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COMPARISON OF THE ADOPTION OF KNOWLEDGE MANAGEMENT SYSTEMS AMONG THE EMPLOYEES OF A TURKISH MUNICIPALITY

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Abstract. *The public-administration sector provides rich information to public servants. Therefore the importance of the improved management of knowledge through the use of Knowledge Management Systems has enormously increased in order to solve employees' tasks and deliver services to citizens effectively while facilitating decision-making capabilities. Furthermore, an organization's wide adoption of Knowledge Management becomes important in order to obtain higher benefits. This study aims to descriptively identify the difference between the back-office and front-office employees' adoption of a socio-technical knowledge management system in a municipality setting. Adoption process is comprehensively considered by including its antecedents and consequences. Subsequently the developed seven-point Likert scale survey was conducted in a Turkish municipality and the responses were evaluated descriptively. The results showed that decision environment and decision tasks are quite simple for both groups, although they are more complex for front-office staff than for the back-office staff. However, front-office staff are observed to use the system less than back-office staff and consequently achieve less benefit. Finally, the paper was concluded with further implications for research and practice.*

Keywords: *knowledge management systems, survey, descriptive study, adoption, effectiveness, back-office, front-office*

1. Introduction

As a result of moving towards the knowledge society people's behavior, economic expectations, organizational structures, cultures and work processes are increasingly changing. The public-administration sector also continually evolves because of a dynamic organizational environment, laws and regulations, and the processing of unpredictable requests and exceptions. Additionally, rich information from public-administration provides a valuable asset to public

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servants. Therefore, better management of knowledge is extremely necessary for the public-administration sector so that public servants can effectively solve administrative tasks and deliver services to citizens while maintaining high quality, transparency, and accountability in decision making (Apostolou et al., 2009).

Chang et al. (2009) and Woolf (2010) supposed that knowledge and information management is going to be and needs to be a major issue in governments' agendas. Knowledge and information have been realized as the core organizational assets that enable both financial and non-financial opportunities. In order to manage knowledge and information well, wider citizen engagement and new services beyond traditional public sector boundaries are necessary. Handzic (2007) therefore suggested that governments have to adopt knowledge society tools and working practices in order to take action for the changing needs of their components.

According to Butler et al. (2008), the number of IT applications to facilitate Knowledge Management (KM) in the public sector has been growing. However, there is a lack of research for designing and developing effective, integrated Knowledge Management Systems (KMS). According to Kankanhalli et al. (2003), well established KMSs can support all KM activities by providing knowledge repositories, expert directories, and knowledge exchange platforms.

E–government services are useful for municipalities because they provide better and more efficient services to citizens, enterprises or other public offices. Front-end services integrated with multiple platforms and technologies should give access to users of multiple government areas. There is a wealth of implicit data in software applications that support administration activities in the back-office, and this back-office data should be available for the e-government users quickly and precisely. Therefore, infrastructure is necessary to explicate the stored knowledge in different government areas and deliver this knowledge to the users (Brusa, Caliusco, & Chiotti, 2007).

Moreover, public administration requires highly trained, legally informed, specialized public servants (Citizens First 5, 2008). Hence, the adoption of KMS through public servants is necessary to facilitate their work. Knowledge-intensive public administration work was classified by Hansen et al. (1989) as: (1) **Routine work** (repetitive administrative tasks, such as processing files and documents); (2) **Interlinked work** (interactive and collaborative works of public servants in order to accomplish shared administrative, personnel, material, or IT activities); (3) **Specialized work** (complex cases, providing services, and executing processes); and (4) **Unique, complex work** (the collaborative work between public administration

sector and external partners) (Apostolou et al., 2009). The type of the system and the required system characteristics may differ depending on public servants' knowledge intensive work. Identifying the adoption level of the system and therefore the level of obtained benefits may be helpful in order to determine the needs of different users.

Consequently, this current study becomes important because it considers the need for a better explanation of adoption and successful implementation of KM practices through organisations. The fundamental aim of this research is to compare descriptively back-office and front-office employees' adoption of a socio-technical knowledge management system in a municipality setting. The current research tries to identify the difference between the level of back-office and front-office employees': (1) KMS adoption as a tool to facilitate KM; (2) perceptions about KMS; (3) considerations of the available socio-technical KMS; (4) complexity of decision making environment, decision task and decision maker; and (5) realized benefits in terms of knowledge performance, decision performance and organizational performance.

