

The Factors Influence Online Tacit Knowledge Sharing in Public Organisations: A Qualitative Case Study from Turkey

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Abstract

Is knowledge considered a valuable asset in public sector? Most of the answers of top public managers would be yes to this question; however it is quite rare to see a public organisation with software systems to manage their knowledge repositories. Even top management support and the latest information technologies tools may not be enough to create an effective and efficient online tacit knowledge sharing (OTKS) system, as the case happened in Turkish Statistical Institute (TurkStat), a large public organisation from Turkey. Even though the strategic decisions about OTKS are made by top managers, the success of these strategies depends on OTKS behaviour of employees.

This article, therefore, proposed a framework and reports the results of an exploratory study based on an in-depth qualitative investigation of factors influence OTKS behaviour of not only public managers but also public employees (n=50) of TurkStat. The results indicated that the OTKS platform was mostly used by the younger and well-educated public employees. Apart from that nine out of a total number of sixteen OTKS factors were considered significant by public employees and the top management. Interestingly the public officers and the public managers, as two parties, considered the other party had more responsibility and impact on fostering OTKS. Moreover, each OTKS factor had considerable different significance levels for the managers and the employees. This paper is one of the first studies to explore the factors influence OTKS in a Turkish public sector institution from two different hierarchical perspectives.

Keywords: online tacit knowledge sharing, public organisations, computer-mediated communication and collaboration, knowledge management

Öz

Bilgi, kamu örgütleri açısından gerçekten önemli midir? Kamu yöneticilerinin tamamına yakını bu soruya evet yanıtını verecektir. Lakin etkin ve verimli bir biçimde kullanılan yazılı kurumsal hafızaya sahip bir kamu kurumu görebilmek imkansız bulunmaktadır. Bu araştırma kapsamında, Türkiye İstatistik Kurumu'nda (TÜİK) yürütülen vaka çalışmasında da tespit edildiği üzere; kamu kurumlarında üst yönetici desteği ve uygun bilgi ve iletişim teknolojileri araçları sağlansa dahi sanal ortamda çalışan etkin ve verimli bir Çevrimiçi Örtük Bilgi Paylaşım (ÇÖBP) sistemi tesis edilebilmesi mümkün olmaktadır. Her ne kadar örgütsel ÇÖBP stratejileri büyük oranda üst yöneticiler tarafından şekillendirilse bile, bu stratejilerin başarıya ulaşması esas itibari ile çalışanların ÇÖBP davranışlarına bağlıdır.

Bu sebeplerden ötürü bu çalışmada TÜİK üst yöneticilerinin yanı sıra, ilgili kurumda yönetici pozisyonunda bulunmayan 50 çalışanda araştırma çerçevesine dahil edilmiştir. Üst yöneticilerden derinlemesine mülakat, çalışanlardan ise yarı yapılandırılmış mülakat yöntemi ile veri toplanmıştır. Araştırma bulgularına göre, TÜİK ÇÖBP platformu ağırlıklı olarak genç ve yüksek eğitilmiş kamu görevlilerince kullanılmıştır. Diğer yandan TÜİK'te ÇÖBP etkileyen toplam on altı faktör tespit edilmiştir. Bu faktörlerin dokuz tanesi hem yönetici hem de çalışanlar tarafından farklı derecelerde önemli olarak nitelendirilmiştir. Araştırma bulguları ayrıca ÇÖBP başarısı hususunda yöneticilerin çalışanları, çalışanların ise yöneticileri daha fazla sorumluluk sahibi olarak gördüklerine işaret etmektedir. Bu araştırma, Türkiye kamu sektöründe ÇÖBP faktörlerinin yönetici ve çalışan bakış açılarından ayrı ayrı ele alındığı öncü araştırmalardan biri olması hasebi ile önem arz etmektedir.

Anahtar Kelimeler: çevrimiçi örtük bilgi paylaşımı, kamu örgütleri, bilgisayar destekli iletişim ve işbirliği, bilgi yönetimi

Introduction

The need of managing knowledge as a valuable intangible asset has emerged for organisations to increase organisational effectiveness in this knowledge era (Massaro, Dumay, & Garlatti, 2015; Saint-Onge & Wallace, 2003). Bhatt (2001) defined knowledge management as a composed process of knowledge creation, validation, presentation,

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distribution, and application. Since knowledge management begins with process of knowledge creation, knowledge creation itself begins with knowledge sharing (Nonaka, 1991). The process of knowledge sharing is composed of not only distribution of knowledge but also transformation, interpretation and absorption of it as well (Iskoujina & Roberts, 2015). As a result of the knowledge sharing processes, new knowledge is created (Nonaka & Takeuchi, 1995) which means the creation of new valuable intangible assets to organisations. Additionally, effective knowledge sharing among individuals offers several further positive outcomes to organisations such as enhancing innovation capacity (Tangaraja, Rasdi, Ismail, & Samah, 2015) and increasing organisational effectiveness (Massaro et al., 2015).

In organisations, where there is a limited knowledge sharing among employees, knowledge gets stuck in the brains of individuals, which in turn limits the possibility of both creating new knowledge and enhancing organisational knowledge assets. Moreover, in a case of employee turnover a part of organisational knowledge is disappeared as well. Apart from that, the high cost of internal communication and cooperation may remain as a significant issue particularly for large organisations with units in different physical locations. In fact, the issues mentioned above lead to unaffordable costs to organisations in the knowledge era in which we live. Therefore, encouraging employees to share useful knowledge with their colleagues via online platforms has become essential (Hau, Kim, Lee, & Kim, 2013; Tangaraja et al., 2015) to organisation now more than ever.

Knowledge shared among employees could be divided into two categories as either explicit or tacit (Hau et al., 2013). Explicit knowledge exists in written forms such as reports or manuals, while tacit knowledge is embedded in individuals' memories such as know-how or experience (Nonaka & Takeuchi, 1995). Therefore, it is argued that tacit knowledge is harder than explicit knowledge to share among individuals, since it needs more effort and time (Hau et al., 2013).

In fact, managing explicit knowledge could be facilitated to a certain extent, due to the latest improvements in information and communication technologies (ICT). For instance, it is now easier to create a shared document and let several employees work on it together within an organisation via document management systems. On the other hand, managing tacit knowledge, particularly transformation of tacit knowledge to explicit knowledge process still remains as a significant handicap to organisations. Thus, the priceless value of tacit knowledge could unfortunately not be appreciated particularly in public organisations.

Essentially, most of the public organisations make little effort to facilitate transforming tacit knowledge of their employees into explicit knowledge, hence creating and mastering explicit organisational memories. One of the fundamental reasons lay behind the lack of the effort of public organisations may be that principally top public managers are not questioned regarding having or not having effective online knowledge sharing platforms. Therefore, it is quite rare to come across with a top public manager who has an intention to develop knowledge sharing strategies to enrich the organisation's tacit knowledge resources. Nevertheless, establishing such an effective online tacit knowledge sharing (OTKS) system to foster OTKS behaviour of employees is not a simple task (Tangaraja et al., 2015), even though having access to the latest ICT tools and having active top management support. Llopis and Foss (2016) argued that the effort of top management may not be enough to change organisational climate where individuals voluntarily share their tacit knowledge with each other. It is due to the fact that there are varieties of factors that influence OTKS of public employees, besides the top management support and technology.

