

# PUBLIC MANAGEMENT

## ASSESSING KNOWLEDGE MANAGEMENT CAPABILITY. EVIDENCE FROM THE GREEK PUBLIC SECTOR

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### Abstract

*This paper aims to create and assess a contextual model of Knowledge Management Capability (KMC). A case study methodology using mixed methods was employed to address the research questions. Interviews and observations were used for model creation, while Exploratory and Confirmatory Factor Analysis, based on 420 responses from Greek public sector employees via an online survey, were used for model assessment. The results identified key organizational factors influencing KMC. Cultural factors include: a) mutual trust, b) cooperation, c) continuous improvement behavior, d) voluntary cross-functional team participation, e) mandatory KM application, and f) a commitment to continuous learning. Structural factors include: a) defined roles and responsibilities, b) Communities of Practice, c) resource availability, d) hierarchical structure, e) KM evaluation and benchmarking systems, and f) relevant legislation. These factors positively influence KMC. This is the first study to: a) treat KMC as a core component of the KM process, and b) investigate the relationship between organizational factors and KMC.*

**Keywords:** Knowledge Management (KM), KM Capabilities (KMC), Public Sector, KM tools

### INTRODUCTION

Lately, there is a burgeoning interest in Knowledge Management (KM) in the public sector (Salleh *et al.*, 2013; Seba and Rowley, 2010; Singh Sandhu *et al.*, 2011; Luen and Al-Hawamdeh, 2001), where KM-based practices aim to modernize and improve public services (Sotirakou and Zeppou, 2004; Moffet and Walker, 2015). Specifically, KM is very important for policy development, crisis and disaster management, health and human services, law

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enforcement, and electronic government (Pee and Kanhankali, 2016). Additionally, under the context of sustainability, KM can be addressed as a new philosophy of sustainable growth achievement, where effective KM implementation can create necessary capabilities for innovative services and learning in a way that the principles of sustainability are applied in practice (Martins *et al.*, 2019). Moreover, under the COVID-19 pandemic, KM should be investigated to contribute to organization continuity and operational sustainability in the public sector. However, despite the recognized importance of KM, there exists a notable gap in the literature concerning the understanding and operationalization of Knowledge Management Capabilities (KMC) within the KM processes, especially in the public sector. This oversight is critical as KMC embodies the core competencies that enable organizations to effectively create, manage, share, and utilize knowledge, leading to improved performance, innovation, and crisis management (Pee and Kanhankali, 2016). According to extended literature, KM is a complex and multidimensional concept that becomes more challenging in the public sector context, due to specific characteristics such as bureaucracy, hierarchical structure, and political influence in decision making and management (Chong *et al.*, 2011; Salleh *et al.*, 2013). Most studies have predominantly focused on the impacts of KMC on organizational outcomes without adequately addressing the elements constituting KMC and the factors influencing its functionality within KM processes. This research gap is particularly pronounced in environments characterized by bureaucracy, hierarchical structures, and political influences, which are typical of the public sector and affect KM implementation and efficacy (Chong *et al.*, 2011). Public organizations willing to introduce or improve the KM System (KMS), need to identify and interpret the factors which influence the KM process in order to achieve systematically the desired organizational change (Kashif Imran *et al.*, 2017). Under the socio-technical perspective of KM, there is a number of KM frameworks and models for the public sector investigating the KM factors (Yao Lartey *et al.*, 2019; Pan and Scarbrough, 1998) but overlooking the critical role of KM capabilities (KMC) on KM. To address these challenges, this study is positioned within the Dynamic Capabilities Framework as proposed by Teece (2009, 2022). This framework is pertinent for understanding how organizations in dynamic environments adapt and redefine their capabilities to meet changing requirements. In the context of KM in the public sector, dynamic capabilities can elucidate how organizations develop and modify their KMC to leverage knowledge effectively amidst external and internal pressures. In this study are defined as the integral processes and competencies within an organization that facilitate the effective creation, sharing, use, and management of knowledge. These capabilities are assessed through their contribution to performance improvement, quality enhancements, and innovation (Pee and Kanhankali, 2016). However, the majority of researchers focus on the impact of KMC on performance or other organizational outcomes, ignoring the importance of understanding the existence of KMC in the KM process. Additionally, there is a lack of publications that identify the importance of the effective implementation of KM tools as a significant element of the KMC. This gap inspired this research, which resulted in an integrated contextual model of socio-technical factors affecting KMC in the Greek public sector, answering the following research questions (RQs):

RQ1: Which are the elements of KMC in the Greek public sector?

RQ2: Which are the factors that influence KMC in the Greek public sector context?

RQ3: Which is the relationship between identified organizational factors and KMC?

Each question aims to dissect different aspects of KMC, distinguishing between its constituent elements (the components of KMC) and the influencing factors (conditions or forces impacting KMC effectiveness).

