Navigating Organizational Success: Knowledge Management Capabilities in Public Healthcare

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Abstract: Knowledge Management (KM) has been studied in healthcare for over two decades and has an established role in healthcare management. By leveraging KM, healthcare organizations aim to enhance organizational performance, facilitate informed decision-making, and elevate service quality. However, KM faces specific challenges in healthcare, including siloed service provision and effective management of growing volumes of data and evidence. Public healthcare organizations encounter additional challenges due to the complex environment, conflicting values, wicked problems, and resource constraints. While research on KM in the public sector has increased recently, it remains relatively scarce. Notably, the capabilities of effective KM and its significance for organizations' survival have received limited attention. Finland has recently implemented a massive healthcare reform, which shifted the responsibility for organizing healthcare, social welfare and rescue services to new autonomous regional-level organizations, wellbeing services counties. This study explores how KM can support the success of public healthcare organizations after such a fundamental change. The central research question is: What are the critical KM capabilities when rebuilding KM function after a major public reform? To address this question, we employ a qualitative case study approach. Through the interviews of KM specialists from the newly established wellbeing services county, we gain valuable insights into the practical aspects of KM within an integrated public healthcare organization. Our key findings shed light on challenges related to diverse stakeholders and values, emphasize the importance of internal and external relationships, underscore the significance of specialist diversity, and highlight the value of KM to the healthcare organization.

Keywords: Knowledge Management, Healthcare Management, Public Sector, Reform, Capabilities

1. Introduction

The healthcare industry is characterized by its knowledge-intensive nature, as the economic activities within healthcare are intricately tied to the creation, accumulation, and dissemination of knowledge (cf. Miles, Kastrinos & Flanagan, 1995). In healthcare, knowledge in its different modes supports decision-making and is a source of value creation (cf. Grant, 1996). The value of health services emerges largely from the expertise and skills of healthcare professionals, knowledge shared through relationships, codified and tacit knowledge, and organizational culture (Evans, Brown & Baker, 2015; Grant, 1996). Digitalization, the fast-growing volume of healthcare data and national and international regulation of medical records have underlined the relevance of codified knowledge-related development. At the same time, in recent years, we have seen an increase in diversity within our societies, and the trade-offs between values (Bracci et al., 2021) also affect decision-making, especially in the public sector.

Knowledge Management (KM) has a long research history and a stable role in healthcare management (Lunden et al., 2017; Nicolini et al., 2008). However, the public sector is the least examined area (Massaro, Dumay & Garlatti, 2015) despite its significant societal role and the vital context the public sector serves for KM research. While research on KM in the public sector has increased recently, it remains relatively scarce. Moreover, KM has focused more on the context of information management (cf. Choo, 2002), and more attention needs to be paid to KM capabilities (Laihonen & Saranto, 2021).

The healthcare sector is under pressure worldwide due to economic recession, population ageing, workforce shortfall (e.g. Liu et al., 2017), digitalization and societal changes. These global trends drive, in particular, public sector healthcare for renewal to retain the ability to provide services and meet the users' growing expectations. To respond to these pressures, Finland has recently implemented a massive healthcare reform, which shifted the responsibility for organizing healthcare, social welfare, and rescue services from over 300 municipalities to 21 newly established wellbeing services counties. The reform aims to improve the availability and quality of basic public services and curb the continued cost growth (Ministry of Social Affairs and Health, 2023).

This article aims to elaborate on the role of KM as the critical component of organizational renewal and performance. It explores the practical aspects and role of KM in supporting the success of public healthcare organizations after a fundamental reform. The study aims to contribute to the knowledge gap regarding critical KM capabilities when rebuilding KM function. The central research question is:

What are the critical KM capabilities when rebuilding KM function after a major public reform?

Based on the literature and empirical data gathered through thematic interviews of KM specialists from one wellbeing services county in Finland, this article addresses the importance of KM in the public healthcare sector. Through the interviews, we gain valuable insights into the practical aspects of KM within an integrated public healthcare organization, especially for four key themes: (1) KM in practice, (2) the value of KM, (3) KM capabilities and (4) the future of KM.

The rest of the paper is organized as follows: The next section reviews the theoretical background of KM in public healthcare and briefly discusses the recent literature. Section three presents the study's context and methods, and section four presents the empirical results. Section five makes concluding remarks.

