

Impacts of Electronic Record Management System on Business Processes: Manisa Celal Bayar University Case

İlknur Teke^{1*}, Çiğdem Tarhan¹

¹ Manisa Celal Bayar University, ² Dokuz Eylül University, * Corresponding author, ilknuryldrm@gmail.com

Abstract

The aim of this study is to explain the transition process to Manisa Celal Bayar University (MCBU) Electronic Record Management System (ERMS) and compare the current situation with the previous situation and investigate the effect of this change on business processes. The previous situation refers to the documents prepared and presented to the physical environment. The present situation refers to the documents prepared and presented to the ERMS and the situation that the job follow-up is made from within ERMS. A survey is prepared to measure the changes in the business processes of the University from the eye of the users through the transition to the ERMS.

Keywords: Electronic record management system, Business process, Electronic signature.

Citation: Teke, İ., Tarhan, Ç. (2018, October) *Impacts of Electronic Record Management System on Business Processes: Manisa Celal Bayar University Case*. Paper presented at the Fifth International Management Information Systems Conference.

Editor: H. Kemal İlter, Ankara Yıldırım Beyazıt University, Turkey

Received: August 19, 2018, **Accepted:** October 18, 2018, **Published:** November 10, 2018

Copyright: © 2018 IMISC Teke, Tarhan. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Impacts of Electronic Record Management System on Business Processes: Manisa Celal Bayar University Case

İlknur TEKE¹, Çiğdem TARHAN²

¹Manisa Celal Bayar University; ²Dokuz Eylül Üniversitesi

Abstract

The aim of this study is to explain the transition process to Manisa Celal Bayar University (MCBU) Electronic Record Management System (ERMS) and compare the current situation with the previous situation and investigate the effect of this change on business processes. The previous situation refers to the documents prepared and presented to the physical environment. The present situation refers to the documents prepared and presented to the ERMS and the situation that the job follow-up is made from within ERMS. A survey is prepared to measure the changes in the business processes of the University from the eye of the users through the transition to the ERMS.

Keywords: Electronic record management system; Business process; Electronic signature.

Manisa Celal Bayar Üniversitesi EBYS Geçiş Süreci ve İş Süreçlerine Etkisinin İncelenmesi

Özet

Bu araştırmanın amacı Manisa Celal Bayar Üniversitesi'ndeki elektronik belge yönetim sistemine (EBYS) geçiş sürecini açıklamak ve iş süreçlerine olan etkisini incelemektir.

Manisa Celal Bayar Üniversitesi'nde EBYS geçiş süreci 2015 Ağustos ayında başlamış, 04 Ocak 2016 tarihinde uygulamaya geçilmesi ile son bulmuştur. 04 Ocak 2016'ya kadar test ortamında çalışan sistem gerçek ortama hazırlanmış, test edilmiş ve incelenmiştir.

Uygulamaya geçildikten sonra kullanıcı kontrolleri, e-imza çalışmaları ve sistem takibi devam etmiş, bu çalışmalara ilave olarak sistem iyileştirmeleri ve diğer bilgi sistemleri ile entegrasyon çalışmaları yapılmıştır. İş süreçlerine etkisinin incelenebilmesi için EBYS'den önceki durum ile sonraki durum karşılaştırılmıştır. Önceki durum belge ve imza süreçlerinin fiziksel ortamda yürütülmesini ifade ederken; sonraki durum bu süreçlerin ve iş takiplerinin EBYS içerisinde yürütüldüğü durumu ifade eder. Önceki durum ve sonraki durum arasındaki farkları kullanıcı gözünden ölçebilmek için iki farklı anket çalışması hazırlanmıştır. Bu anket çalışmasında Yöneticilere ve Personele farklı sorular sorulması ve EBYS'ye geçiş sürecinin iş süreçlerine etkilerinin ortaya konulması hedeflenmiştir.

Anahtar Kelimeler: Elektronik belge yönetim sistemi; İş süreçleri; Elektronik imza.

Introduction

In each active institution, it has become necessary to record the actions that have been carried out for the activities that have become routine with respect to their own activities with the experiences experienced over time, in order to provide continuity, retrospective information and to inform the future (Bektaş, 2015; Bülbül, 2013; Özdemirci et al., 2009; Karakuş, 2015). This need has become compulsory over time; because of this, documents related to the activities of the institutions such as correspondence made in-house and out-of-house documents, folders emerging in the physical environment, etc. were stored with electronic tools. Moreover, in developing and growing institutions, formal correspondence in the life cycle has begun to create serious workloads in terms of time and human power between units (Eroğlu, 2017; Saydam, 2015; Kandur, 2011; Aydın, 2005).