The Study Background

Both acquiring the latest technology ICT solutions and gaining the support of top management are essential; however, it may not be enough to foster OTKS between public employees, as in the case of Turkish Statistical Institute (TurkStat). TurkStat is a government organisation in Turkey and has twenty-six regional offices throughout the country. The line phones and e-mail groups are still used as the main communication tools in the organisation. Considering the physically distances among the organisational units of TurkStat, the need for transferring organisational knowledge sharing process to a manageable virtual platform seems high. Therefore, the institution had attempted to facilitate its internal communication and collaboration through acquiring an online knowledge sharing platform called TurkStat Forum, in 2012. The aim of the institution was to increase organisational effectiveness through the forum where employees from twenty-six regional offices had been expected to contribute knowledge acquisition, retention and retrieval processes.

Nevertheless, the attempt of TurkStat about establishing an effective OTKS system where employees share their tacit knowledge with their colleagues failed due to the several reasons. The reasons of this failure will be explored in details through qualitative data analysis within Data Analysis and Discussion section. Additionally, factors influence OTKS will be investigated in order to understand what motivates public employees to share their tacit knowledge with their colleagues in online forums. Overall, this study will address the following research questions (RQs);

RQ.1. What motivates both top public managers and public employees to share tacit knowledge on institutional online knowledge sharing platforms?

RQ.2. What are the differences and the similarities between the perspectives of public employees and public top managers about OTKS factors?

Chen and Hsieh (2015) argued that theory of knowledge sharing motivation in the public sector has not been established yet. In fact, it is quite rare to see a public organisation with software systems to facilitate tacit knowledge among their employees. Indeed, there have been numerous number of researches conducted on factors influence knowledge sharing in organisations. However, most of those researches focus on merely private sector organisations, thus there is a lack of research on public sector organisations.

Apart from that, managers and employees are two fundamental elements of knowledge sharing within an organisation, since one side represents the strategists and the other side represents implementers of these strategies, respectively. Apart from that, top management is responsible to direct individual tacit knowledge for the organisational purposes through providing suitable physical and/or virtual places to facilitate the socialisation of employees to exchange their knowledge (Bhatt, 2002; Nonaka & Takeuchi, 1995). In fact, employees are considered the ultimate decision makers in any organisational process; hence without understanding the mind sets of employees about knowledge sharing, the likelihood of achieving organisational knowledge management objectives are slim.

Surprisingly, the separation of the perspectives of top managers and employees about knowledge sharing has received limited attention by researches. Most of the knowledge sharing theories have been developed through using several different frameworks such as (a) barriers and facilitators (Ardichvili, Page, & Wentling, 2003, Hau, Kim, & Lee, 2014), (b) opportunities or motivators (Chen & Hsieh, 2015; Iskoujina & Roberts, 2015), (c) contextual factors and individual factors (Chiu, Hsu, & Wang, 2006; Hau et al., 2013, Hau et al., 2014), and (d) social network and trust (Chow and Chan, 2008). However, the necessity of the

separation of the perspectives of both strategists (top managers) and practitioners (employees) is not questioned in the theoretical frameworks.

Therefore, the article reports the results of an exploratory study based on an in-depth qualitative investigation of factors influence OTKS in a large public sector organisation. The factors were categorised in a framework through considering both top public managers and public employees with the purpose of bridging the gaps in the literature. Furthermore, it was aimed to explore the most critical factors influencing OTKS decisions of public employees. Thus, tacit knowledge sharing could be fostered in a shorter time and also with a lower budget in public organisations. The findings are integrated into the insights gained from the review of relevant theoretical contributions from knowledge management literature. The findings are also expected to enhance our understanding about OTKS intention of public employees.

Online Tacit Knowledge Sharing

In fact, achieving efficient organisational OTKS through using the solutions offered by ICT-based tools does also depend on how organisations consider "knowledge" and how they access, manage and store it in their repositories. In this regard, first of all organisations should be aware of several dimensions of knowledge such as the nature of knowledge, barriers and facilitators, contextual and individual factors and opportunities and motivators of the knowledge exchange. Hau et al. (2013) and Hau et al. (2014) argued that knowledge sharing intentions of individuals are influenced by a variety of factors at different levels depending on the type of knowledge to be shared, whether explicit or tacit.

In this study, explicit and tacit knowledge will be considered the dimensions of the nature of knowledge. Grant (1996) explains tacit knowledge as knowing-how, and explicit knowledge as knowing-about anything. Explicit knowledge is formal and objective and it could be expressed in words, numbers, and specifications (Kogut & Zander, 1992) such as organisational documents either in archives or in electronic databases. Tacit knowledge or experiential knowledge is based on insights, intuition, and personal skills (Edvardsson, 2008), is socially constructed and resting in the organizing of human resources (Kogut & Zander, 1992) and hardly transferable (Barker, 2015).

In fact, the massive improvements in ICT during the recent years have offered a variety of software solutions to organisations to facilitate particularly explicit knowledge sharing among employees. For instance, most of the contemporary social intranet systems package a range of communication and collaboration tools into one online platform, including document management systems, forums, wikis, spaces and social networking. In fact, sharing explicit knowledge, which already exists in written forms, is not excessively sophisticated mission for individuals via such contemporary intranet systems. On the other hand, tacit knowledge sharing particularly the process of transforming tacit knowledge into explicit knowledge has still loads of challenges.

According to Nonaka (1991) the reason lies behind the difficulties of tacit knowledge transfer is that tacit knowledge is extremely personal, thus it is difficult to formalize and to communicate to others. Due to the nature of tacit knowledge, it is not always easy for organisations to make their members to share their knowledge with others. O'Dell and Grayson (1998) explain this situation ironically as "If only we knew what we know". This is to say that individuals could not easily express their know-how neither in words nor in writing. In practice, OTKS among employees is rare. Nevertheless, OTKS among employees could be facilitated by considering their individual motivations (Hau et al., 2014).

Identification, for instance, is one of the most fundamental individual factors that influence OTKS decision of public employees. Prior to sharing their knowledge, individuals

need to have the tendency to feel that they belong to the community and the community belongs to them. Additionally, individuals also need to ensure that organisational culture provide a sense of protection. In other words, individuals, particularly public employees, want to feel that their sharing with colleagues will not cause any problem for them unless it is illegal. Mason and Pauleen (2003) in their study identified organisational culture, leadership, and education as the main factors that influence knowledge sharing intentions of public employees. Moreover, a variety of other factors such as organisational knowledge sharing culture, norm of reciprocity, role of leading, knowledge sharing space, organisational communication are likely to influence the ability and willingness of individuals to share their know-how with their colleagues (Ardichvili et al., 2003; Barker, 2015; Chiu et al., 2006; Faraj, Kudaravalli, & Wasko, 2015; Saint-Onge & Wallace, 2003).