The main contributions of this research are threefold: Firstly, it develops an integrated contextual model of socio-technical factors affecting KMC in the Greek public sector. Secondly, it enhances the understanding of how socio-technical factors interplay with KMC under contextual constraints. Lastly, it proposes actionable insights for public sector organizations aiming to leverage Knowledge Management (KM) for sustainable development. The paper presents a relevant literature review and the organizational factors of KMC. Then, a description of the research methodology for this study is unfolded and the research findings are reported, to set the background for the conclusion section that follows.

## LITERATURE REVIEW

### *KM Capability (KMC) in the Public Sector*

KMC represents an overall organizational capability for KM implementation (Alavi and Leidner, 2001; Gold *et al.*, 2001; Tanriverdi, 2005; Pee and Kankanhalli, 2016; Xanthopoulou *et al.*, 2023). Specifically, the KMC can produce organizational benefits for an organization such as performance improvement, quality, innovation, comparative advantage, crisis management, minimization of the effects of over-searching knowledge in external environments (Conesa *et al.*, 2017; Pee and Kanhankali, 2016; Xanthopoulou *et al.*, 2023).

KMC can be described as either "an organization's capacity to gather crucial knowledge resources and handle their integration and utilization" (Miranda *et al.*, 2011), or as "the capability to activate and utilize KM-related resources in conjunction with other resources and capabilities" (Chang & Chuang, 2011), or as "a knowledge system consisting of related behaviors and skills, manifested in organizational processes, enabling a company to adapt to dynamic markets and respond to market demands" (Lukas and Ferrell, 2000; Tseng, 2016). Additionally, KMC epitomizes the extent to which KM processes are implemented within an organization, and it is considered dynamic due to its ability to manage organizational knowledge by adjusting and aligning KM processes either internally or externally (Lichtenthaler and Lichtenthaler, 2009; Conesa *et al.*, 2017; Xanthopoulou *et al.*, 2023). Specifically, KMC helps in reducing the impact of excessive external knowledge search (Conesa *et al.*, 2017). From a Resource Based View, KMC encompasses an organization's overall capability for knowledge storage, dissemination, application, and creation (Alavi & Leidner, 2001; Gold *et al.*, 2001; Tanriverdi, 2005; Pee & Kankanhalli, 2016).

Specifically, KMC includes two core components (Gold *et al.*, 2001): a) infrastructures capabilities (based on technology, structure, and culture dimension) and b) K- processes

capabilities (based on knowledge-creation, knowledge-storage, k-dissemination, and knowledge-application process (Alaarj *et al.*, 2016, Gold *et al.*, 2001, 2011). Regarding the structure and culture dimension of KMC, there are various organizational factors which influence the KM implementation(Xanthopoulou *et al.*, 2023; Xanthopoulou *et al.*, 2021; Massingham, 2015; Chen and Hsieh, 2015; Amayah, 2013; Cong *et al.*, 2007; Butler and Murphy, 2007; Seba *et al.*, 2012; Pee and Kankanhalli, 2016), such as: leadership commitment, organizational structure, internal trust, internal trust, user training, teambuilding, reward and recognition, IT system establishment, bureaucratic organizational hierarchy, accountability to higher level of government, voluntary participation, resources restrictions, leadership capabilities, KM project team roles and responsibilities, formalization, knowledge networks, knowledge as a power perception, motivation for knowledge dissemination.

Based on the abovementioned analysis, we developed the following hypotheses:

- H1: Structure will be positively related to KMC
- H2: Culture will be positively related to KMC

In addition, the KM processes, procedures and tools are crucial for an organizational KM capability (Ou Yang, 2014; Xanthopoulou *et al.*, 2023).It is important to highlight the significant role of KM tools for effective implementation of KM process, while “*KM tools are methods, techniques, and practices used by organizations to manage their knowledge*” (Xanthopoulou *et al.*, 2021).This more technical approach of KMC is required because it is a key -point of KM process implementation and there is lack of relative studies in literature. Specifically, regarding the KM tools, there are a plethora of publications for KM tools identification (Merono-Cerdan *et al.*, 2007; Massingham, 2014) but limited attempts to combine them with KM-processes (Alavi and Leidner, 2001; Alavi and Tiwana, 2003). Specifically, in the public sector, there is only one study, which identified and aligned KM tools at each KM process (Xanthopoulou *et al.*, 2021). KM tools are divided into Technological and Non-Technological (Merono-Cerdan *et al.*, 2007). Table 1 presents the above-mentioned categories of KM tools (Xanthopoulou *et al.*, 2021; Honarpour *et al.*,2017; Merono-Cerdan *et al.*, 2007; Massingham, 2015).