In the 21st century, called as the technology and information age, almost everything becomes suitable for being performed in electronic environment. Whether corporate or personal data can be prepared and stored electronically, management of these data is made possible through various sophisticated software (Külcü, 2010; Özdemirci, 2007). All business processes can be transferred and managed in a comprehensive manner in accordance with institutional needs and functions through software that is suitable for corporate use; for example, ERP software, human resource information system, student information system, purchasing and tracking software, etc. (Magal & Word, 2011; van der Aalst, 2003). The raw "data" processed through this software can be evaluated in the decision-making process by the institutional management level by being converted into "information" during the report and analysis phase (Laudon & Laudon, 2012). During the reporting and analysis processes; the fact that the data stored in the physical environment are collected separately for each process and transformed into meaningful information will cause disadvantages in terms of work intensity as well as the human error that may occur in the data processing process (Valacich & Schneider, 2015; Eason, 2005).

In this phase; used enterprise software algorithms required by defined reports using data readily available in the system offers to the manager. When considering the convenience of the system; for example, it is almost impossible for a document prepared in the electronic record management system to be prepared in a format that is incompatible with the official correspondence procedures and principles. In this case, the human error in the document has been reduced to a minimum. Electronic record usage areas can be listed as (Johnston & Bowen, 2005; Maguire, 2005; Ryan, 2005): in-house work within e-government studies, internal communication, relations with citizens and services provided in electronic environment.

However, this usage also causes some problems. One of these problems is the signing of the documents transmitted in the electronic environment, in other words, the confirmation and the ownership. The electronic signature and digital signature have been developed to solve these problems. The necessary legislative arrangements have been made and the related laws have been enacted in order to ensure the validity and spread of these methods at the legal level (Ermiş, 2006).

The aim of this study is to explain the transition process to MCBU Electronic Record Management System (ERMS) and compare the current situation with the previous situation and investigate the effect of this change on business processes. The previous situation refers to the documents prepared and presented to the physical environment. The present situation refers to the documents prepared and presented to the ERMS and the situation that the job follow-up is made from within ERMS.

Existing Situation

Presentation of documents prepared by using paper in the physical environment cause waste of time and paper waste in public institutions having hierarchical organization structure. For example; when a routine document prepared by an officer is requested to be presented on a hierarchical level, this document contains 4 paraphrases and 1 signatory information on the average level.

MCBU has a physically dispersed structure and has 16 different campuses in its present state. Therefore, the effort and time spent before using the ERMS was compared with the situation after the ERMS was used in created official writings. In order to perform comparisons, detailed case studies were carried out that conveyed real business processes.

Problem Definition

In the process of official correspondence done in university;

- Increasing productivity
- Time and saving paper
- Facilitate implementation of processes
- Facilitate follow-up of processes
- Minimize human errors
- Keep up with current technology
- To be able to provide analytical and interpretable reports for the management level.

For example: There are 3 people working in one unit. These persons' previous responsibilities are to register documents from outside the institution, to provide information and to provide them to the relevant authorities. In the present case these transactions are made within

ERMS; also, all follow-up approvals and delivery to the relevant EMS is provided. In this case, one person can now do the work that 3 people have done.

Therefore, at the MCBU, Electronic Record Management System and Electronic Signature application have been started. When the use of ERMS is evaluated by the management, it is decided that a preference should be made between the existing software programs and integrated into the whole institution. Also, it has been decided to use the software preference in favor of the most preferred software program among the universities. The scattered nature of the institution and the number of users is a disadvantage for the transition process of ERMS installation and integration into the university. Due to this problem, the transition process requires careful and planned work. In order to integrate the system into the institution, it is necessary to perform the current situation analysis and to remove the problematic elements.

The main problem of the ERMS transition period can be defined as the difficulty of creating a healthy transition environment due to the scattered structure of the institution and the creation of user consciousness. The primary aim of this transition period is that to resolve the confusion caused by the scattered nature of the organization tree and to inform the end user as much as possible.

Literature

Akdoğan and Özdemirci (2016) have stated that ERMS applications alone are not enough for document management and archive systems in accordance with the national / international standards. In this context, Ankara University's "Electronic Record Management and Archiving System" application would be covered in the text. Tamtürk (2015) has examined the benefits of using electronic record management systems in public institutions in his master's thesis. Resolutions about living problems were searched and it was concluded that more user access, keeping software and hardware features up-to-date, and continuous user training would increase the efficiency of using ERMS. Odabaş (2009) examined the approaches to information, document and document management based on concept definitions in his study. Also, similarities and differences between document management and record management have been researched in the study. Ermiş (2006) has examined the effects of digital signature features and document management. The differences between electronic and digital signatures are mentioned. Additionally, the application areas, benefits and legal sanctions of digital signatures have been researched. Özdemirci (2004) has examined document and document management issues and development processes. He has also pointed out the importance of the actions to be taken regarding the future management, preservation and retention of documents.