The paper is divided into six sections including this introduction. The second section presents a review of literature about KMS adoption and KM(S) applications in governmental organizations. The third section discusses methodology, and the fourth section presents the empirical results of the survey. The interpretations about the results are provided in the following discussion section. Finally, the sixth section concludes the study and gives suggestions for further study.

2. Literature Review

This section presents a review of relevant KM literature based on KM(S) studies performed in governmental agencies and technology adoption theories and models.

KM(S) in Government

The literature about KMS in governmental offices provides more information on knowledge processes. For example, Goh et al. (2008) suggested that Knowledge Management (KM) in e-government portals should guarantee efficient knowledge flows among governments, individuals and organizations. They proposed a model (K-ACT) that includes knowledge access, creation and transfer as the three important KM mechanisms for portals. They characterized each mechanism by a set of dimensions and sub-dimensions that represent supporting tools and features for that mechanism. They also developed a checklist from the model and applied it to 60 Asian and North American e-government portals to investigate the amount of KM mechanism implementation. According to the results, the model

could describe only about 36 per cent of the KM mechanisms in e-government portals. There were no significant differences found in the implementation of KM mechanisms between the two regions' portals.

Similarly, Behzadi et al. (2012) aimed to examine knowledge management (KM) mechanisms in 20 Iranian e-government portals. They measured access, creation and transfer processes of KM through a checklist considering the use of the K-ACT (Knowledge access, creation and transfer) model. They identified a poor level of e-government portals in Iran. They suggested the consideration of a particular relationship between e-government and KM. The authors further emphasized the high importance of designing new KM adoption models in e-government is highly important.

Moreover, Chang et al. (2009) investigated the KM CSFs (Critical Success Factors) in Taiwan national government. The governmental KM initiatives were demonstrated in two different dimensions: (1) core KM processes (organizational missions and values, IT applications, documentation, process management, and human resources) and (2) KM performance (knowledge capture and transformation, business performance, knowledge sharing and value addition). Chang et al. (2009) identified some factors consistent with the priori researches (Alazmi & Zairi, 2003; Misra & Hariharan, 2003): (1) organizational mission and values (as the most important factor), (2) alignment with organizational objectives, and (3) IT (Information Technology). Furthermore, they accepted process and human resource management as critical. For the KM performance dimension, they observed that knowledge capture is the most important activity especially in the initial stage of a KM initiative.

The literature also provided some research about the antecedents of processes such as Patricia & Christie (2008) who aimed to expand Hornsby et al.'s (1999) research which studied and observed the significant direct influence of leadership support on the corporate entrepreneurship as an internal factor in order to explicate tacit knowledge. They furthermore suggested that local governments should build innovative top management teams in order to facilitate the development of local economy and community.

Some studies evaluated the quality of the system. For example, Kamal (2011) adapted a Revised Model for Integration Layers (REAL) that integrates five layers (connectivity, transportation, transformation, process integration and knowledge integration). His results showed that data inconsistency and replication can be prevented by integrating knowledge through EAI (Enterprise application integration).

There are also some studies about the perceptions of the system in terms of usefulness and ease of use. For example, Apostolou et al. (2009) suggested SAKE

(Semantics-Enabled Agile Knowledge-Based E-governance) that includes information, context, and preferences to overcome insufficient KMSs. They recommended SAKE because of its perceived ease of use and usefulness. They furthermore suggested that the KMS must process work contexts and manage preferences to determine the relevant information for each public administration role and take necessary action.

Moreover, KMS research in governmental organisations considered the benefits of system usage. According to Kamal (2011), IT and KM together have some common objectives e.g. transforming organizations into more effective and efficient, agile and innovative, and more responsive forms. He reported that Local Government Authorities (LGAs) are observed to have lack of integrated IT infrastructures resulting in inconsistent and redundant data generation, inefficient knowledge exchange and poor service quality and delivery.

Raja and Raja (2010) studied the role of Knowledge Management Practices (KMP) and competencies in order to increase the performance and efficiency of Malaysian public sector organizations by surveying all Administrative and Diplomatic Officers (ADS) from 28 ministries located in Putrajaya, Malaysia. Their research supported the theory that knowledge management practices are influential on organizational performance.