**Table 1. KM Tools**

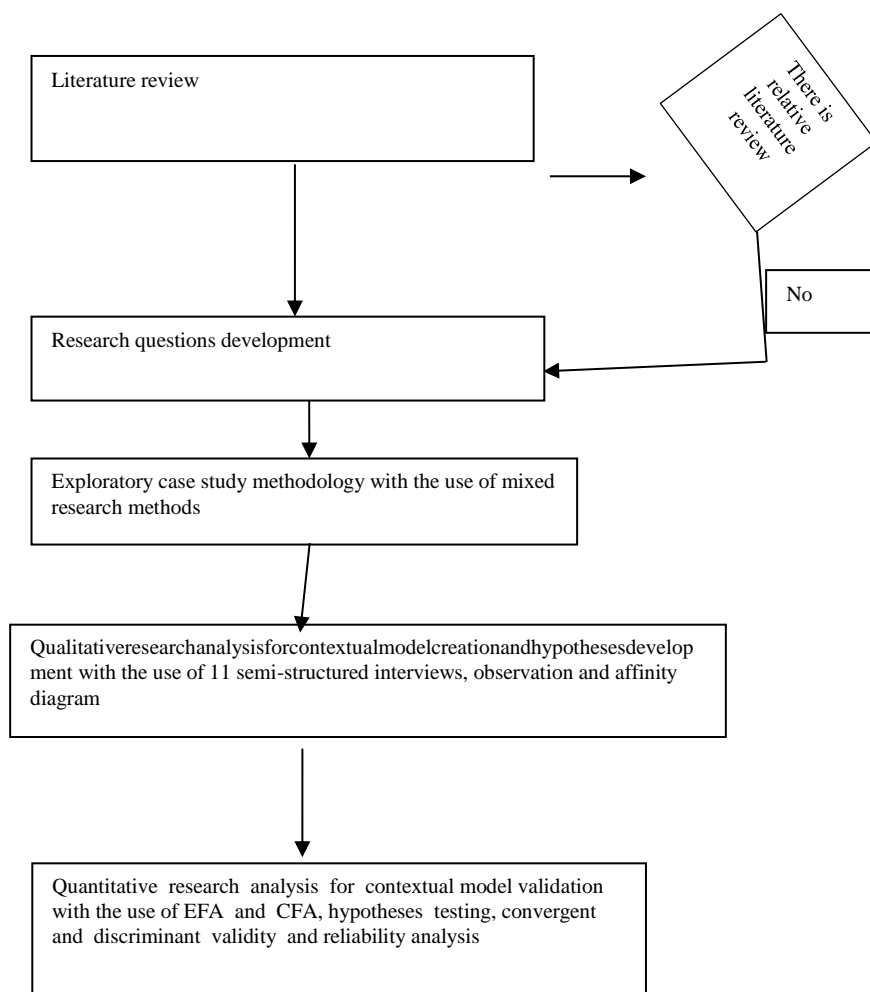
| Technological Tools  | Non-technological Tools  |
|--|--|
| <ul style="list-style-type: none"> <li>• decision support technologies</li> <li>• groupware</li> <li>• social network services</li> <li>• knowledge bases</li> <li>• digital document management</li> <li>• intranet</li> <li>• wikis</li> </ul> | <ul style="list-style-type: none"> <li>• leadership</li> <li>• case study and benchmarking methodology</li> <li>• spontaneous knowledge transfer initiative</li> <li>• informal talk room</li> <li>• training</li> <li>• mentoring</li> <li>• learning before doing</li> <li>• teams</li> <li>• community of practice</li> <li>• knowledge café</li> <li>• brainstorming</li> <li>• after action review</li> <li>• storytelling</li> <li>• knowledge repositories</li> </ul> |

Thus, in this paper, the KMC dimension incorporates the organizational capability for the technological and non-technological KM tools implementation during the KM process, and investigates the contextual factors that influence KMC.

**METHODOLOGY**

The lack of relevant literature regarding the integration of both contextual factors and KM tools in operationalizing KMC led to the choice of using mixed research methods, as presented in Figure 1. Firstly, we used qualitative research methods to understand the elements of our constructs and how they are linked, and secondly, we used quantitative research methods to validate the research model. Specifically, we used a case study methodology with mixed research methods for addressing the above-mentioned research questions (see Introduction). The case study focuses on the Greek public organizations’ community as a single case, as exactly used by Xanthopoulou *et al.* (2021). Specifically, mixed research methods used quantitative and qualitative approaches for data collection, analysis, and deeper interpretation of the topic (Creswell, 2008). Firstly, qualitative research methods used for the construction of the contextual model of KMC in Greek public sector in order to identify and understand the elements of each construct of our model and the way which they operate in this context. Finally, quantitative research methods used for the validation of the abovementioned contextual model. The following subsections describe each stage of our methodology, from contextualization (qualitative stage) to proposed model assessment (quantitative stage).