2. Theoretical Background – KM and KM Capabilities in Public Healthcare

The field of KM traces its origins to the knowledge-based view, which posits that knowledge plays a pivotal role as both a critical input in production processes and a primary source of organizational value (Grant, 1996). KM systematically identifies and strategically leverages an organization's knowledge resources (Von Krogh, 1998). KM encompasses various processes, including knowledge creation, storage, transfer, and application (Alavi & Leidner, 2001). Central to KM is enhancing an organization's overall performance (Kalling, 2003).

KM in healthcare has been studied for over 20 years (Lunden et al., 2017; Nicolini et al., 2008). By leveraging KM, healthcare organizations aim to enhance organizational performance, facilitate informed decision-making, and elevate service quality (Hujala & Laihonen, 2021). Studies examine KM in healthcare from different perspectives. For example, the processes and tools of KM (El-Jardali et al., 2023; Nicolini et al, 2008), barriers and enablers of knowledge sharing (Kim et al., 2011; Lin & Lo, 2015), KM´s impact on the effectiveness of healthcare (e.g. Laihonen & Sillanpää, 2014), and KM related to performance (for review, see Kosklin, Lammintakanen & Kivinen, 2023). However, the healthcare and public contexts should be considered when examining KM in *public sector* healthcare. In particular, the public sector presents a unique environment characterized by distinct organizational features, effectiveness concerns, and levels of representativeness, accountability, and responsiveness (Massaro, Dumay & Garlatti, 2015). KM in the public sector has a broad range of goals seeking to strengthen societal capabilities, cultivate a competitive workforce, and facilitate the participation of citizens in public decision-making (Wiig, 2002). A comprehensive literature review of KM in the public sector (Massaro, Dumay & Garlatti, 2015) underscores the need for tailored approaches recognizing the organizational idiosyncrasies inherent to the public sector.

Scholarly literature has acknowledged various impediments to implementing KM within the public sector. These challenges encompass both technological and cultural dimensions. For example, a strong emphasis on technology-driven approaches in KM initiatives (e.g. Tseng, 2007) may hinder the successful adoption and utilization of KM approaches. The public sector often grapples with incompatible information systems, leading to the lack of accessible managerial information (Behn, 2003), which poses hurdles to the effective utilization of KM practices. The hierarchical and bureaucratic nature typical for public sector organizations can impede knowledge sharing and even lead to knowledge hoarding (Evans, Hendron & Oldroyd, 2015; Amber et al., 2019). In addition to technological and cultural dimensions, the public sector must consider the convergence with political orientations. Public healthcare organizations encounter challenges due to the complex environment, conflicting values (Bracci et al., 2021), wicked societal problems (Jacobs & Cuganesan, 2014) and resource constraints. Recently, value-based healthcare (VBHC), aiming to optimize health system performance in population health, patient experience, and cost of care (e.g. Nuño-Solinís, 2019), has set new requirements for KM in public healthcare. Integration of care is one central principle of VBHC (Nuño-Solinís, 2019), directly impacting KM by calling for knowledge integration.

Previous research has demonstrated that organizational Knowledge Management Systems (KMS) play a pivotal role in an organization´s strategy and structure (e.g. Starns & Odom, 2006). A robust foundation in people, technology, and processes, beginning with strategic integration, is essential for successful KM implementation (Robu & Lazar, 2021). While technology facilitates KM, the organizational KM culture wields even more significant influence (Ghosh & Scott, 2006; Hujala & Laihonen, 2021). Within integrated healthcare organizations, a significant paradigm shift from isolated organizational and information structures to vertical and horizontal arrangements presents new challenges (cf. Laihonen & Huhtamäki, 2020). In public healthcare, KM also involves coordination of collaboration across multiple professions and sectors, bringing diverse objectives and regulatory mechanisms (Laihonen & Kokko, 2020).