On the other hand, when the individual benefits are considered, Apostolou et al. (2009) assumed that the next-generation KMSs will shift from the era of information search and sharing to timely information delivery, and that they can identify user needs in addition to offering new and interesting solutions.

The relationship between back-office and front-office usage were compared by Brusa et al. (2007). They suggested an ontology-based approach in order to improve content discovery, aggregation, and sharing in the e-government back-office through a case study in a local government domain in Argentina. They concluded that the use of ontology-based systems in e-government tasks enables the delivery of efficient integrated services through its front-end knowledge.

Technology Adoption and KMS

According to Brooking (1999), an effective knowledge management system should be adopted by all the users through the organization. Therefore, researchers have made many attempts to explain KMS adoption and effectiveness (Martins & Kellermanns, 2004; Hsieh & Wang, 2007; Huh et al., 2009; Larsen et al., 2009). In the history of research on KMS, Davis' (1986) Technology Acceptance Model (TAM) has been studied many times and gained an explanatory power of technology adoption behavior. DeLone and McLean (1992; 2003) looked into the success dimension, and Jennex & Olfman (2005) supposed that success models can provide further explanation to adoption theories and determine the outcomes of use in the context of KMS.

Therefore, the determination of organizational and individual factors for adoption of KMS as the antecedents of adoption and its outcomes becomes very important. Zack et al. (2009) reported that there are only a few studies that have attempted to explore KM performance outcomes. Furthermore, Becerra-Fernandez et al. (2004) suggested examining the influence of task complexity on KM adoption.

Finally, Ozlen and Handzic (2012) proposed and tested the KMS adoption process by considering its antecedents and consequences through a variety of high-tech organizations. They found strong evidence for their proposed research model.

3. Research Methodology

This section covers research design, sample and data analysis.

3.1. Research design and instrument

The overall research goal in this study is the observation of KMS adoption through back-office and front-office staff in one of the municipalities in Turkey. A survey based study that applied a 7-point Likert scale was preferred for this research. The survey was designed according to KMS literature. The references used while designing survey questionnaire items are observed in Table 1. While designing the survey, time requirements, emotional cost, trust and the nature of the relationship between respondents and researchers were considered. The survey form did not ask any personal information, and the Rector's foreword was shown as a cover letter that included the International Burch University logo in order to demonstrate the intention of an academic research to the respondents and to emphasize the importance of their response.

Table 1 - References for Survey Questionnaire Scale Development

Constructs	Literature
KMS Sophistication	Handzic & Zhou (2005); Handzic et al. (2010)
Decision Making	Wood (1986); Campbell (1988)
Perceived Benefits	Ajzen & Fishbein (1980); Triandis (1977); Davis et al. (1989); Jennex & Olfman (2004)
KMS Usage	DeLone & McLean (1992, 2003), Davis et al. (1989), Jennex & Olfman (2005, 2006)
Net Benefits	Handzic (2003, 2009, 2011), Malhotra (2002), Holsapple (2004), Jennex & Olfman (2006), Jennex et al. (2007), and Zack et al. (2009)

Source: *processed by Author*

A considerable attention was given while designing the survey in order to encourage the respondents completing the survey. An expert team from Management Department of the University evaluated the survey. According to their comments and suggestions, the necessary corrections were done. The survey was prepared in order to take not more than 20 minutes to complete. The survey contains instructions on its completion and seven major parts: (1) Demographic information (organizational and individual); (2) Decision Making (decision task, decision environment, and decision maker); (3) KMS characteristics (Social and Technical); (4) KMS perceptions (Perceived Usefulness and Perceived Ease of Use); (5) KMS usage; (6) Net Benefits (KP, DP, OP) and (7) Comments and suggestions. The major research variables and measures are provided in Table 2.