**Figure 1: Methodological steps**



**Contextualization of KMC in the Greek public sector**

***Research methods and data collection***

The aim of this research is the construction of a contextual model of socio-technical factors affecting KMC in the Greek public sector. For this reason, we conducted both a literature review and an exploratory case study analysis to address the research questions. Exploratory case study methodology is considered as a suitable approach for focusing on the “What” type of research questions and for exploring contemporary social phenomena within a real-life context (Yin, 2017). Additionally, the case study focus is the knowledge-intensive Greek public organizations. Thus, we studied the Greek public sector organizations as a single case study. Specifically, the following steps were used:

- an exploratory qualitative case study to highlight the Greek public sector requirements by employing the following research methods:
  - 11 semi-structured interviews
  - Observation at each interview, and

- Affinity diagram.

Based on the Theory of Knowledge Creation and SECI model (Nonaka, 1994), and the knowledge-intensive character of public organizations (Willem and Buelens, 2007; Sandhu *et al.*, 2011), we accept that each public organization uses KM tools either explicitly or implicitly. The empirical data were collected from Greek public sector employees by a purposeful sampling technique to ensure that they represent relevant informants for our study (Patton, 1990; Welch *et al.*, 2011). Specifically, aligning with Xanthopoulou *et al.* (2023), the source of our informants is public organizations with TQM experience (see Table 2), because TQM tools, such as Common Assessment Framework (CAF), incorporate KM tools implementation at each KM process (Knowledge Creation, Knowledge Storage, Knowledge Dissemination, and Knowledge Application) (Xanthopoulou *et al.*, 2021). For the above-mentioned reasons, public sector employees with TQM experience are familiar with KM process and implementation. Thus, they can provide us with their experience and knowledge for answering the research questions. We found the abovementioned organizations from the formal platform of the Greek Ministry on the Interior. Specifically, the data were collected between February 2020 and February 2021 through teleconference and were tape-recorded in Greek.

**Table 2. Research Informants**

|    | Codification of Public Organizations (POs) | Category of Public Organization (PO) |
|----|--|--------------------------------------|
| 1  | POC  | Regions (27% of our sample)          |
| 2  | POS  |                                      |
| 3  | POEp                                       |                                      |
| 4  | POV  | Municipalities (37% of our sample)   |
| 5  | POTr                                       |                                      |
| 6  | POM  |                                      |
| 7  | POMth                                      |                                      |
| 8  | POArm                                      | Ministries (36% of our sample)       |
| 9  | POAgr                                      |                                      |
| 10 | POAdm                                      |                                      |
| 11 | POI  |                                      |

The interview protocol covered the following main topics:

- the identification of elements which are included in KMC construct
- the identification of organizational factors which affect KMC
- the identification of the relationship between KMC and organizational factors.

More information about the questions of the interview protocol is provided in Appendix.

During each interview, an observer was listening carefully to the discussion, keeping detailed notes regarding body language and communication between the participants. This method helps us to understand deeper the behavior of each interviewee as a representative indicator of their daily work and behavior with their colleagues, because each interviewee is a social actor in their context (Rosenthal, 2005). After that, qualitative data were categorized with the use of an affinity diagram. An affinity diagram used to group the findings of the qualitative analysis in to common categories in order to visualize our constructs with their elements.

For qualitative data analysis we used content analysis after using coding technique. Specifically, interview transcripts and observer notes were combined, coded and analyzed to identify patterns and emerging themes (Creswell, 2003).

### ***Findings of the contextualization***

Through the interview discussion, several aspects emerged, such as:

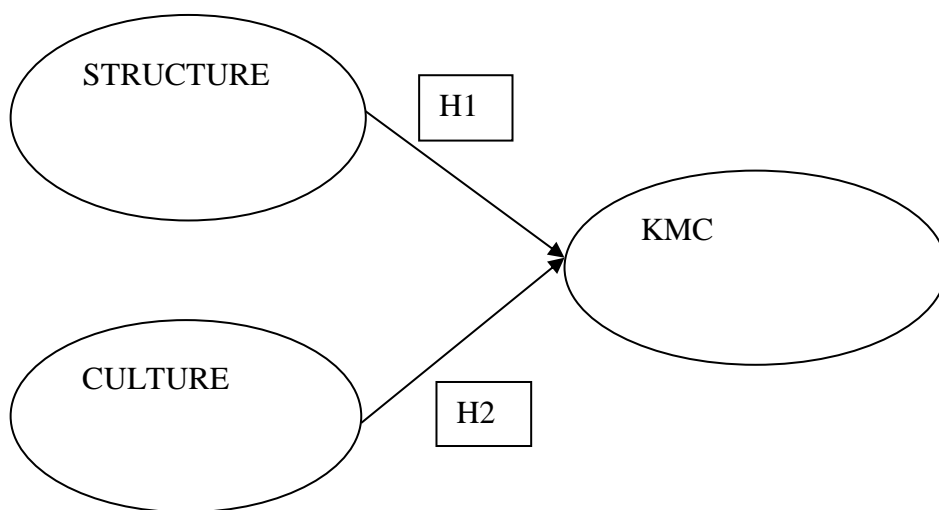
- Regarding to the identification of elements which are included in KMC construct, the majority of our informants-Public Organizations (POs)(POV, POC, POI, POEp, POAdm, POArm, POTr, POAgr) believe that the public organizations have appropriate technological and non-technological tools, and the ability for effective KM implementation. However, there are informants (POMth, POM) that disagree with the abovementioned perception, saying that there are, mainly, non-technological KM tools which they used implicitly and with employees' initiative and only basic technological KM tools. Despite that, the latter category of our informants believes that they have KMC.
- Concerning organizational factors that influence KMC, our respondents mentioned that the KMC is related to culture and structure. All our informants believe that cultural and structural aspects are the most important factors of KMC. Especially, they highlighted that: a) the existence and operation of Community of Practice as teams which are responsible for KM implementation, b) political leadership and management commitment for continuous improvement and KM implementation, c) existence of the benchmarking system, d) technological infrastructure use, e) existence of specific rules and legislation that facilitate KM implementation, f) organizational roles and responsibilities of human resources which are related with KM implementation, and g) the culture of cooperation, mutual trust and continuous improvement between individuals, teams, and departments in a public organization, can facilitate the organizational KMC. The majority of our sample (8/11: POC, POI, POS, POEp, POAdm, POArm, POTr, POAgr) believe that political leadership facilitates the KM process while 3 out of 11 (POV, POMth, POM) of our respondents regard it as neutrally affecting their KMC. All our respondents, apart from three (POMth, POS, POEp) agreed that legislation influences KMC positively. Besides applying a KM system, organizations believe that they have an important gap in KM culture, which is a critical factor of the KM process. For this reason, they consider that they are still at an early stage in KM implementation, despite the fact that they are regarded to be top Greek public sector performers.



Specifically, the qualitative data from interviews were analyzed and categorized into three groups, namely Structure, Capabilities, and Culture as it appears below, in Figure 2 (Appendix).

- Regarding the relationships of the above-mentioned three groups of variables concerning KM, it is concluded that the variables of structure and culture influence the KMC which is the core component of the KM system and operates as a mechanism for KM implementation (see Figure 3).

**Figure 3: The contextual model of KMC in Greek public sector**



Finally, regarding the observer note analysis emerged various findings as presented in Table 3. Generally, the majority of our informants were responded immediately and paid their attention and time for questions answer without any hesitation or/and discomfort. Very few informants appeared low degree of hesitation for questions regarding the leadership action. Additionally, it is remarkable that all our informants were interested in research findings and they want to send the report of findings to their organization leadership.

**Table 3. Questionnaire structure**

| Sections  | Items | Author(s)  | Measurement scale   |
|-----------|-------|--|---|
| KMC       | 7     | Xanthopoulou et al. (2021)   | 5-point Likert scale<br>(1=strongly disagree to 5=strongly agree) |
| Structure | 7     | Lee and Wong (2015); Cong and Pandya (2003); Maier and Moseley (2003); Lee and Choi (2003) |   |
| Culture   | 5     | Davenport et al. (1998); Lee and Wong (2015)   |   |

### Quantitative research design

The proposed contextual model will be verified and assessed by the quantitative analysis. The questionnaire used provided the definition of KMC and the description of KM tools so that respondents bear the same understanding. Additionally, it included the following sections (Table 4):

**Table 4. Observer notes about informants' profile**

|   | Codification of Public Organizations (POs) | Observer notes about informants' profile   |
|---|--|--|
| 1 | POC  | He held a senior management position and participated in the strategic planning of the organization. He was well aware of the subject of KM and TQM both on a theoretical and practical level. He was open and immediately available for the conduct of the interview. He was in the mood for discussion and allocated enough time for the interview. There was no hesitation in answering the questions |
| 2 | POS  | He was a mid-level executive and participated in the strategic planning of the organization. He was well aware of the subject of KM and TQM both on a theoretical and practical level. He was open and immediately available for the conduct of the interview. He was in the mood for discussion and allocated enough time for the interview. There was no hesitation in answering the questions         |
| 3 | POEp                                       | He was a mid-level executive and participated in the strategic planning of the organization. He was well aware of the subject of KM and TQM both on a theoretical and practical level. He was open and immediately available for the conduct of the interview. He was in the mood for discussion and allocated enough time for the interview. There was no hesitation in answering the questions         |
| 4 | POV  | He was a mid-level executive and participated in the strategic planning of the organization. He was well aware of the subject of KM and TQM both on a theoretical and practical level. He was open and immediately available for the conduct of the interview. He was in the mood for discussion and allocated enough time for the interview. There was no hesitation in answering the questions         |
| 5 | POTr                                       | He was a mid-level executive and participated in the strategic planning of the organization. He was well aware of the subject of KM and TQM both on a theoretical and practical level. He was open and immediately available for the conduct of the interview. He was in the mood for discussion and allocated enough time for the interview. There was no hesitation in answering the questions         |
| 6 | POM  | He was a mid-level executive and participated in the strategic planning of the organization. He was well aware of the subject of KM and TQM both on a theoretical and practical level. He was open and immediately available for the conduct of the interview. He was in the mood for discussion and allocated enough time for the interview. There was no hesitation in answering the questions         |
| 7 | POMth                                      | He held a senior management position and participated in the strategic planning of the organization. He was well aware of the subject of KM  |