KM capabilities are typically approached from the organizational perspective (Laihonen & Huhtamäki, 2020). Gold, Malhotra & Segars (2001) proposed an organizational capabilities perspective aiming to evaluate the essential capabilities of KM. These capabilities are classified into knowledge infrastructure capability, consisting of technology, structure and culture, and knowledge process capability, consisting of acquisition, conversion, application and protection of knowledge (Gold, Malhotra & Segars, 2001). This perspective, however, largely excludes individual experts' skills and competence. Alavi & Leidner (2001) view capability as one perspective on knowledge, which implies that KM is focused on developing core competencies, understanding the strategic advantage, and creating intellectual capital (Alavi & Leidner, 2001). Watson (1999) expands on capability, proposing that knowledge is not a specific ability for action but rather the capacity to utilize information. The capabilities of KM can also be interpreted through the lens of knowledge assets or Intellectual Capital (IC) traditionally categorized into structural, relational and human capital (Petty & Guthrie, 2000). Laihonen & Saranto (2021) concluded in their study that little attention has been paid to KM capabilities and competencies despite significant changes in the operating environment and technology after the above-mentioned seminal articles.

In the next sections, we look at the empirical results for the integrated public healthcare organizations' KM unit to understand better how KM helps an organization succeed. We focus on KM's practical work, the value it adds to the healthcare organization, the KM capabilities needed, and its future.

3. Context and Methods of the Empirical Study

3.1 Context of the Empirical Study

In Finland's recently implemented healthcare reform, the responsibility for organizing healthcare, social welfare and rescue services was shifted from 309 municipalities to 21 new autonomous regional-level organizations, wellbeing services counties in the beginning of 2023. Larger organizational structures aim to achieve more consistent and equal public services and savings, especially in administration. In addition, the Ministry of Social Affairs and Health is strongly advocating the shift towards value-based healthcare through various steering mechanisms. Therefore, the considerably increased size of the organizations, the integration of functions and the objective of moving towards VBHC bring new opportunities and challenges for KM. In addition, the wellbeing services counties have a dual leadership model with civil servant and political leadership. (Pirha 2024a)

The research was conducted within the Pirkanmaa Wellbeing Services County (Pirha), an administrative region encompassing 23 municipalities. Pirha boasts a population of approximately 500,000 inhabitants and serves as the largest wellbeing services county in Finland. Pirha assumes responsibility for social welfare, healthcare, and rescue services within this administrative framework. A workforce of approximately 19,000 employees manages these critical functions. (Pirha 2024a)

The case study was conducted in a newly established KM unit of Pirha. In Pirha's organization, the KM is organized as an independent unit, part of the strategic guidance and organization function with other vital divisions such as procurement, communication, finance, and human resources (Pirha, 2024b). The KM function was rebuilt on a previous organizational and technological basis. The KM unit members were recruited from previous organizations whose healthcare functions were merged during the reform. The KM unit consists of two teams, one focusing more on data quality and the other on reporting. In spring 2023, the unit employed 17 people.

3.2 Methods and Empirical Data

We chose a case study as a research method to gain an in-depth understanding of KM in public healthcare (cf. Yin, 2009). Thematic interviews were conducted remotely in April 2023, and 11 KM specialists from the Pirha KM unit participated. The interviews were recorded and transcribed, followed by a content analysis of the data (Drisko & Maschi, 2016). In addition, Pirha's Strategy and Strategy Implementation Programme, Pirha's Knowledge Management Programme and the KM unit's Data Quality Improvement Management Model were used as background material.

4. Results

The interview data provided a coherent picture of KM in Pirha. The interviewees answered many questions similarly, highlighting the importance of culture, diversity, networking and exemplary implementation. The

objectives of the KM unit are clear and shared. Also, interviewees stressed the role of systematic identity building. The main difference in tone emerged between the two teams – data quality and reporting. In October 2023, preliminary results were validated by presenting and discussing them at the monthly meeting of the KM unit. Based on feedback from specialists, the results provided a truthful picture of the unit's function.

4.1 KM in Practice – What is KM in Pirha?

Pirha's KM programme defines KM as *"a set of policies and technical solutions that make the right information available to the right people at the right time and in the right format"*. During the interviews, the experts were asked *"What is KM in Pirha*?". The specialists described the unit's key task as providing adequate and reliable information to support service delivery and other core activities of wellbeing services county. The support is provided by establishing relationships and networks and coordinating cooperation at different levels of the organization and with external actors (e.g. national steering of health information management). As one interviewee summarized:

> *"The key point is that enough information must be available for a wellbeing services county [of Pirha] to succeed."*

Interviewees described that KM is currently being implemented in a situation where Pirha has several patient information systems in place after merging 23 municipalities and a hospital district to launch the wellbeing services county. There are also differences in patient record keeping practices. Thus, an essential and ongoing role of the KM unit is to ensure consistency and maintenance of data quality by supporting the development of service delivery competencies through record-keeping networks. In addition, the KM unit's tasks include combining data from different data sources, validating the data and producing visualized reporting coherently across a large and variable wellbeing services county, especially for the needs of senior management.