Table 2 - Research variables and measures

	Task Complexity (of Decision Tasks)
1	Most decision problems that I solve are complicated/complex
2	In my organization, I encounter a lot of problems with uncertain/changing causal links
3	In my organization, many of my decision tasks are rather ambiguous/unclear
4	My decision problems are often novel/unfamiliar/unknown to me
5	Most of my decisions are irreversible and cannot be easily corrected
	Individual Self-efficacy (of Knowledge Workers)
6	I have necessary knowledge and skills to perform my decision tasks
7	I am able to solve decision problems that I encounter
8	My motivation to do well is high
9	I learn quickly from experience
	System Sophistication (of KMS)
10	My organization has sophisticated business intelligence system
11	Intelligent business analytics tools are incorporated
12	There are excellent systems for communication and collaboration
13	Advanced e-learning and creativity support features are included
14	Leadership of my organization is visionary
15	My organization is organized as a network structure/form
16	My organization has developed a knowledge measurement system
	Perceived Benefits (of KMS)
	Usefulness
17	KMS provides me with enhanced institutional memory
18	KMS helps me to search knowledge repositories &visualise relationships and patterns
19	KMS improves my links with colleagues within and outside organization
20	KMS stimulates more my own creative thinking and fosters my on-the-job learning

	Ease of Use
21	KMS is simple and easy to use
22	KMS is easy to learn how to use
23	KMS is accessible from anywhere at anytime
24	KMS is quick to get knowledge from
	Voluntary Use (of KMS)
25.	I use KMS to access captured internal/external knowledge and gather intelligence
26	I use KMS to uncover and interpret hidden patterns in data and extract new knowledge
27	I use KMS to exchange ideas and share knowledge with my colleagues and experts
28	I use KMS to close gaps in my own knowledge and look for new innovative ideas
	Net Benefits (of KMS Use)
	Individual Knowledge
29	I am more aware of my organization's internal and external environment
30	I understand better the reasons and philosophy behind my decisions,
31	I am more familiar with where to find and get necessary knowledge resources
32	I know better how to implement necessary routines and relevant know-how
	Decision Performance
33	I am more confident in the quality of my decisions
34	I am more satisfied with the process/outcome of my decision making
35	My efficiency/effectiveness of decision making has improved
36	My decisions are more creative/innovative
	Organizational Performance
37	My organization has improved performance efficiency/effectiveness
38	My organization is more agile and able to coordinate suppliers/customers
39	My organization has implemented more innovative products/services
40	My organization has enhanced its competitive advantage

Source: (Ozlen and Handzic, 2012)

3.2. Subjects and procedure

The target respondents within the municipality were KMS users. Personal demographics of the respondents included their departments, roles in the departments, age categories, education levels and genders.

The questionnaires with the cover letter were distributed by hand through the contact people in the organizations. Follow-up telephone calls and visits to the contact persons were made in order to increase response rates. Totally 138 responses were obtained as a result of distributed 250 surveys (55.2% response rate).

While replying to the survey, the respondents were asked circling the number that best reflects the level of their agreement with the statements in order to rank

their agreement to a statement relative to positive and negative end-points of a 7-point Likert scale.

3.3. Analyses

After collecting the survey responses, the data were encoded, entered, and analyzed descriptively by considering the research model components using Microsoft Excel spreadsheet program. Related descriptive statistics are given in the Results section.

4. Results

4.1. Demographic information

The respondents are from various parts of the municipality. As observed from Table 3, the respondents are mainly from Operation, Production, or Service departments with 97 responses (70.3%). The result is in line with the activities of the municipalities.

Table 3 - Departments (classified according to value chain activities)

Functions/Departments	Code	Frequency	Percent
Administration	AD	5	3.6
Human Resources	HR	2	1.4
Information Technology	IT	28	20.3
Operation/Production/Service	OP	97	70.3
Missing		6	4.3
Total		138	100.00

Source: *Research results processed by Author*

The roles of the respondents are suitable with the targeted sample. They are system users within the municipalities (managers, professionals, clerical staff, and technicians & professional associates in orderly) (Table 4).

Table 4 Respondents' Roles within the Departments

Respondents' Roles	Code	Frequency	Percent
Clerical Staff	C	19	13.8
Managers	M	42	30.4
Professionals	P	45	32.6
Technicians & Professional Associates	T	20	14.5
Missing		12	8.7
Total		138	100

Source: *Research results processed by Author*

There are 71 front-office and 61 back-office respondents from the municipality. Moreover, the majority of the respondents are observed to be male.