|    |       |   |
|----|-------|---|
|    |       | and TQM both on a theoretical and practical level. He was open and immediately available for the conduct of the interview. He was in the mood for discussion and allocated enough time for the interview. There was no hesitation in answering the questions  |
| 8  | POArm | He held a senior management position and participated in the strategic planning of the organization. He was well aware of the subject of KM and TQM both on a theoretical and practical level. He was open and immediately available for the conduct of the interview. He was in the mood for discussion and allocated enough time for the interview. There was no hesitation in answering the questions  |
| 9  | POAgr | He held a senior management position and participated in the strategic planning of the organization. He was well aware of the subject of KM and TQM both on a theoretical and practical level. He was open and immediately available for the conduct of the interview. He was in the mood for discussion and allocated enough time for the interview. There was no hesitation in answering the questions  |
| 10 | POAdm | He was a mid-level executive and participated in the strategic planning of the organization. He was well aware of the subject of KM and TQM both on a theoretical and practical level. He was open and immediately available for the conduct of the interview. He was in the mood for discussion and allocated enough time for the interview. There was no hesitation in answering the questions except for the questions regarding their organization leadership |
| 11 | POI   | He held a senior management position and participated in the strategic planning of the organization. He was well aware of the subject of KM and TQM both on a theoretical and practical level. He was open and immediately available for the conduct of the interview. He was in the mood for discussion and allocated enough time for the interview. There was no hesitation in answering the questions  |

This survey records Greek public sector employees' perceptions. The questionnaires were created in "Google form" and e-mailed to a sample of 1,170 employees of the public sector, who were experienced with KM and/or TQM practices based on the list of the formal website of the Greek Ministry of Interior, during the period between March and June 2021. 420 questionnaires were received, giving a response rate of 35% (accepted rate by Flynn et al. (1995), Powel (1995), Saraph et al. (1989)).

### Quantitative data analysis

Content and face validity was determined through the survey instrument pre-tested by twenty academics and experienced Greek public sector employees with the implementation of KM. Empirical indicators are considered to have content validity if they are logically, as well as theoretically, connected to the conceptual constructs (Nunnally, 1978).

For establishing the construct validity of the proposed contextual model, we used exploratory and confirmatory factor analysis using the Jamovi software. For this purpose, our sample was divided randomly into two samples (sample 1=170 responses used for EFA, and sample 2=250 responses used for CFA) as reported by Darroch (2003).

For EFA, we used: a) the Barlett Test of Sphericity and the Kaiser-Meyer-Olkin (KMO), b) eigenvalues greater than 1.00, c) accepted factor loadings of 0.6 and above, d) accepted

factors which include more than 3 items in each cluster, and eliminate items with the same loading for more than one factor (Chawla and Saxena (2016), and Kaiser (1970)).

Regarding the CFA, to achieve a model fit, statistics tests like Tucker Lewis index (TLI), comparative fit index (CFI), and root mean square of error approximation (RMSEA) were selected. The accepted levels of each fit index are (Hair et al. 2009):  $CFI > 0.92$ ,  $TLI > 0.92$ ,  $SRMR < 0.08$ , and  $RMSEA < 0.07$  or  $< 0.08$  based on Schumacker and Lomax (2004). For indices that were under the abovementioned limit, we removed the variables with non-significant influence on our research, based on the theory and the modification indices from Jamovi software (Hair et al., 2009).

Finally, convergent validity and reliability were estimated with the use of AVE ( $AVE > 0.5$ ), Cronbach  $\alpha$  ( $\alpha > 0.7$ ), and composite reliability (CR) ( $CR > 0.7$  or  $0.6$ ) (Hair et al., 2009). In addition, discriminant validity was evaluated from the comparison between the square root of the AVE and the intercorrelations among the factors (Chin, 1998) (Discriminant validity is achieved when  $AVE^2 >$  intercorrelations among factors).

