Knowledge Management for Integrated Health and Social Care: The Case of Keusote in Finland

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Abstract: Knowledge management is expected to contribute to the management of health and social services as the challenges of the present and future are addressed. It is expected that organizations working in the field can be developed, thereby deriving efficiency benefits as well as promoting the effectiveness of services through knowledge management. However, despite the increasing interest in knowledge management as an organizational practice, there is a lack of evidence and practices showing how an effective knowledge management system should be designed, implemented, and promoted in health and social care organization. The integration of highly specialized and professionalized organizational cultures and traditions constitutes a complex context for managing knowledge. The purpose of this article is to identify development needs related to knowledge management systems in integrated health and social care and based on a case study suggest KM initiatives for responding these needs. The found key factors for knowledge management relate to strategic orientation, careful analysis of the organization’s knowledge and expertise, and an ability to harness these in a cross-administrative, multi-professional and strategy-oriented way. The qualitative analysis is based on the strategic documentation, the results of an external evaluation of the case organization’s knowledge management practices, and notes and other documentation of internal development workshops carried out in the case organization.

Keywords: knowledge management, healthcare, social care, integrated care

1. Introduction

The growing need for health and social care services, limited resources, and the increasing complexity of governance pose challenges to the management of health and social care (Nordin et al., 2021; Valli-Lintu, 2017). Integration of care is considered as one possible solution to overcome these challenges (Kaehne, 2019). The main aim of the integration agenda is to influence customer service chains and increase continuity of care (Cheng & Catallo, 2018). In addition to functional integration, new service models require new structures and new forms of cooperation, both internally and with other service providers, that promote multidisciplinary work and common practices (Williams, 2012a). The potential for integration is complemented by diversification capabilities and knowledge resources provided by the various parties concerned (Williams 2012b).

Knowledge management (KM) has achieved an established position in the management of health and social care (e.g., Ikonen, 2020; Lunden et al., 2017; Nicolini et al., 2008). Underlying this is the idea that organizations working in the field can be developed through KM, thereby achieving efficiency benefits and promoting the effectiveness of services. With the support of KM, health and social care organizations aim to enhance their understanding of customer needs, improve organizational performance, achieve better targeted decision-making, improve quality of services, drive cultural change, and improve risk management (Hujala & Laihonen, 2021). Indeed, KM and integrated care pursue similar aims at different levels of the service system, from the management level to clinical operations and customer encounters (e.g., Martin & Knowles 2019; Williams 2012b).

This article analyzes KM development in an integrated care organization and aims to provide a new understanding of the role of KM in service integration and to identify priorities for future development. The case organization is Keusote (Keski-Uusimaa health and social services), which is a regional public health and social care organization in southern Finland. Keusote and Finland provide an interesting context for the study because Finland is reorganizing its health and social services and moving from a decentralized model to a more centralized model (see https://soteuudistus.fi/en/frontpage). The ongoing reorganization poses new challenges to the KM of the newly launched wellbeing services counties. This study thus examines how the transformation from a decentralized system to regional wellbeing services counties affects KM, and how the new strategy of an integrated health and social care organization is operationalized through KM. The study contributes by providing new information about KM in integrated health and social care by answering the research question: How to design and promote the implementation of a new KM system (KMS) in integrated health and social care organization? The design and implementation of KM as a purposefully constructed design is a little-studied area influenced by the organization’s business model, culture, and history (Robu & Lazar, 2021; Strans & Odom, 2006;
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Sarvary, 1999), and the few practical examples have not considered the context of integrated care in much detail (cf. Gall et al, 2021; Choy et al., 2018; Massingham et al., 2018).