4.2. Questionnaire Results

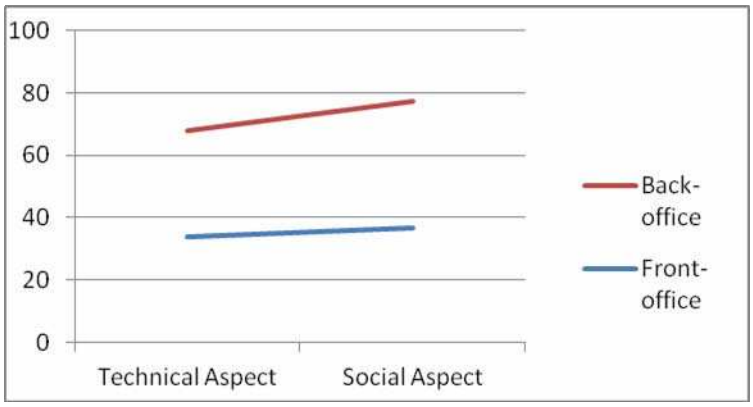
A. Contingencies

In this section, social and technical aspects of KMS and Decision Making Components (decision task, decision environment and decision maker) will be considered according to the results.

i. KMS

When technical and social aspects of KMS were considered, the front-office respondents seemed not to be aware of the available socio-technical tools compared to back-office respondents. They don't feel the support of social environment through the organization as much as the back-office staff does (Figure 1). Furthermore, back-office staff feels the strength of the social aspect more than the technical aspect.

Figure 1 - KMS Aspects (Agreement level in percentage)



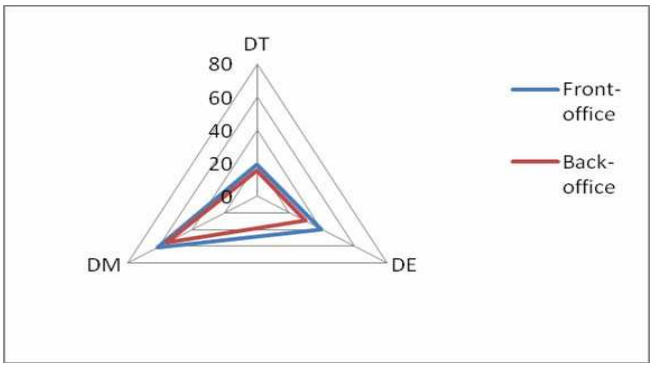
Source: *Research results processed by Author*

ii. Decision Making

As observed from Figure 2, front-office decision tasks and decision environments are perceived as more complex when compared to those for the back-office. In line with the assumptions of Apostolou et al. (2009), decision tasks for both back-office and front-office employees appear to be quite simple. On the other hand, decision

makers' self-efficacies are observed to be slightly higher for front-office than for back-office. As expected, the back-office work has been more regular, automated and less complex. However, front-office workers may meet extraordinary circumstances more frequently than the back-office workers. Therefore, their decision environment changes quicker than the back-office environment.

Figure 2 - Decision Making (Agreement level in percentage)

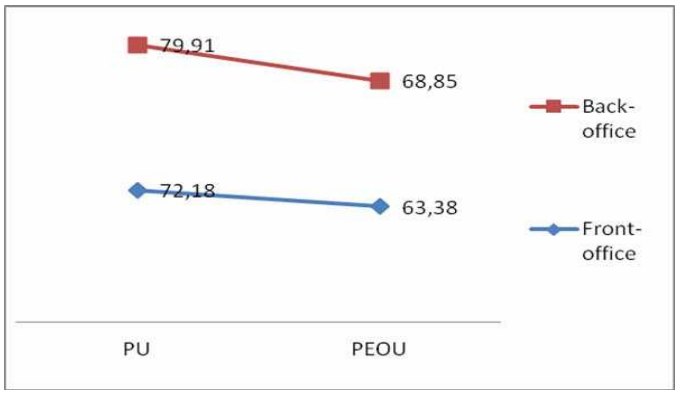


Source: *Research results processed by Author*

B. User Perceptions about KMS

Back-office staff perceives the system as more useful and easy to use compared to the front-office staff (Figure 3).

Figure 3 - Perceived Benefits of KMS (Agreement level in percentage)

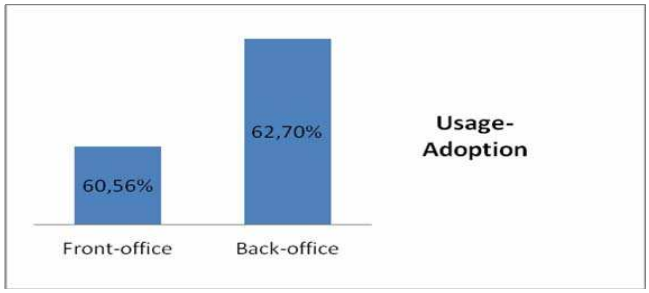


Source: *Research results processed by Author*

C. KMS Adoption Level

Back-office staff, as expected, seemed to adopt the system slightly more than front-office staff (Figure 4). However, the adoption levels are not satisfactory (62.70% vs. 60.56%).