## RESULTS

### Respondents profile

The category of public organizations participating in our research are: a) Ministries (37.3%), b) Municipalities (Local Authorities) (35.9%), c) Independent Administrative Authorities (11.7%), d) Regions (Governments of the Greek Regions) (7.3%), e) Hospitals (4.4%), f) Decentralized Administration (which are administration units with activities particularly in state audit and executive tasks within the area of their responsibilities) (2%) and g) Universities, Research Centers and Schools (<2%). Additionally, 85.4% of our respondents have over 10 years of experience in the public sector and 15.9% have over 30 years of experience. Moreover, 31% of our sample held a bachelor's degree, and 56% held a master's degree and Ph.D, and 13 % held degree of high school.

### EFA

Both the Barlett Test of Sphericity ( $p\text{-value} < 0.01$ ) and the KMO test ( $0.923 > 0.6$ ) indicated that data were appropriate for factor analysis (Kaiser, 1970).

EFA (using varimax rotation analysis) was performed on 34 items for this study. The variables under each factor along with its factor loadings are illustrated in Table 5.

**Table 5. Results of EFA**

| Factor    | Item  | Loading |
|-----------|---|---------|
| KMC       | QEC4: My organization has processes and uses non-technological tools for knowledge dissemination  | 0.702   |
|           | QEC6: My organization has processes and uses technological KM tools for the knowledge application   | 0.655   |
|           | QEC7: My organization has processes and uses non-technological tools for knowledge application  | 0.641   |
|           | QED1: My organization has processes and uses non-technological tools for knowledge creation   | 0.806   |
|           | QED2: My organization has processes and uses technological KM tools for knowledge creation  | 0.686   |
|           | QED3: My organization has processes and uses technological KM tools for knowledge dissemination   | 0.686   |
|           | QED4: My organization has processes and uses technological tools for knowledge storage  | 0.612   |
| Structure | QEA3: My organization has low level of formalization in policies and procedures   | 0.728   |
|           | QEA4: My organization has decentralized organizational structure  | 0.759   |
|           | QEA5: In my organization there is free flow of information across departments   | 0.770   |
|           | QEA6: In my organization, the decision-making power is concentrated at top level of organization  | 0.781   |
|           | QEA7: My organization has the latest state of the art IT infrastructure   | 0.739   |
|           | QEA8: In my organization , it is common practice to store work documents on an organizational server, rather than on personal computer            | 0.710   |
|           | QEA2: In my organization, expert systems and knowledge bases are used to aid in decision-making   | 0.700   |
| Culture   | QC2: My organization regularly and effectively communicates KM goals and objectives to everyone to avoid any misunderstandings and misconceptions | 0.637   |
|           | QC10: The top management in my organization supports knowledge management initiatives of the employees  | 0.680   |
|           | QC11: The top management in my organization is committed to knowledge management initiatives  | 0.745   |
|           | QC14: My organization encourages trust and socialization among employees to collaborate and share information with each other                     | 0.679   |
|           | QC16: My organization is open to new idea or knowledge from employees even if it does not work  | 0.616   |

**CFA**

The first order CFA results indicated a poor model fit, such as:

CFI=0.856, TLI=0.835, SRMR=0.0493, and RMSEA=0.129

From the Modification Indices (MI) process, the variables QEA3, QEA2, QED1, QED4, and QED6 were eliminated.

After the abovementioned changes, the CFA results indicated a good model fit such as: CFI=0.945, TLI=0.933, SRMR=0.0341, and RMSEA=0.0891

**Reliability and Convergent and Discriminant validity analysis**

Table 6 presents that all our factors reach the acceptance level of Cronbach  $\alpha$ , AVE, and CR. Thus, reliability and convergent validity were achieved.

**Table 6. Reliability analysis and Convergent validity**

| Factor    | Cronbach $\alpha$ | AVE  | CR   |
|-----------|-------------------|------|------|
| KMC       | 0,868             | 0,47 | 0,73 |
| STRUCTURE | 0,930             | 0,57 | 0,7  |
| CULTURE   | 0,893             | 0,46 | 0,58 |

In addition, Table 7 indicates that discriminant validity was achieved.

**Table 7. Discriminant validity**

| Factor    | KMC         | STRUCTURE   | CULTURE     |
|-----------|-------------|-------------|-------------|
| KMC       | <u>0,47</u> |             |             |
| STRUCTURE | 0,282       | <u>0,57</u> |             |
| CULTURE   | 0.182       | 0.269       | <u>0,46</u> |

**Hypotheses testing**

Table 8 presents the results from hypotheses testing. As a result, “Structure” and “Culture” related significantly and positively with KMC. Thus, all our hypotheses are accepted.