In order to have a better understanding of OTKS factors in an organisation, the perspectives of both top public managers and public employees should be explored separately. The reason is that, top managers (the strategist) are responsible for developing OTKS strategies and public employees (practitioners) are those who expected to share their experiences and know-how with their colleagues. Nevertheless, it is hardly possible to convince employees to serve their experiences for the use of the other colleagues unless employees go along with the aims and objectives of the organisation. Therefore, it is essential to understand the realities of employees about knowledge sharing before developing any organisational knowledge sharing goals. These realities are created and lived by individuals and indeed influence the OTKS behaviour of them. Due to the reasons mentioned above, the factors influence OTKS intention of public employees will be investigated from the point of views of both top public managers and public employees.

Context and Methodology of the Study

The Organisation

Since this paper looks for a better understanding of the phenomenon of what motivates public employees to share their tacit knowledge in organisational platforms, TurkStat was selected as the public organisation. One of the major reasons of selecting TurkStat is its emerging need of lowering the communication and cooperation costs which is caused due to its organisational structure. TurkStat is a governmental organisation located in the Republic of Turkey. The principal duty of TurkStat is to compile data and information, and produce, publish, and provide necessary statistics in the areas both Turkey and the Statistical Office of the European Union (Eurostat) needs. The organisation receives data from individuals, households, companies and non-governmental organisations via researches, administrative data and censuses throughout Turkey. The institution has 26 regional offices where proximately 2400 employees are assigned in the country. The headquarter of TurkStat is located in Ankara where around 1200 of the employees are employed. The regional offices are responsible for data compilation from respondents and to make several pre-analysis on the data prior to data transferring process from regional offices to the central departments and sub-units (Turkish Statistical Institute, 2017). Having effective communication and coordination, therefore, among the employees who work in distant locations is crucial.

Due to the diversity of regional offices in terms of location, meeting the needs of knowledge sharing of the units seems vital. In fact, all the regional offices are responsible for completing similar or same duties. In other words, for instance each regional office conducts data through surveys, censuses, and administrative records on a variety of same fields such as inflation and price, foreign trade, population, tourism, transport, education, health, employment, science and technology, and agriculture. Therefore, employees from different regional offices typically face similar difficulties during data collecting process.

For instance, while an Inflation and Price Department of a regional unit find their own solutions to a problem about data collecting process, the rest of the Inflation and Price Departments of other regional units may keep facing with the same difficulty. In general the regional units hardly become aware of the solution of others, thus each regional unit asks for a solution to the central Inflation and Price Department in the headquarter via generally telephone or e-mail. Even in this case the solution could only be learnt by the regional offices which make a call or send an email to the headquarter due to the nature of non-transparent way of knowledge sharing. This way of communicating is not only increases the communication and cooperation costs but also limiting the possibility of creating new knowledge assets. Therefore, TurkStat was selected due to its demanding need of having an efficient OTKS platform used by the regional units and headquarter.

The Failure of TurkStat OTKS System

A further major reason for selecting TurkStat in order to answer the two research questions is that the institution had an experience on establishing and managing OTKS platform called TurkStat Forum. Nevertheless, the attempt of TurkStat about establishing the OTKS system failed. The reasons of naming the situation as a failure is that through considering a total number of 3.600 employees, merely 562 employees have become a member of TurkStat Forum. Moreover, only a total number of 263 messages, tacit knowledge, generated by 131 members since the forum launched in the year of 2012, which indicates considerably limited amount of OTKS among the employees. In fact, the limited knowledge sharing among employees in the forum, in spite of the support of top management, were considered an interesting issue to explore.

The Study Design

In this research case study is selected as the qualitative research design. The qualitative data were collected from both a top public manager and public employees (n=50) through interviews and questionnaires respectively in TurkStat. Finally, the data analysis was completed in Maxqda-12 programme through categorisation and interpretation of data in terms of common themes (see the supplementary documents for more information on the qualitative analysing process).

Data Collection Method

The data was obtained from the members of TurkStat Forum. The semi structured questionnaire was sent to TurkStat Forum members (n=562). The questionnaire was not sent to the rest of the 3038 employees (considering the total number of 3.600 employees) who have never signed up to forum. The fundamental reason of not considering these people in the sample framework was that these people have never had any experience about the forum, such as the pros and cons of using it or facilitators and barriers to OTKS in it.

Table 1: Demographic characteristics of both the whole population of TurkStat and the respondents.

Variable	Category	Number of respondents	Rate % of respondents	Rate % of all employees
	18-28	2	4	..
	29-34	22	44	..
Age	35-40	14	28	..
	41-46	7	14	..
	47+	5	10	..
	High School	1	2	27
Education level	Undergraduate	34	68	63
	Master or Ph.D.	15	30	10

	1-4	4	8	17
	5-9	24	48	23
Employment period	10-14	14	28	11
	15-19	1	2	6
	20+	7	14	43
	Total (Valid)	50	100	100

As a result sending the semi-structured questionnaire to additional 1000 employee has been considered not significant enough. Therefore, only the members of TurkStat Forum (n=562) were asked to answer ten open ended questions and three demographic questions at the end. Two weeks later a reminder e-mail was sent encouraging participation in the study. As a result, 50 employees answered at least one out of ten open ended questions in the questionnaire.

Most of the respondents' age was under 40, which accounted for 76 percent. Additionally, 84 percent of the respondents had been employed for less than 15 years, which is only 51 percent of the whole institution (see Table 1. for more details). That comparison indicates that the OTKS platform was mostly used by the younger employees who were also interested in taking part in this survey.

Apart from that, education level of the respondents was incredibly high considering 98 percent of them had at least undergraduate diplomas. In this regard, there is a negative correlation appears between education level and TurkStat Forum membership. For instance, 27 percent of the TurkStat employees (proximately 1000 in 3600 people) had high school level of education, however merely 2 percent of TurkStat Forum members had high school level of education participation (see Table 1. for more details).

Data Analysing Method

The main aim of content analysis technique is to classify knowledge in explicit text format into a series of meaningful categories (Kalof, Dan, & Dietz, 2008). Content analysis could be carried on through a variety of approaches including qualitative, quantitative or both. Manifest coding, as a quantitative approach, does not consider the connotation of the text but the visible face of it. In manifest coding, the number of occurrence of certain words or phrases are calculated with the aim of performing quantitative analysis. In latent coding, in contrast, the focus is on the connotation side of the text through asking 'What does the text mean?'. Additionally, the direction of the text may also be evaluated in terms of optimist, pessimist, negative or positive etc. (Kalof et al., 2008). In our example latent coding approach will be implemented through classifying the text of interviews and questionnaires into several meaningful categories through applying qualitative approaches. Noble and Smith (2013), and Creswell (2009) identified five main stages to complete qualitative data analysis as below (see Figure 1 for more details).