4.2 Value of KM – Why is the KM Unit Important?

Pirha's KM programme defines the value of KM to wellbeing services county as follows: "*KM enables high-quality and strategy-driven decision-making, management and operations*". The specialists were asked: "*Why is KM unit important to Pirha*?". KM unit was seen as an enabler; KM unit doesn't participate in management decision-making but enables it by providing a coherent and consistent view on the operations of the wellbeing services county for decision-makers, as interviewees put it:

> "*If there was no central coordination [of KM], everyone would be doing their own thing and knowledge management would be fragmented*."

> "*It's this size, which definitely requires it [the KM unit], but then there's also the role of national reporting obligations, which raises the importance of this information to even different levels because it's linked to funding*."

The KM specialists saw that the KM unit's robust reporting and advocacy role enables service providers to concentrate on their expertise. Meeting national reporting obligations was also seen as a critical benefit of the KM unit. As the funding of the wellbeing services counties is based on the operational information reported to national bodies, the role of the KM unit in ensuring the quality of data and implementing data collection and reporting is crucial in financial terms. The responsibility for harmonising data quality highlights the developmental function of the KM unit. In addition, interviewees saw the KM unit playing an essential role in translating KM's needs into the service delivery language to motivate health professionals to improve data quality. From a public service perspective, the interviewees identified the KM unit's activities as increasing openness and transparency and thus value for money for citizens.

4.3 KM Capabilities - What are the Key Capabilities of the KM Unit?

Pirha's KM programme defines that in Pirha "*KM is decentralised and centrally coordinated [...] competence and skills are needed both close to service operations and centralised in the KM unit*". This capability topic is broad, and we categorised the responses according to the Intellectual Capital tripartite framework to human capital (HC), relational capital (RC) and structural capital (SC). The lens of IC enables organizational and individual capabilities, competencies and skills to be considered equally.

In terms of human capital, respondents highlighted the role of broad substantive skills. The KM unit has expertise in primary healthcare, specialised healthcare, social care as well as in technical skills such as data modelling and

reporting. In addition to hard skills, soft skills such as change management skills, communication skills, and leadership skills were highlighted. Among the personality traits, motivation, curiosity, and willingness to develop were considered particularly important. A deep understanding of the operational environment is vital for the KM unit:

"It's extremely important that we understand the services, the issues involved, and how the organization works. What legalities exist in the public sector, what cultures exist in healthcare, and what cultures exist in social care in relation to record-keeping."

The role of relational capital emerged as particularly important in the interviews. The KM specialists identified the strategic role of KM in supporting the core activities of the organization. As one of the respondents pointed out:

"We are nothing alone."

KM specialists' diverse knowledge and work experience in previous organizations enable them to build relationships across the entire organization. This is essential for the "decentralized and centrally coordinated" concept; the KM unit is a small area of responsibility in a large and multifunctional ecosystem. The role of networks was highlighted, with the KM unit functioning at the hub of a wide range of networks horizontally, vertically, and at the regional and national levels.

Two key elements emerged from the structural capital describing an organization's intangibles: The systematic building of policies and processes and the role of culture. Building policies and processes was seen as exceptionally important due to the role of KM unit whose task is to form a coherent picture of all the data from the multifunctional and multi-professional organization. As interviewees stated:

"[KM's] job is to frame; the content comes from service operations."

"In Data Quality Improvement Management Model all these different roles are considered […] the aim is that every single professional understands the chain of reliable information formation."

When interviewees spoke about KM units' culture, they mentioned repeatedly openness, trust, and low hierarchy. Good culture was seen as a competitive advantage for KM unit to succeed and has been systematically developed:

"We are a brand-new unit and a very heterogenic team, so it is essential to have a good culture and be a unified team, and we have done much work for that."