2. Managing knowledge in an integrated health and social care

KM has been studied in health and social care since the early 2000s (Van Beveren, 2003). The theme has subsequently been explored from several perspectives including the effectiveness of KM (e.g., Kosklin et al., 2022; Hujala & Laihonen, 2021), the processes and tools (Kothari et al., 2011; Nicolini et al., 2008) and organizational performance (Najmi et al., 2018; Alajmi et al., 2016). Value-based health care (VBHC) has recently set new requirements for KM. VBHC aims to optimize health system performance in terms of population health, patient experience, and cost of care (Nuno-Solinis, 2019; Kokko, 2022). Integration of care is one central principle of VBHC (Kokko & Laihonen, 2021), having a direct impact on KM. Hence, the measurement of organizational performance needs to consider not only internal performance but also social well-being (cf. Dumay, 2020; Kokko & Laihonen, 2021).

KMS is an integral part of an organization’s strategy and structure alongside technological entities, organization culture, processes, and practices (Starns & Odom, 2006; Lee & Choi; 2003). KMS includes the systems, policies, and processes by which information is utilized in an organization (Lee & Choi, 2003; Alavi & Leidner, 2001). Technology contributes to enabling KM but following Ghosh and Scott (2006), the organization’s KM culture plays an even bigger role. KM initiatives should be derived from the strategy of the organization (Zack, 1999; Laihonen & Mäntylä, 2017). Effective KMS presupposes high-quality information, strong promotion of KMS by initiators and clarification of what is being measured (Ali et al., 2017). Robu and Lazar (2021) underline that the successful design and implementation of KMS requires a strong foundation in people, technology, and processes, where everything starts with strategy and its integration into different business areas. Laihonen and Mäntylä (2018) argue that KM requires four basic pillars to succeed - 1) strategic focus, 2) integration of KM into the general management system, 3) clearcut processes and responsibilities for refining the data, and 4) quality of the underlying data.

When considering the implementation of KMS, Choo’s (2002) information management cycle provides guidance on designing the critical elements of KMS. The key variables in the process are the perception of information needs, data acquisition, data organization and storage, data products and the promotion of data utilization, and behavioral change based on knowledge-based decisions. Choo’s (2002) model can be applied to public health and social services, where the target of KMS is to build a conduit toward data utilization and behavior change through the recognition of information needs. However, especially in the context of integrated health and social services, a paradigm shift from silo-like organization and information structures to vertical and horizontal structures entails a reinterpretation of the organization and managerial information needs and behavior (cf. Laihonen & Kokko, 2020; Laihonen & Huhtamäki, 2020). Next, we will describe a development process where a new KMS was designed and implemented in the case organization.

3. Research design

3.1 Context of the empirical study

Finland is undergoing a major reform of health and social care. In 2023, 22 new welfare services counties will start operations and assume responsibility for organizing and providing health, social and rescue services. Alongside the reform, the importance of KM has been proclaimed. This study examines one wellbeing services county from the perspective of KM, aiming to provide a knowledge base for both operational and strategic management while creating a basis for national- and regional-level information steering. The case organization studied was Keusote in Finland (Keski-Uusimaa health and social services), which is a public organization providing health and social care services in the area of six municipalities in southern Finland. Keusote will be one of the wellbeing services counties as of 2023. The population base for which services are provided is over 200,000 inhabitants and the consortium of municipalities has 3,500 employees. Keusote was chosen as the case organization for two reasons. First, this case organization is one of the most active and advanced wellbeing services counties as regards KM and regional KM development is ongoing. Second, we were granted good access to the organization because the first author of this study is working in Keusote and responsible for the development of KM in the organization.
3.2 Empirical methods and data
This article applies a qualitative case approach to obtain detailed information on the conditions, critical events and processes of a single entity (Eisenhardt, 1989; Gummesson, 2000; Yin, 2009). The empirical part describes the development of KMS in integrated health and social services. The empirical data consisted of materials from three steps of KM development. First, the strategic documents were reviewed to identify the state of mind and goal setting. Second, the results of an external evaluation of KM practices were used to determine the starting point for KM development. Third, data from a total of 36 workshops were used to identify key elements to be considered in KMS design. The first author of this article was chairman in each of these workshops. The workshops comprised three large entities with 12 workshops per entity. The organization’s top management, health and social care professionals and IT management were divided into three groups: management, experts, and IT. The three groups met once a week for four weeks. The final output of each workshop was a hypothesis canvas (see Figure 3). The method of collecting the data was a round table discussion including top management and experts from different service areas. In addition, the groups were divided so that top management and experts were in different sessions thereby giving all present an equal voice. Notes on the workshops were always reviewed in the group before the next session. The aim was to ensure the correctness of the findings and also the reliability and validity of the data for this study.