Figure 4 - KMS Usage-Adoption (Agreement level in percentage)

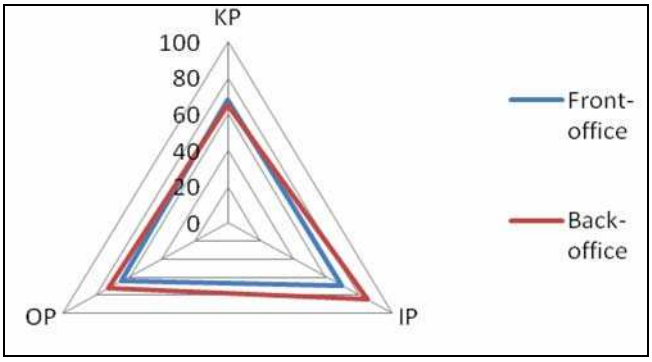


Source: *Research results processed by Author*

D. KMS Benefits

After using the system, the front-office staff, by considering their usage, believed slightly more than the back-office staff that the municipality gained organizational performance (OP). Both of them have similar consideration that the performance of knowledge (KP) increased as a result of KMS usage. However, back-office respondents are observed to have improved their individual performance (IP) much more than front-office respondents (Figure 5).

Figure 5 - Comparison of Benefits (Agreement level in percentage)



Source: *Research results processed by Author*

5. Discussion

The main purpose of this paper was to descriptively investigate the difference between the adoption behaviors, including antecedents and outcomes, of the front-office staff and the back-office staff of a Turkish municipality.

It has been discovered that both groups seemed to use the system above average while back-office workers using more. We may conclude that the existing KMS is somehow adopted by both of the groups and therefore the adoption level should be increased.

The technical aspect of municipality KMS seemed to be lower than the social aspect, so both users either are not aware of the technical capacity of the system or they feel the support of social aspect more.

Moreover, the system was perceived as useful and easy to use by both front-office and back-office staff. These are important to enhance the level of adoption as suggested by Davis's (1986) TAM.

Decision making circumstances for front-office staff seemed more complex when compared to those for back-office staff. However, they are observed to be quite simple and in general parallel to the results of Apostolou et al. (2009). Hence, the system should provide necessary operations for their routine works.

Finally, back-office staff appeared to have more benefits than front-office users. However, the level of agreement is just above average for both groups.

6. Conclusion

This study, as stated at the beginning, evaluates the adoption level of a Turkish municipality KMS among its back and front office employees. It comprehensively considers KMS adoption process by including antecedents (Becerra-Fernandez et al., 2004) and consequences (Handzic, 2003, 2009, 2011; Malhotra, 2002; Holsapple, 2004; Jennex & Olfman, 2006; Jennex et al., 2007; Zack et al., 2009). Although the research identified that front office workers have both more complex environments and tasks, they seem not to be aware of the technical and social aspects of the system as well as back-office workers are. Even if they need to use the system more, they don't perceive the system as useful and easy to use as much as the back-office workers. Therefore, they do not adopt the system more and finally, they could not have achieved benefits as desired.

The reason for this may be the requirements of the staff. Since they need the system for their routine work, they may not fully realize the system characteristics and therefore perceive it as useful and easy to use at a maximum

level. Furthermore, the system should also provide the integration of gathered information through back and front-office staff while offering different options for their different types of works.

6.1 Research Limitations and Future Directions

The main limitation for this research, as in many studies, is the number of responses. Although the number of 138 is satisfactory enough, more responses would have been more representative. Furthermore, the results presented the situation in one Turkish municipality, and the picture may change for another municipality or group of municipalities in the world. The same study or similar studies may be repeated for different groups within the municipalities. Moreover, future studies may develop models by considering the same/similar items in order to understand and explain the reasons of different behaviors of back-office and front-office employees (or different organizational groups) within the municipalities (the organizations) in the context of KM(S).