4.4 The Future of KM

In the interviews, the specialists were asked, "*How do you see the future of KM?*" At the time of the interviews, the KM unit and the Pirha Wellbeing Services County had only been in operation for a few months, and many of the answers about the future were related to stabilisation and clarification of the role of the KM unit in the near future. This involved consolidating several patient information systems and expanding the data volume of the data pool to enable efficient knowledge processing. As one interviewee put it:

"Hopefully, in a year, we have clarified the situation regarding the data sources and the data pool. [...] the work will then be more about developing new reports than about trying to hunt down the different municipal systems and how to connect them to the data pool."

In addition, the expansion of networks and the growth of KM capabilities and competencies in Pirha were seen as areas of future development.

"We should focus on building [KM] capability and on the fact that if we build that capability, then we will have the resources in the future through it [...] As we need more [KM] resources for our lines [of operational activity]."

As regards external factors, respondents highlighted national KM development; at the time of the interviews, national information production and national requirements for reporting were partly unclear and cumbersome. This was seen to be linked to the reform and would be addressed in the future. Regarding general technological developments, several respondents identified the growing role of AI as an exciting opportunity to develop KM. In addition, respondents considered using various health technology data (including smart watches and intelligent rings) as possible future data sources for KM. Forecasting and prediction also emerged as a prominent

feature of the longer-term future. The answers were not limited to KM, but the role of KM in facing the wicked problems of social and healthcare was considered:

"[...] that we have found, with the support of knowledge, a solution to the fact that people want to work in this sector, as in the social and health sector, and that it makes sense to work and also to use these services [of Pirha]. But there are so many other things in it than this KM, but yes, it also has its role to play."

5. Discussion and Concluding Remarks

The study aimed to better understand the critical KM capabilities when rebuilding KM function after a major public reform. To answer this question, we highlight three areas of KM capabilities. Each of these three perspectives offers a wealth of opportunities for future research. The recognized capabilities are not KM capabilities per se (cf. Gold, Malhotra & Segars, 2001; Alavi & Leidner, 2001) but especially during the change, these upper-level capability areas seem to be stressed. It seems that the KM unit in Pirha can handle operational tasks well; thus, it can be concluded that operative capabilities are in place. However, without a legitimate organizational position, a certain kind of renewal capability, and an ability to recognize "the right things", KM will not be able to meet the growing expectations.

First, KM needs to have sufficient legitimacy to act. Positioning KM at a strategic level enables KM to support effective organizational renewal in change and thus act as a *dynamic capability of an organization*. The case organization Pirha explicitly positions KM as an independent organizational entity, which does not imply that the KM unit operates in isolation. On the contrary, KM is considered an integral part of the organization, aligned with its fundamental mission: promoting the well-being of the area's inhabitants by supporting the core functions of the organization. This alignment with organizational strategies has been stressed in KM literature previously (e.g. Starns, & Odom, 2006).

Second, major changes in the operational environment necessitate continuous renewal of KM capabilities. The previous literature provides various frameworks to study KM capabilities, but what our data adds to these existing models is the importance of resilience and inter-organizational and inter-sectoral collaboration – KM capability should not be considered only as an independent and static reporting function but maybe more as the capacity to utilize information as Watson (1999) phrased it. In terms of relational capital, there is a need for the active building of networks and connections both inside and outside an organization. From the human capital perspective, diversity and continuous learning are essential. Also, organizational structures and technological solutions must be flexible enough to enable basic activity and renewal. The role of culture in encouraging and supporting change cannot be overemphasised. Indeed, it seems that the IC framework may help to conceptualize and better understand KM as an organizational capability.

Third, KM must have a capability to raise the level of abstraction from efficient KM to effective KM (cf. Hujala & Laihonen, 2021). This means that KM must be able to exploit the existing data. However, on the other hand, it is essential to explore novel ways to acquire, use and process data for forecasting and prediction and to ask different kinds of questions (cf. Laihonen & Huhtamäki, 2020). This may help collaboration across multiple professions and sectors, bringing together diverse objectives, values and legislative and regulatory mechanisms (cf. Laihonen & Kokko, 2020), which further allows KM to focus more on wicked problems in the future (cf. Dumay, 2020).

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