Transition Process

MCBU Electronic Record Management System transition process started in August 2015. After the implementation, user controls, e-signature work and system follow-up continued. In addition to these studies, integration studies were carried out with demand collection, system improvements, and other information systems. All of these processes were carried out by the ERMS Coordinator in MCBU Computer Research and Application Center. The titles to be examined and checked during the transition period of approximately 5 months are as follows:

- Establishment of the test environment and examination of the system, determination of deficiencies and mistakes,
- Examination of organization hierarchical organization structure and elimination of deficiencies,
- Creation and control of user lists,
- Following electronic signature transactions,
- User training,
- Identification of workflows in the system,
- Identification of printed forms in the system

Conclusion and Discussions

A survey is prepared to measure the changes in the business processes of the University from the eye of the users through the transition to the ERMS. The survey has 17 propositions that participants can score between 1 and 5 for each statement and it is prepared according to the “Likert Scale”. 1 point refers to “I do not agree.” and 5 points refer to “I agree.”. This survey was applied to 25 employees to measure reliability as a preliminary study. The results according to the 25 answers can be stated as:

1. Age Status: 52% of the participants are between the ages of 31-40, 24% of them between 24-30, 20% of them between 41-50, 4% of them are more than 51.
2. 56% of the participants are women and 44% of the participants are men.
3. While 76% of the participants agree that it is easy to access to ERMS, 72% of the participants agree that the general usage of ERMS is easy.
4. 48% of the participants score 5 points, 48% of the participants score 4 points and 1% of the participants score 3 point for the proposition includes that the ERMS usage is safe for the records.
5. 84% of the participants agree that institutional paperwork is improved by using ERMS.
6. Considering participant's scores for the proposition includes that usage of paper has decreased through the transition to the ERMS, it shows that the saving paper is not effective

enough. According to this: 64% of the participants score 5 points, 8% of the participants score 4 points, 16% of the participants score 3 points, 12% of the participants score 2 points.

7. 80% of the participants score 5 points while 20% of the participants score 4 points for the proposition includes that the ERMS provides saving time.

8. 8. While 52% of the participant agree that the support and education for using of ERMS that given by University is enough, 32% of participant score 4 points, 12% score 3 points and 4% score 2 points.

9. While 80% of participants score 5 points for the proposition includes that process of identification and approval of printed documents in ERMS by scanning/uploading, 16% score 4 points and 1% score 3 points.

10. 88% of participants score 5 points and 12% of participants score 4 points for the proposition includes that record tracking is easy by using ERMS.

11. 52% of participants score 5 points while 28% score 4, 16% score 3 and 4% score 2 for the proposition includes that retrospective search of the records is easy in ERMS.

12. 92% of participants agree that is easy to edit and prepare documents that is rejected in the process of signing documents.

13. While 92% of participants score 5 points for the proposition includes that is easy to handle the process of incoming records from outside the institution, 32% of participants score 4 points, 4% score 3 points.

14. 88% of participants score 5 points while 12% score 4 points for the proposition includes that is easier to complete the process of prepare documents by using ERMS.

15. All of the participant score 5 points for the proposition includes that processes of approval are easier and more practical in ERMS.

16. For the proposition includes that it is easier to fill and send for approval the personnel permission forms in ERMS, 88% of the participant score 5 points, 8% score 4 points and 4% score 2 points.

17. While 84% of the participant score 5 points for the proposition includes that it is easier to prepare and send for approval the consent documents in ERMS, 12% score 4 points and 4% score 3 points.

18. While 72% of the participant score 5 points for the proposition includes that the process of prepare a response to incoming records is easier by using ERMS, 24% score 4 points and 4% score 3 points.

When the results of the survey are evaluated it is understood that the participants choose mostly high score for the propositions and they are generally pleasant for using ERMS. In the answers, there are remarkable 2 propositions that:

- The proposition includes that ERMS using provides saving paper did not get high score as expected.
- The proposition include that the processes of signing document are easier and more practical has the highest score in the survey by taking 5 points from all participants.

In this case, usage of ERMS should be increased to provide saving paper and more practical training should be given for the users. As a result of this survey it is determined how important the focus of users is on the implementation on ERMS in institutions. First of all, the success of system usage will be increased with the belief of users towards this change. For this, the managers should make important decisions and carry out work in order to raise the awareness. It is foreseen that people who are resistant or do not believe in to this change will cause difficulties in electronic records applications.