6.2 Implications for Practice

The study identified that the front-office staff is in a greater need to use the system since they have more complex decision tasks and environments. However, front office staff don't feel very much that there is a system that has social and technical aspects ready to help them. Therefore, as Brusa et al. (2007) suggested, whether it is necessary to enhance the system for their use (such as mobile systems to enable the easy front-office access) or making them aware of the system through some activities such as user training programs if there is indeed a system in place. Furthermore, front-end services should be accessible to the users through the municipality, and back-office data should be available to the e-government users quickly and accurately. Therefore, the infrastructure should explicate the stored knowledge in different parts of the municipality and deliver this knowledge to the users.

User perceptions (for both front-office and back-office) are observed to be low. Through training programs the level of perceptions and furthermore, the level of use may be increased. It is expected that if the more the users feel the socio-technical system as both useful and easy to use, they will probably use the system more. Finally, if the system was used more, it is expected to provide more benefits.

List of Acronyms

KM : Knowledge Management

KMS : Knowledge Management Systems

K-ACT: Knowledge access, creation and transfer

CSFs : Critical Success Factors

IT : Information Technology

EAI : Enterprise application integration

SAKE : Semantics-Enabled Agile Knowledge-Based E-governance

LGAs : Local Government Authorities

KMP : Knowledge Management Practices

ADS : Administrative and Diplomatic Officers

OP : Organizational Performance (OP)

KP : Knowledge Performance

IP : Individual Performance

References

Ajzen, I. and Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behaviour*, Prentice-Hall Inc., NJ. 07632.

Alazmi, M., & Zairi, M. (2003). Knowledge management critical success factors. Total Quality Management, 14(2), 199–204.

Apostolou, D., Stojanovic, N., & Anicic, D. (2009). Responsive Knowledge Management for Public Administration: An Event-Driven Approach. IEEE Computer Society, 20-30.

Becerra-Fernandez I., González, A.J. & Sabherwal, R. (2004). Knowledge Management: challenges, solutions, and technologies (1st ed). Prentice Hall, Upper Saddle River, NJ.

Behzadi, H., Isfandyari-Moghaddam, A., & Sanji, M. (2012). E-government portals: a knowledge management study. The Electronic Library, 30 (1), 89-102.

Brooking, A. (1999). Corporate Memory: Strategies for Knowledge Management, International Thomas Business Press, London, UK.

Brusa, G., Caliusco, M. L., & Chiotti, O. (2007). Enabling Knowledge Sharing within e-Government Back-Office through Ontological Engineering. Journal of Theoretical and Applied Electronic Commerce Research, 2 (1), 33-48.

Butler, T., Feller, J., Pope, A., Emerson, B., & Murphy, C. (2008). Designing a core IT artefact for Knowledge Management Systems using participatory action research in a government and a non-government organization. Journal of Strategic Information Systems, 17, 249–267.

Campbell, D. J. (1988). Task complexity: A review and analysis. Academy of Management Review, 13(1), 40-52.

Chang, M.-Y., Hung, Y.-C., & David, C. Y. (2009). The research on the critical success factors of knowledge management and classification framework project in the Executive Yuan of Taiwan Government. Expert Systems with Applications, 36, 5376–5386.

Citizens First 5, (2008). Institution for Citizen Centered Service, [Online] at http://www.iccs-isac.org/en/cf/insightsbulletin.asp, accessed March 30, 2013.

Davis, F. D. (1986). *A technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results.* Doctoral Dissertation, Massachusetts Institute of Technology.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319-340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science,* 35(8), 982-1002.

DeLone, W. & McLean, E. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. Journal of Management Information Systems, 19(4), 9-30.

DeLone, W., & McLean, E. (1992). Information Systems Success: The Quest for the Dependent Variable. Journal of Information System Research, 3(1), 60-95.

Goh, D. H.-L., Chua, A. Y.-K., Luyt, B., & Lee, S. C. (2008). Knowledge access, creation and transfer in e-government portals. Online Information Review, 32 (3), 348-369.

Handzic, M. (2003). An Integrated Framework of Knowledge Management, *Journal of Information & Knowledge Management*, 2(3), 245-252.

Handzic, M. (2009). Evaluating KMS Effectiveness for Decision Support: Preliminary Results. *Knowledge Management and Organizational Learning*, 236-250.

Handzic, M. (2011). Integrated Socio-Technical Knowledge Management Model: An Empirical Evaluation, *Journal of Knowledge Management*, 15(2), 198-211.