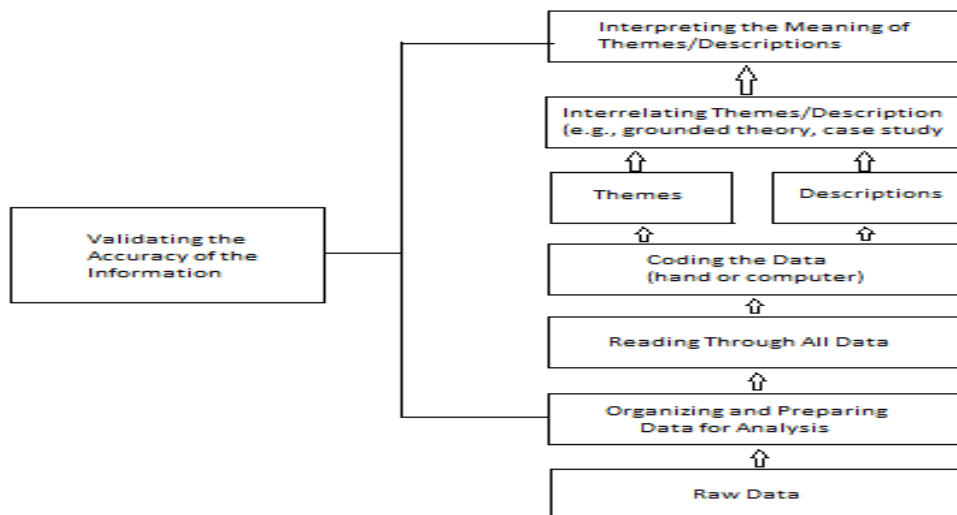


Figure 1: Data analysis in qualitative research.

Source: Creswell (2009, p. 88).

According to Noble and Smith (2013), transparency of the data analysis process could be achieved through documenting the stages from units of data to final themes and descriptions (see the supplementary documents such as the all codes, and the code system for the qualitative analysis for more details). The authors claim that even though interpretations of researchers may differ, to be able to understand how the final themes were reached is an essential component of demonstrating the robustness of the findings. With those purposes the processes were mapped and the linkages across the data were visualised to lead a theory development. Transparency of the data analysis process was aimed to improve through documenting the stages from units of data to final themes and descriptions from units of data to final themes and descriptions (see Figure 2 and Figure 3).

In this research, the qualitative data was gathered through both recording the forty minutes depth interview with one of the top managers of TurkStat and semi structured online questionnaire with public employees (n=50). The data analysing process was completed through five stages to obtain the codes. In the first stage, the interview data was written down into twelve pages in order to prepare it for data analysis. Additionally, the data of semi structured online questionnaire was transferred to an excel form. In the second stage, all the data was read through to gain comprehensive insights into the phenomena being explored. In the third stage of data analysis, the data was coded through a computer programme called Maxqda-12 with the purpose of demonstrating rigour (see Figure 2 and Figure 3 for more details). The code system is generated through the content analysis technique. In the content analysis, the data was classified in explicit text format into a series of meaningful categories.

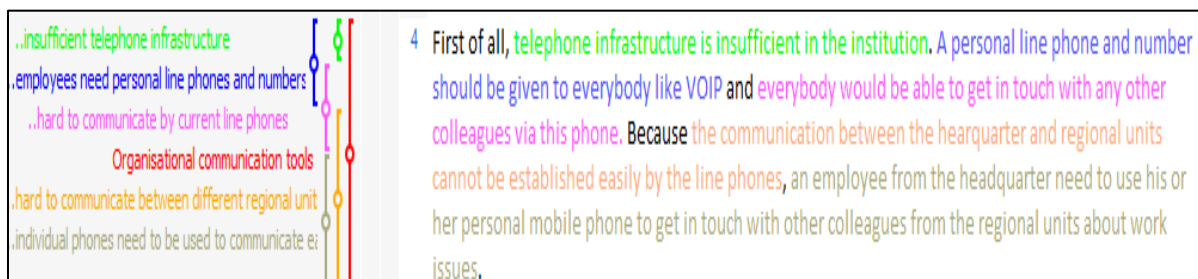
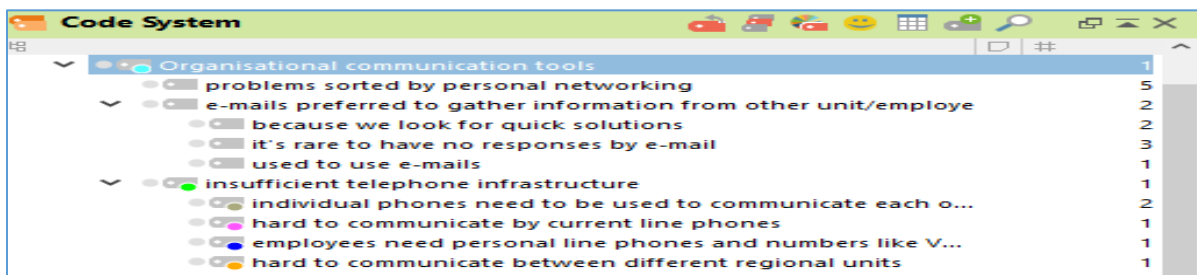


Figure 2: Defining the inductive categories of organisational communication tools factor

Krippendorff (1980, p.76) argues that "How categories are defined ... is an art. Little is written about it". In this regard, within the last two stages of data analysis, the data was formulated step by step to define inductive categories or combined existing categories. The categories were revised continuously through data analysis and discussion section in order to increase reliability of the findings (Mayring, 2000).

The detail of the code system and the sub-categories was shared as below (see Figure 3). Figure 3 has a Code System section on its left side and the section includes three sub-categories which belong to the code system. The first category, which is flushed left ones, here it is "Organisational communication tools", are the factors influence online knowledge sharing in public institutions.

**Figure 3:** The code system of organisational communication tools factor

The factors are generated through using their first subgroups. The second subgroups of the Organisational communication factor could be seen in the Figure 3, such as "problems sorted by personal networking", "e-mails preferred to gather information from other unit/employee", "insufficient telephone infrastructure" and so on. Lastly, there are also the third subgroups which are listed under the second subgroups and are indented one tab more compared the second subgroups. The more details about this factor will be mentioned under the "organisational communication tools" title in the coming pages.

Data Analysis and Discussion

The results of qualitative data analysis were organised under two different titles to address each of the three research questions were defined earlier in introduction. In this regard, in order to explore the first research question "What motivates both top public managers and public employees to share tacit knowledge on institutional online knowledge sharing platforms?" the findings were presented under the following section, The Source of The Problem and Organisational Aim title. Furthermore, in the forthcoming section, the factors influence online knowledge sharing tendencies of public employees were discovered to answer the second research question (see Figure 4 for more details).

The Source of the Problem and Organisational Aim

The first column of Table 2 below displays the main categories in order to summarize the issues of the ineffective OTKS problem in TurkStat. The second column represents the items in percentage of the statements of the respondents. The frequency column points to the exact numbers of responses in each category, and the percentage of the total.

In Table 2, it is highlighted that the top management mentioned 25 times about the ineffective knowledge sharing place, which is e-mail groups, as the fundamental reason of the ineffective OTKS. This category was made up of five sub-categories including "need for a transparent knowledge sharing space" (7), "unable to create organisational memory" (6) and "drawbacks for the units provide opinions" (5) (see Table 2 for each of the sub-groups).

Several related dialogs which were recorded during the depth interview with top management given as below:

Knowledge sharing is taken place by e-mails. In fact, it is the reason of our problem...We have e-mail groups in a variety of topics.

