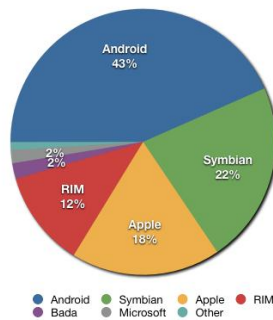
**Table 1:** Worldwide Smartphone Sales to End Users by Operating System in 2011 (Thousand of Units) Source: Gartner (August 2011) [8].

In this situation, the integration of the infrastructure supporting Mobile Applications for ERMS (Electronic Records Management Systems) will be inevitable.

Considering mobile life in particular, being independent from platform for e-BEYAS can be seen as the first step of converting into new dimensions. Although it is seen as a plus finding to develop an approach creating solutions for mobile necessity in a media where smart phone usage has been becoming widespread every day, it is clear that this situation will be a necessity in next five years.

### 3.1 e-BEYAS and Mobile Records Integration

- **Mobile Compatible Infrastructure:** The superiority of software, which is developed by means of popular mobile communication systems (ios, android, etc.) for widespread smart devices, is an indisputable fact. Moreover, taking software costs into consideration, the costs of software development having no financial purpose can reach to considerable numbers.



**Figure 3:** Variety of Mobile Communication Systems. Source: Gartner (August 2011) [8].

Furthermore, the variety of the mentioned mobile communication systems (Figure 3) is one of the effects increasing the costs. The transition period to HTML 5 can be seen as a solution in removing these problems. Instead of developing a few native applications, developing one application as HTML5 compatible is seen more rationalistic and economic than developing many mobile compatible native applications. In this way, developing applications in appearance and quality of native application on web browser regardless of the operating systems of mobile device will be easier. Therefore, not only the costs will decrease, but also conveying the current application to all clients will be easier by updating the application in just one place. Another advantage of HTML5 is that it makes displaying audio and video on a correspondence or work process and information notes conveyed to an upper office in mobile devices without any problem possible.

- **Integration of Mobile Signature:** Application of mobile signature, which is an independent platform type of e-signature, will be an indispensable part of mobile devices. In next 5 years, e-signature will be an application that the people will carry with themselves and use them independently from platform, time and place with remote access.
- **Integration of E-Mail and SMS:** These modules were added to the system in order to make quick inquiries about correspondence of outside users. Outside users can be informed by writing document numbers on the “subject” part or by sending the document code with SMS to the service number. The correspondence will be limited by 5 different security levels for the purpose of security. Moreover, informing by means of both SMS and also e-mail will be sent only to institutional e-mail addresses and the system defined mobile numbers.

## 4 Conclusions

Registration of the information with the aim of access has equal importance in records management, as well. For this reason, software of e-records management should have an architectural structure that can highlight access and share again like producing of the records. Although standards and rules need an approach with access purpose in forming e-records management systems, institutional needs are ignored in reflecting this understanding in ERMS software. For this reason, records managers and software creators should work together in developing ERMS software. ERM systems, which provide registration of institutional information produced in transaction processes, necessitate institutional needs to be considered in information access. In the context of institutional needs, functions of starting, observing and sharing the administrative processes that necessitate working and deciding as independent from time, place and office for managers are among the basic steps of the current e-government integration. In fact, this happens simultaneously with the developments in mobile technologies, the work of the age. The fact that mobile services and operators will play leading role in each step of the institutional execution is recognized by the providers of these services, as well. While this kind of developments occur, records management

systems need to adapt to the structure that can respond the changes in vision and searches occurred in the working culture of institutions.

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