Handzic, M., & Zhou, A. Z. (2005). Knowledge Management: An Integrative Approach, Chandos Publishing, Oxford, UK.

Handzic, M., Lagumdzija, A., & Celjo, A. (2010). Managing Knowledge with Technology in Jennex M.E. (ed) *Ubiquitous Developments in Knowledge Management: Integrations and Trends*, (pp 378-391), Information Science Reference, Hershey & New York, US.

Hansen, M. T., Nohria, N., & Tierney, T. (1999). What is your strategy for managing knowledge. Harvard Business Review, 77(2), 106-116.

Holsapple C.W. (2004). *Handbook of Knowledge Management,* Springer.

Hornsby, J. S., Kuratko, D. F., and Montagno, R. V. (1999). Perception of internal factors for corporate entrepreneurship: a comparison of Canadian and US mergers. Entrepreneurship Theory and Practice, 24(2), 9-24.

Hsieh, J.J. P. A., & Wang, W. (2007). Explaining Employees Extended Use of Complex Information Systems. European Journal of Information Systems, 16(3), 216-227.

Huh, H. J., Kim, T. T., & Law, R. (2009). A comparison of competing theoretical models for understanding acceptance behavior of information systems in upscale hotels. International Journal of Hospitality Management, 28, 121-134.

Jennex, M. E., & Olfman, L. (2004). Modeling knowledge management success. *Proceedings of the Conference on Information Science and Technology Management,* (CISTM).

Jennex, M. E., Smolnik, S., & Croasdell D.T. (2007). Knowledge Management/Organizational Memory Success and Performance Measurements. *HICSS*, 2007: 191

Jennex, M., & Olfman L. (2005). Assessing Knowledge Management Success. *International Journal of Knowledge Management*, 1(2), 33-49.

Jennex, M., & Olfman L. (2006). A Model of Knowledge Management Success, *International Journal of Knowledge Management*, 3(2), 51-68.

Kamal, M. M. (2011). The case of EAI facilitating knowledge management integration in local government domain. International Journal of Information Management, 31, 294–300.

Kankanhalli, A., Tanudidjaja, F., Sutanto, J., and Tan, B. C. Y. (2003). The Role of IT in Successful Knowledge Management Initiatives. *Communications of the ACM*, 46(9), 69–73.

Larsen, T. J., SØrebØ, A. M., & SØrebØ, Ø. (2009). The role of task-technology fit as users' motivation to continue information system use. Computers in Human Behavior, 25, 778–784.

Malhotra, Y. (2002). 'Why Business Management Systems Fail' in *Handbook on Knowledge Management* (Holsapple, CW, ed.), Springer-Verlag, Heidelberg.

Martins, L. L., & Kellermanns, F. W. (2004). Model of business school students' acceptance of a web based course management system. Academy of Management Learning and Education, 3(1), 7-26.

Misra, D. C., & Hariharan, R. (2003). E-knowledge management framework for government organizations. Information Systems Management (Spring), 38–48.

Ozlen, K., & Handzic, M. (2012). An Empirical Test of a Contingency Model of KMS Effectiveness. *Knowledge Management Research & Practice (KMRP),* advance online publication October 22, 2012; doi:10.1057/kmrp.2012.34.

Patricia, A., & Christie, M. J. (2008). Civic entrepreneurship in Australia-Opening the "black box" of tacit knowledge in local government top management teams. International Journal of Public Sector Management, 21 (5), 509-524.

Raja, S., & Raja, K. (2010). The Relationship of Knowledge Management Practices, Competencies and the Organizational Performance of Government Departments in Malaysia. International Journal of Humanities and Social Sciences, 4, 14-20.

Triandis, H. C. (1977). *Interpersonal Behaviour.* Brooks/Cole Publishing Company, Monterey, California.

Wood, R. E. (1986). Task complexity: Definition of the construct. *Organisational Behaviour and Human Decision Processes*, *37*(1), 60-82.

Woolf, K. (2010). Information Matters: Government's Strategy to Build Capability in Managing its Knowledge and Information Assets. Legal Information Management, 10, 47–50.

Zack, M., McKeen, J. & Singh, S. (2009). Knowledge Management and organizational performance: and exploratory analysis. Journal of Knowledge Management, 6(13), 392-409.