The history of e-mails could not be seen whereas the history could be seen in forums. That is to say, members of e-mail groups only could display the group e-mails after their membership, leaving the group means losing that knowledge.

There is no transparency. In fact, it was the fundamental need. Knowledge sharing should be done in a transparent place due to the fact that different units may face with the same problem. It used to be done by e-mail groups, but e-mail groups created the problems mentioned earlier, these groups are not sufficient to manage knowledge (See supplementary documents, In-Dept Interview in Written Format.rtf)

Table 2: The source of the problem: Ineffective knowledge sharing.

<i>The problems</i>	Frequency	Percentage
ineffective knowledge sharing place (e-mail groups)	25	67.6
need for a transparent knowledge sharing space	7	19
unable to create organisational memory	6	16
drawbacks for the units provide opinions	5	14
drawbacks for the units receive opinions	4	11
high administration cost	3	8
ineffective knowledge sharing tool	8	21.6
noticing the ineffectiveness of e-mail tool	3	8
noticing the need of a forum	3	8
knowledge is shared through e-mail that is the main problem	2	5
need to improve organisational knowledge sharing culture	4	10.8
limited online knowledge sharing culture	2	5
non-transparent horizontal and vertical communication	1	3
unable to create organisational solutions by high participation	1	3
Total (Valid)	37	100

On the other hand, according to data analysis, organisational aim was identified as improving the efficiency of OTKS (see Table 3). The organisational aim category contained four issues within two sub-categories which are "identifying goals and objectives & being ready for them" (15), and "creating common mind in a transparent online platform" (6).

Table 3: Organisational aim.

Aims	Frequency	Percentage
identifying goals and objectives & being ready for them	15	40.5
being ready for the cultural change (online collaboration)	9	24.3
benchmarking with other public institutions	6	16.2
creating common mind in a transparent online platform	6	16.2
creating fast common mind	3	8.1
transparent platform	3	8.1
Total (Valid)	37	100

An examination of the wording shows that the top management was very clear on the source of the ineffective OTKS and what to do to sort it out. For instance, top management identified one barrier to create common mind as below. Moreover, the way of creating a common mind was also mentioned in the second dialogue.

As the unit receives (receiver of knowledge) opinions of others, there is no evaluation problem if the senders share the same view. However, when the senders have different views, it is important to see that what others are also saying, so that a common mind could be generated democratically.

Actually, the essential reason of ordering this project (the forum project) was to create and manage a common mind in a transparent platform. In this regard, the order of developing a forum application was given by our President.

In fact, top management of TurkStat was mostly aware of the obstacles to effective OTKS to a certain extend (see Table 2). Nevertheless, the awareness of TurkStat top management was not enough to create a successful OTKS environment in the organisation. Because there are some other factors which influence OTKS. All of these factors should also be explored on a larger map with the purpose of having a better understanding about the OTKS intention of the employees.

Factors Influence Online Knowledge Sharing in TurkStat

The final themes and the descriptions reached throughout the qualitative data analysis were considered the factors influence OTKS. The exploration process was completed for the top public manager through interpreting the data gathered during the depth interview. As a result of the data analysis, the OTKS factors were explored for the top public manager (see Table 4 for each of the sub-groups). The frequency values of the factors were considered a sing of their priorities in the mind of the top manager.

Table 4: Knowledge sharing factors (for top public manager).

Factors	Frequency	Percentage %
Individual factors	19	19.4
Online communication culture	15	15.3
Scope (rules, procedures, and policies)	15	15.3
Content management in forum	13	13.3
Vertical communication culture	8	8.2
Top management support	8	8.2
Organisational working style	6	6.1
Transparent knowledge sharing place	5	5.1
Technology	5	5.1
Horizontal communication	4	4.1
Total (Valid)	98	100

For instance, as it could be seen in Table 4, for the top management the most critical factors influencing knowledge sharing were (a) individual factors, (b) online communication culture, (c) knowledge sharing scope (e.g., official circulars), and (d) content management in the forum. In contrast, for the public employees the most critical factors are (a) knowledge sharing space and (b) attitudes of managers (see Table 5 for each of the sub-groups).

Table 5: Knowledge sharing factors (for public employees).

Factors	Frequency	Percentage %
Knowledge sharing space	48	14.0
Expectations from the management	47	13.7
Rewarding	34	9.9
Approvals in forum (rules, procedures, and policies)	31	9.0
Horizontal communication	30	8.7
Technology	29	8.4
Organisational communication tools	24	7.0

Individual Factors	23	6.7
Internal advertisement	23	6.7
Organisational knowledge sharing culture	11	3.2
Forum management	11	3.2
Vertical communication	11	3.2
Modern human resource management	11	3.2
Norm of reciprocity	11	3.2
Total (Valid)	344	100

Apart from that, a theoretical framework below was developed by grouping the OTKS factors explored throughout the qualitative data analysis. Three different sections were identified as; the factors significant (a) only for top public manager, (b) only for public employees, and (c) for both of them (see Figure 4 for the grouping of the whole factors). One of those sections is composed of the factors that were significant for only top manager such as "organisational working style". A further section was consisted of the factors noteworthy for only public employees such as rewarding, norm of reciprocity, human resource management. The last section is the intersection of the factors considered significant by both top management and public employees. Each of these factors will be explored in details in the coming paragraphs.

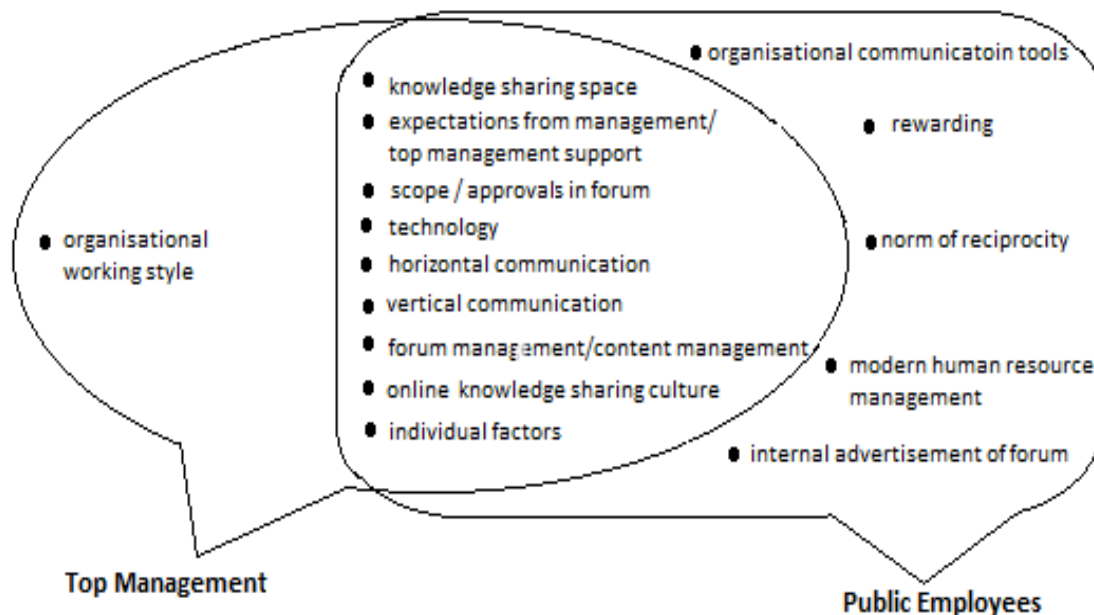


Figure 4: The theoretical framework for online knowledge sharing factors in public sector.