**Table 8. Hypotheses testing**

Factor Covariances

|       |          |       |              | 95% Confidence Interval |       | Z    | p     | Stand. Estimate |
|-------|----------|-------|--------------|-------------------------|-------|------|-------|-----------------|
|       | Estimate | SE    | Lower        | Upper                   |       |      |       |                 |
| KMC   | KMC      | 1.000 | <sup>a</sup> |                         |       |      |       |                 |
|       | CULT     | 0.653 | 0.0468       | 0.561                   | 0.744 | 14.0 | <.001 | 0.653           |
|       | STR      | 0.780 | 0.0376       | 0.706                   | 0.854 | 20.8 | <.001 | 0.780           |
| CULT  | CULT     | 1.000 | <sup>a</sup> |                         |       |      |       |                 |
|       | STR      | 0.805 | 0.0334       | 0.740                   | 0.871 | 24.1 | <.001 | 0.805           |
| STR 3 | STR      | 1.000 | <sup>a</sup> |                         |       |      |       |                 |

<sup>a</sup> fixed parameter

## CONCLUSION AND DISCUSSION

This research aims to: a) the creation of an integrated conceptual model of socio-technical factors affecting KMC in the Greek public sector, and b) the assessment of the proposed contextual model and the investigation of the relationship between the organizational factors and KMC. A case study methodology with mixed research methods was employed to address the research questions. The findings indicated that the main mechanism that facilitates the KM process is KMC which is affected by two major factors, the structure, and culture of an organization. Even though this model focuses on the public sector, it bears similarities with the most popular model of KMC developed by Gold *et al.* (2001). However, the elements of each group of variables are different given that the public sector has special characteristics.

Furthermore, this research provides novel theoretical insights as it is the first time that researchers attempt to contextualize the factors affecting KM in the public sector encompassing both KMC and organizational factors. Specifically, this research provides a measurement instrument of KMC and the contextual factors that they influence the KMC. The first construct (structure) includes factors which are related with organizational structure and they have positive impact to KMC. The second construct (culture) includes factors that they are relevant with cultural aspects of the public organization and they have positive impact to KMC. The third construct (KMC) includes KM technological and non-technological tools implementation capability at each KM process (k-creation, k-storage, k-dissemination, and k-application). Additionally, given that in literature there is lack of mixed research methods papers, this paper used mixed research methods in order to answer the research questions and hypotheses testing, which contribute to the higher quality of research outcome. These methodological steps that they were followed are more innovative and provide more holistic and reliable research results as mentioned in the methodology section.

In addition, a practical implication for public sector organizations is the identification of those KM factors which are important for KMC development and they are useful for successful KM implementation and sustainable growth. Specifically, decision makers of Greek public organization can set organizational goals and formulate appropriate strategies for effective KM implementation at the first time, eliminating waste time and accelerating organizational changes and sustainable growth. Thus, this research provides a guide for practitioners regarding the effective KMC development and incorporation in organization strategy.

However, this research is limited to restricted number of public organizations and in Greek public sector. Thus, our findings restricted to a particular geographical context. Since the respondents in this study were from Greece, their responses might have been influenced by the cultural, organizational and professional environment of that location as compared to other public organizations around the world. Consequently, further research should be done to enhance generalizability within different public organizations around the world.

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**APPENDIX****A. Interview Protocol:****1. Knowledge Management Capability**

- Do you believe that your organization has knowledge management processes (formal or informal)? If so, how are they applied in your daily life?
- Do you believe that your organization provides the necessary technological and non-technological tools for creating knowledge in order to meet the goals set and to carry out your work effectively?
- Do you believe that your organization has the ability to manage their knowledge? How do you understand it?
- Do you believe that your organization (including human resources) shows the willingness to constantly create new knowledge?

**2. Organizational factors influencing KM****a. Leadership**

- Do you believe that the political leadership influences the implementation of KM in your organization? When can it facilitate and when to interfere the effective implementation of KM?
- Do you believe that leadership and top management incorporates KM in the preparation of the objectives and subsequent strategy it implements? How do you perceive it in practice?

**b. Culture**

- Do you believe that in your organization the appropriate culture is developed to facilitate the KM process?
- Do you believe that you are interested in the result or the process by applying an administrative tool? Give an example
- Do you believe that the staff is willing to implement KM? To diffuse his knowledge or does he act protectively considering that knowledge is his power?

**c. Structure**

- Do you believe that the organizational structure of your organization facilitates KM as a whole and its individual processes?
- Do you believe that your organization has the necessary infrastructure (e.g. technological infrastructure) for the implementation of KM?
- Do you believe that there is a system of rewarding employees who participate in KM initiatives or use effective KM tools?

**d. External environment**

- Do you believe that the external environment (Legislation, Politics, Economy, Society) affects the implementation of KM practices? If so, how?

**Figure 2: Affinity diagram of KMC & Organizational Factors**