References

- Akdoğan, Z. & Özdemirci, F. (2016). The process of institutionalization of electronic records management systems in universities: ankara university e-beyas application. *Journal of Communication and Computer*. 13:50-54.
- Aydın, C. (2005). Bilgi teknolojilerinin belge yönetimine etkisi ve elektronik belge yönetimi. *Bilgi Dünyası*. 6(1): 89-97.
- Bektaş, M. (2015). *Elektronik belge yönetim sistemi (EBYS)'nin insan kaynaklarının dönüşümüne etkisi: Marmara Üniversitesi örneği*. Marmara Üniversitesi Bilgi ve Belge Yönetimi Bölümü Yüksek Lisans Tezi.
- Bülbül, A. (2013). *E-devlet uygulamalarının bilgi ve belge yönetimi açısından analizi*. Marmara Üniversitesi Bilgi ve Belge Yönetimi Bölümü Yüksek Lisans Tezi.
- Eason, K. (2005). *Information technology and organisational change*. ISBN 0-85066-391-1. Taylor & Francis.
- Ermiş, K. (2006). Sayısal imza ve elektronik belge yönetimi. *Bilgi Dünyası*. 7(1):121-146.
- Eroğlu, Ş. (2017). *Türkiye’de kamu verilerinin açık devlet uygulamaları ve belge yönetimi çerçevesinde değerlendirilmesi: bir model önerisi*. Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü, Bilgi ve Belge Yönetimi Anabilim Dalı Doktora Tezi.
- Johnston, G.P. & Bowen, D.V. (2005). The benefits of electronic records management systems: a general review of published and some unpublished cases. *Records Management Journal*. Vol. 15 Issue: 3, pp.131-140.
- Kandur, H. (2011). Türkiye’de kamu kurumlarında elektronik belge yönetimi: mevcut durum analizi ve farkındalığın artırılması çalışmaları. *Bilgi Dünyası*. 12(1): 2-12.

- Karakuş, S. (2015). *Elektronik bilgi ve belge yönetim sistemlerinin kamu kurumlarında verimliliğe etkisi*. Marmara Üniversitesi Bilgi ve Belge Yönetimi Bölümü Yüksek Lisans Tezi.
- Külcü, Ö. (2010). Belge yönetiminde yeni fırsatlar: dijitalleştirme ve içerik yönetimi uygulamaları. *Bilgi Dünyası*. 11 (2) 290-331.
- Laudon, K. & Laudon, J. (2012). *Management information systems*. ISBN-10: 0132142856, Prentice Hall.
- Magal, S.R. & Word, J. (2011). *Integrated business processes with ERP systems*. Wiley Publishing. ISBN:0470478446-9780470478448.
- Maguire, R. (2005). Lessons learned from implementing an electronic records management system. *Records Management Journal*. Vol. 15 Issue: 3, pp.150-157.
- Odabaş, H. (2009). *Bilgi kaynaklarının işletiminde elektronik doküman yönetimi ve elektronik belge yönetimi sistemlerinin rolü*. Retrieved from http://ab.org.tr/ab09/kitap/odabas_AB09.pdf
- Özdemirci, F. (2004). *Bir disiplin olarak belge yönetimi*. Ankara: Kütüphaneciliğin Destanı Uluslararası Sempozyumu, 21-24 Ekim 2004.
- Özdemirci, F. (2007). Üniversitelerde belge yönetimi ve arşivler. *Türk Kütüphaneciliği* 21, 2:218-229.
- Özdemirci, F., Torunlar, M. & Saraç, S. (2009). *Üniversiteler için belge yönetimi ve arşiv sistemi/işlemleri (BEYAS) el kitabı*. Ankara. ISBN: 978-605-61009-0-1
- Ryan, D. (2005). The future of managing electronic records. *Records Management Journal*. Vol. 15 Issue: 3, pp.128-130.
- Saydam, V. (2015). *Elektronik Belge Yönetimi Uygulamalarında Personel Farkındalığının Artırılması: Değişim Yönetimi Açısından Bir İnceleme*. İstanbul Üniversitesi Sosyal Bilimler Enstitüsü, Bilgi ve Belge Yönetimi Anabilim Dalı Yüksek Lisans Tezi.
- Tamtürk, E. (2015). *Kamu yönetiminde elektronik belge yönetim sistemi: türkiye iş kurumu örneği*. Erzurum: Atatürk Üniversitesi Sosyal Bilimler Enstitüsü.
- Valacich, J. & Schneider, C. (2015). *Information systems today: managing in a digital world plus mymislab with pearson etext -- access card package*. ISBN:0134058577 9780134058573. Prentice Hall Press Upper Saddle River, NJ, USA.
- van der Aalst, W.M.P., ter Hofstede, A.H.M. & Weske M. (2003). Business process management: a survey. *Lecture Notes in Computer Science*, vol 2678. Springer, Berlin, Heidelberg.