Knowledge sharing space

While knowledge sharing space was the most significant factor out of 14 for employees (see Table 5), contrarily it was almost the least significant factor, which was rated ninth out of ten, for top public manager (see Table 4). Knowledge sharing space as the largest issue for public employees was cited 48 times throughout the content analysis. The public employees argued (a) the necessity of an online knowledge sharing platform (33%), (b) facilitating physical communication & interaction spaces at work (31%), (c) and the need of

free expression in the workplace (13%). Nevertheless, (d) several employees disagree with the necessity of an online knowledge sharing platform (23%) (see Table 6 for more details).

Table 6: Knowledge sharing space (for public employees).

Factors	Frequency	Percentage
necessity of an online knowledge sharing platform	16	33
facilitating physical communication & interaction spaces at work	15	31
online knowledge sharing platform unnecessary	11	23
free expression in the workplace	6	13
Total (Valid)	48	100

Several speeches of TurkStat employees were shared below:

The information is spread by rumours so it is usually aggregated and wrong.

An online platform may encourage us to share knowledge voluntarily.

Using e-mail groups is a quick way of sharing knowledge and it is also very rare not to have any responses. Therefore, forum is considered time consuming to get responses to the questions especially considering the intensive workload.

Internal official knowledge sharing is done mainly via institutional meetings.

As a technical expert, there is no extra room or a table or even two chairs in the institution to make evaluations with my colleagues... This fact is a good sign of how much top management care about knowledge sharing space.

Instead of insisting on forums, we could keep using e-mails. I am being a realist not an idealist.

As it is understood from the statements of the employees, there are opposing views about the necessity of a forum. Whereas, the top manager thinks that it is necessary to have a transparent knowledge sharing space as forum. The top manager argued that:

The history of e-mails could not be managed properly; it is hard to manage the knowledge within a category so it is a big disadvantage compared to forums.....

There is no transparency. In fact, it was the fundamental need.

It must be happen in a transparent place due to the fact that different units may face with the same problem.

Expectations from the management

The expectation from management was the second most significant issue for employees with a total of 47 cites. The negative attitude of management towards employees (51%) seems like one of the main barriers to successful OTKS (see Table 7 for sub-groups). Several different speeches belong to different employees were shared below:

If managers were thoughtful to the employees, the working environment then would turn into a nice place. The rest will come itself. Otherwise no one would like to share what they have.

Managers should not consider management duty as only for planning, leading, and controlling issues but also they should consider their employees have a social life.

The viewpoint of the top management about employees should change. They need to consider employees as humans not as robots to work until the midnight.

Table 7: Expectations from the management (for public employees).

Factors	Frequency	Percentage
changing the negative attitude of management to employees	24	51
motivate employees about tacit knowledge sharing	17	36
Increasing coordination between the units by vice chairs	6	13
Total (Valid)	47	100

Furthermore, the public employees also expect from management to motivate them to share their tacit knowledge (36%) somehow. For instance, an employee admitted that:

If it is for sure that the top management read the entries of the employees, knowledge sharing will foster.

Another expectation from the management was to increase coordination between units and employees by particularly vice presidents (13%). A further employee declared that:

Coordination between the units on technical issues could be improved through setting regular meetings among the units by vice presidents. Vice presidents could organise working groups about several important issues among the units.

The top management, on the other hand, also considers management support as a significant fact to foster OTKS. According to the top manager, they did whatever needed to be done on their side as management such as (a) individual support (38%), (b) ordering the establishment of the platform (38%). The top manager also claimed that (c) the top management's order is enough to ensure effective OTKS among the employees (24%).

Scope (approvals in forums)

Considerable number of the employees (a) requests no limitation to post personal messages to forum (67%). Several other employees (b) support having a content approval mechanism for forum messages (33%), for instance, unit manager approval to open forum topics (10%) is mentioned by the employees. A paragraph from the semi-structured questionnaire was as the following:

Only managers should have the right to open topics in the forum but all the employees should be able to send messages to these topics. The topic messages sent by the employees should pass from an approval mechanism controlled by the first line managers before appearing in the forum.

From the top public employees' standpoint, the focus was on the scope (rules, procedures, and policies in forum) with fifteen citations out of ninety-eight (see the supplementary documents for more information on the sub-groups of citations of the top public manager). A total number of seven cites of the scope issue was about (a) limiting the user authorization in forum, and five cites was about (b) the limits of hierarchical communication in public sector. That is to say that, the management wants to see the borders about OTKS such as who can write to what and to where to what extent. Therefore, the top manager three times mentioned (c) written circulars where the rules of forum would be in a written format.

Technology

Similar to the knowledge sharing place factor, technology was taken much more attention from public employees compared to the top management as a OTKS factor in TurkStat (see Table 4 and Table 5 for the comparison of the significance of the technology factor by public employees and the top manager). According to the public employees in TurkStat, (a) user friendliness is the most significant factor that influence OTKS (41%). The employees also think that (b) integrating TurkStat Forum with the other organisational software systems such as human resource management systems, announcements application, and chat may also increase willingness of the individuals to use the forum (14%) (see Table 8 for the sub-groups). There are several statements of the public employees regarding to technology requirements of the forum:

Establishment of a contemporary intranet systems with forums, web 2.0 applications, remote access, and popular implementations including social network features such as individual pages and chat applications may foster knowledge sharing.

Using e-mail groups is a quick way of sharing knowledge and it is also very rare to have no response. So, forum is time consuming to get responses if we consider our intensive workload.

Table 8: Technology (for public employees).

Factors	Frequency	Percentage
user friendliness	12	41
integrating with organisational software applications	4	14
solution of technological issues not enough for success	3	10

e-mail notifications, search engine	3	10
integrating with social media networks	2	7
mobile / remote access to forum	2	7
no need for any improvements in the forum	2	7
technological issues do not take enough attention	1	3
Total (Valid)	29	100

Even though the technology factor is likely to have an impact on knowledge sharing in online forums, it is not the fundamental one. Because there is a variety of factors that influence OTKS public sector forums such as availability of a suitable knowledge sharing space, management support, and communication culture.

Horizontal communication

Horizontal communication issue was not considered enough by the top management and listed in the last place among the OTKS factors (see Table 4 for the significance level of horizontal communication factor for top management, see the supplementary documents for more information on the sub-groups of citations of the top public manager).

Table 9: Horizontal communication (for public employees).

Factors	Frequency	Percentage
communication problems with the headquarter	10	33
high employee dependency	6	20
no time to share knowledge due to intense workload	5	17
focus on horizontal communication in particularly technical issue	5	17
no knowledge sharing to maintain personal positions	2	7
most of the employees do not know each other	2	7
Total (Valid)	30	100

The reason why this factor took the least attention could be that the top management rarely witnesses any horizontal communication at both unit and individual levels within the organisation. In contrast, public employees considered horizontal communication as a significant issue in knowledge sharing. A total number of thirty cites from the employees was noted about this issue (see Table 9 for the subcategories).

Vertical communication

The top manager of TurkStat mostly considered hierarchical issues about vertical communication such as (a) etiquette and manners in the office between the public employees and their managers (75%). Apart from that the top manager also mentioned the requirement of vertical communication in the forum by claiming (b) the need of loose hierarchy in the forum (25%). Here is a part from the speech of the top manager:

We work in a public institution. There is a manager and employee relationship here! How this relationship will carry on in the forum? The borders of hierarchical communication must be clear.

On the other side, the category of vertical communication for public employees has four sub-categories. The employees mostly mentioned (a) the limited OTKS by the top management in TurkStat Forum (37%), and (b) the lack of transparency in vertical communication (27%) (see the supplementary documents for more information on the sub-groups of citations of the public employees). Several examples about this issue were shared as below:

The current online knowledge sharing system in the forum has a hierarchical structure. No inter unit communications, it is like silos. Each unit has its own forum. It is very hard to find someone other than our unit managers to exchange knowledge.

Institutional information sharing is done only on some limited issues. They are usually contains bad news such as dead, call for blood donations etc.

We, as employees, do not know what is going on around such as the news about our new service building which is currently being constructed. No information is shared by the management.

Forum management

The 13.3 per cent of the speech of the top manager was about content management issues (see Table 4). The top manager desires to clarify all the management issues in the forum (e.g., who will make the control, who will be the moderators, etc., see the supplementary documents for more information on the sub-groups of citations of the top public manager). Contrarily, the forum management issue were considerably in the responses of the employees low with rate of 3.2 per cent. The public employees underlined (a) the necessity of editorial control but only about the clarity of knowledge sharing not for limiting the freedom of speech (82%). It was also argued by the public employees that (b) forum should not put extra workload to unit managers (9%), and (c) forum moderator role must be a full time position, not secondary (9%).

Online knowledge sharing culture

Even though the top management underlined the significance of being ready for a radical change in knowledge sharing habits of the individuals, the management had a negative look on the chat application. The top manager argued that shared knowledge by the employees would fly away in chat applications like it happens in the e-mail groups. Nevertheless, chatting tools are also a part of modern intranet systems; hence a possibility of misuse of that tool should not lead to bans. Overall, TurkStat does not seem to be ready for such a substantial change in knowledge sharing culture. Here is a part of the speech of the top management:

Chat! I do not find chat useful! Because it could be an alternative to the forum. People could use chat for personal issues. Even if it is used for work related issues then people may prefer to write their questions to chat instead of forum. In this case the solution of that issue could only be seen by chatters but not everyone. Therefore, chat could torpedo the forum in terms of work.

On the other hand, the interest of the TurkStat workers was low to the knowledge sharing culture issue (see Table 5). There were only 11 citations about the knowledge sharing culture. In fact, the phrases of the employees indicate some expectations from the management to leverage the organisation's values and facilitate enhanced collaboration. For instance, the employees indicated a cultural reality about (a) general unwillingness of individuals on writing down their experiences (%18), (b) creating interesting and significant topics on work related issues (%36), (c) to make the individuals aware of what they share is noticed by the management (18%), and (d) to inform employees about the significance of their duties (9%).

Individual factors

The significance of individual factors was considerably higher from the standpoint of the top management (see Table 4 for sub-categories) than the public employees (see Table 5 for sub-categories).

The top management believe that (a) being a public employee already make people think about what to share with whom and to what extend in organisational forums (53%). Apart form that, according to the top management (b) employees would share their knowledge with several different reasons such as being noticed by their managers and colleagues if they have any career objectives (%32). Lastly, the least significant OTKS factors were identified as (c) computer literacy (9%), (d) current workload (9%), and (e) physiological sharing limit (9%). On the other hand, public employees desire (a) to feel

valued at work (30%), (b) to feel less control over them to share more tacit knowledge in the forum (%13), and (c) to receive quick replies from their colleagues to their questions (%13).

Organisational communication tools

This factor was cited only by the public employees not by the top management. A total number of 24 cites was made about ineffectiveness of the communication tools of TurkStat such as (a) e-mails (33%), (b) telephone infrastructure (25%), and (c) personal networking (21%). Apart from that, (d) the necessity of having internal chat software was mentioned by some employees (17%), (e) while some others founded chat unnecessary (4%). Interestingly lots of comments were made about the ineffectiveness in communication tools, but 23 percent of the employees do not want to have a forum as a new communication tool (see Table 6).

Rewarding

Rewarding factor was cited by only the public employees not by the top management of TurkStat. The findings showed that (a) most of the employees were against any types of rewarding mechanisms to foster OTKS (65%). It is due the fact that the employees think that it is hard to establish a fair system to evaluate the quality of the knowledge shared by individuals. Therefore, there is a hesitation from the side of employees about the possibility of misusing of the reward mechanism. On the other hand, (b) several other employees claimed that offering non-monetary rewards may increase the total number of knowledge shared by the individuals (35%). Some of the speeches of the different public employees were as follow:

Due to the legislations, it is already very hard to offer any monetary rewards, so non-monetary rewards would be useful to increase knowledge sharing in forum. Rap points or the number of likes could be taken into account in our 'Honeycomb' performance program. But, it may cause misuse, a limit is necessary.

The most contributing employees of the month could be displayed in forum.

If there were a rewarding system to foster knowledge sharing then the forums would turn into massive knowledge garbage. Besides, most of the people would reject to use forum, if it is associated with individual performance evaluation.

Internal advertisement of forum

This factor was cited only by the public employees not by the top management. At the first glance it may be argued that this category should have been placed under the title of "the expectations from the management" category. However when the sub-categories are investigated carefully, the advertisement issues seem more dominant than expectations from management (see Table 10).

Regarding to internal advertisement of the TurkStat forum, the employees argued that:

Several issues must be explained to all employees such as what forum is, why we need a forum and how to use it.

Employees could be informed about the aims of the forum application and benefits for the institution, practical information could be shared about how to use it.

Personnel could be informed by e-mail. Most of the personnel are not aware of its existence.

Table 10: Internal advertisement of forum (only for public employees).

Factors	Frequency	Percentage
informing employees about the aims of forum	9	39
the headquarter units must lead forum usage	6	26
rating best practices in forum and advertised them internally	3	13
forum makes its own fame, if it meets demands	3	13
informing top management about the outcomes of forum	1	4
sharing usage statistics in forum	1	4
Total (Valid)	23	100

Modern human resource management

This factor, too, was cited only by the public employees not by the top management. According to the results of the data analysis, the need for a modern human resource management (HRM) mentality was identified as a one of the least significant OTKS factors. The findings indicated that the institution still follows traditional personnel management mentality that sees employees from a managerial standpoint not as the shareholders or the implementers of the strategies.

The need of people-centred activities draws attention in this category like (a) training administration (27%), (b) use of human resources for fulfilment of organisational purposes including employee trainings (27%), (c) task definition (9%), (d) manpower planning including skilled people need to be employed (9%), and (e) the need of having experts in HR Department (9%) as there is non at the present. Even though, the total number of cites were rather limited (11), seven different issues were raised by employees regarding to this category. Several statements of the respondents were as follow:

Education about a number of issues such as organisational culture, organisational development, organisational learning and leadership should be provided for managers to improve them.

Employees' work experiences need to be evaluated in the promotion system.

Employees who really work hard have no time to transfer their experiences to the others. Additionally, there is not enough time for us to improve ourselves. 'Education' is not even mentioned in any of the positions! New comers or new managers get almost no training.

Norm of reciprocity

This factor was cited by only the public employees not by the top management. This topic was a further least significant issues for the public employees according to the qualitative data analysis. Several employees admitted that they (a) received no responses to their questions raised in the forum (45%), thus they did not use it any more. It was also admitted that (b) in order to reach true knowledge there should be no place for egoism while sharing knowledge (27%) and (c) individuals who share knowledge in the forum should not be labelled as loungers (9%) who has no work other than chatting their colleagues in the forum. Several sentences of the employees were displayed as below:

When you post a question and have no answer for ages from the responsible units. It means that the aim of forum is not achieved, that is why nobody use it.

In general, people who use forum actively may be thought as those who have nothing to do. Therefore, sharing a lot of knowledge in forum could be considered a risk by many people.

Humans are egoist due to the nature; nobody wants to share what they have, as knowledge.

Organisational working style

The organisational working style was identified only in top management interview as a factor that influences OTKS in TurkStat (see Figure 4 for the all factors). A part of the deep interview is as follow:

This is a technical institution. Therefore, our organisational structure is unique compared to many others. Before carrying out a process, we cannot do it as we like to do, so there are rules to follow to complete the processes. There are methodologies that we have to follow. In this regard, in our working style employees in the field have to ask almost every detail to our experts and feedback mechanism must work very quickly to complete the field tasks. Forum can help us to facilitate this communication.

Conclusions

In this case study, in order to provide an in-depth exploration of what motivates public top managers to establish online knowledge sharing platforms in their organisations in-depth interviewing technique was implemented. The findings in both Table 2 and Table 3 indicate that the top public manager of TurkStat is aware of the necessity of establishing an online tacit knowledge sharing (OTKS) platform to facilitate online collaboration. The top manager

admits that the e-mail groups, which are used to share organisational knowledge internally among public employees, are not a transparent repository to manage knowledge efficiently. According to the top manager, the shared knowledge "becomes huge garbage" in e-mail groups in a period of time, which in turn causes high administration cost. The need of improving OTKS culture through encouraging employees to share their ideas to create a common mind was also underlined by the top management.

Nevertheless, the awareness of the top management about the significance of OTKS and embedding an OTKS platform called TurkStat Forum did not bring success in terms of OTKS. The reason of naming the establishment attempt of OTKS as failure was that there has been noticeably limited tacit knowledge shared among the employees in the TurkStat forum. Meanwhile, the OTKS platform was mostly used by the younger and well-educated public employees. According to the findings the fundamental reason of the limited OTKS in the forum may be that; the top manager believed that a single order from the management to the employees would be enough to foster online knowledge sharing in the forum. However, the belief of the top manager that management support was enough to foster OTKS was false as mentioned earlier. This is due to the fact that the top management support was identified as only one factor among many, which were explored throughout the paper, that influence online knowledge sharing behaviour of public employees. Therefore, organisational OTKS strategies need be carefully developed through considering not only the aims and objectives of the top manager but also public employees' as well. This finding is in accordance with the claims of Llopis and Foss (2016). The authors argued that the effort of top management itself may not be enough to change organisational climate in knowledge sharing.

The whole factors identified through qualitative data analysis were grouped in three sections in Figure 4, according to the perspectives of the top public manager and the public employees (n=50). Hence, the second research question was answered. Moreover, the significance levels of the factors were also listed according to the perspectives of both the top public manager and public employees in Table 4 and Table 5, respectively.

One of the most remarkable findings was that the top management and the public employees as two parties think that the other party has more responsibility to OTKS. According to the top management, the most significant factor was individual factors that influence OTKS intentions of employees. The top management of TurkStat believes that their employees may not be willing to share their experiences and ideas in an online forum due to the (a) constraints of being a public employee (53%). On the other hand, the top management also assumes that some employees, who have (b) career objectives (32%) may be willing to post messages in the organisational forum with the purpose of taking attention by their managers to be promoted.

According to the public employees, as it could be observed from Table 7, one of the most significant factors in OTKS is the top management itself. Public employees believe that (a) negative attitude of management to the employees influence their knowledge sharing behaviour negatively (51%), in other words employees expect more respect from their managers, and (b) the top management should motivate them about online knowledge sharing (36%). These findings support the arguments of both Bhatt (2002), and Nonaka and Takeuchi (1995) who argued that management has more responsibility to establish a suitable environment to facilitate tacit knowledge sharing.

A further noteworthy finding was that most of the factors in Figure 4, which was 9 out of 15, regarded as significant by both the top management and the public employees. However, the significance level of the factors differs among the parties. In Table 5, it seems that the public employees chiefly focus on these factors; (a) knowledge sharing space (14%),

(b) expectations from management (13.7%), (c) rewarding (9.9%), and (d) the rules & procedures in the forum (9 %) which could be improved in a shorter period of time compared to the factors considered significant by the top management such as (a) individual factors (19.4%), and (b) online knowledge sharing culture (15.3%) (see Table 4 for the significance level of the knowledge sharing factors for the top management).

Meanwhile, almost thirty per cent of the perspective of the public employees does not accommodate with the perspective of the top management about OTKS factors in TurkStat. The factors were considered noteworthy only by public employees were those; (a) rewarding mechanism for knowledge sharing (9.9%), (b) organisational communication tools (7%) such as telephones, e-mails, forums, and video conferencing systems, (c) internal advertisement of online knowledge sharing platforms (6.7%), (d) norm of reciprocity (3.2), and (e) modern human resource management implementations (3.2%). Whereas, "organisational working style" (6.1%) was the only factor considered significant by the top management. Consequently, the first research questions were also answered within the previous paragraphs.

This paper sheds light on the OTKS intentions of public employees in TurkStat. Therefore, the findings in the illustrative materials, such as Figure 4, may be beneficial for the researchers who focus on theoretical matters in knowledge sharing. In the future researches, quantitative research methods could also be applied to test the generalizability of the factors explored in this paper.

Besides, the significance level of each factor was put in an order according to the number of their citations in the data (see Table 4 and Table 5). As a result, being aware of the most critical factors may enable top public managers to foster online knowledge sharing in a shorter period of time with lower budgets. In fact, a better understanding of both the necessity and the requirements of establishing an efficient online knowledge management system may be beneficial for public sector organisations particularly for those which have a considerable number of regional offices to establish such digital collaboration environments. Nevertheless, it should be noted that since each organisation has different internal environments such as management styles, employees, structure and budgets etc., the OTKS solutions also differ among organisations. Thus, managements should avoid of looking for one perfect OTKS solution which could be imitated by benchmarking.

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