4. Knowledge management system development in Keusote

4.1 Starting points for knowledge management
The basic documents of Keusote were created in 2017 and the responsibility for organizing health and social care was transferred from the municipalities to the consortium of municipalities in 2019. The strategy of the consortium sets high expectations for KM and Keusote aims to be a national pioneer in KM during the 2020-2025 strategy period. No separate strategy was made for KM, but the consortium strategy includes a program for knowledge governance through which various development projects are promoted (see Figure 1).

**Figure 1:** From consortium strategy to operationalization of KM in Keusote

The overall objective was to enhance the case organizations’ KM capabilities so that tools and technology, skills and competences, and processes and governance support knowledge-based management throughout the organization. More specifically, the objective was firstly to invest in knowledge-based management expected to drive change towards a new kind of management culture based on data. Secondly, to accelerate decision-making to be more effective in organizations’ different operation levels. The aim was to make the use of information and knowledge in decision-making integral parts of all management situations and to achieve transparency in operations and cost management.

In accordance with the strategic goals, Keusote decided to create a KM unit, which was assigned the responsibility for the technological and operational implementation of KM. The work started by examining the current state of KM. This was done using a KM evaluation model developed in Finland for the purposes of frequent monitoring, trend analysis, and in-depth analysis of contemporary information and knowledge management practices in the public sector (Jääskeläinen et al., 2020).

The results of the external evaluation in Keusote can be condensed into three factors (see Figure 2). First, the organization’s commitment to developing KM was relatively high and had strong support from top management.
Second, the benefits of KM were well understood in the organization. Third, the technical capability of KM in an organization was weak in terms of both data availability and KM products. In general, according to the survey, the current state of KM was challenging and development work needed prioritizing. The integrity of knowledge, the fragmentation of information systems and the silaged nature of an integrated health and social care organization were considered to pose major challenges for the development of KM.

![Maturity assessment](image)

**Figure 2:** Main results of the KM maturity assessment in Keusote

### 4.2 Transforming strategic objectives into managerial information needs

Following the maturity assessment, Keusote created a development plan for KM. The technical path emphasized data management in distributed information systems where a data lake was introduced to manage data from different sources. The development of analytical layers with data warehousing followed. Another development area related to customer segmentation and the recognition of managerial information needs. The aim of this work was to direct the KM focus to those factors having the greatest impact in the environment of health and social care. The development targets were defined under the guidance of top management and organization’s strategy. Keusote used the business canvas model (here hypothesis canvas, see Figure 3) to map the strategic phenomena relevant to the different service chains (themes) that were chosen based on their national importance. The first theme dealt with aging, the second was focused on families with children, and the third primary health care as distinct from specialized care.

The KM development targets related to strategic objectives were also recognized, assessed and tested in the workshops. Hypothesis canvases were used for identifying and linking managerial information needs to strategic objectives. Canvases contained twelve different perspectives as shown in Figure 3. These perspectives linked strategy, information needs, information production, decision making, and adaptive behavior. In the workshops, the top management identified key objectives and hypotheses across the organization. Several dozen hypotheses were evinced in three workshops, but the biggest and cross-sectional openings were:

“*Shifting the focus to preventive and well-being-enhancing services prevents the accumulation of individual problems and the complexity of finding solutions, simplifies the service structure, and changes the allocation of resources in the service chain.*”

“*Interface projects with specialized care speed up consultation in solving the client’s problems, increase the efficiency of the customers situation information flow between organizations and enable better preparedness.*”
Based on the workshops results, the organization started planning the KMS so that it makes information available at the right time to the right person. The workshops helped to break organizational silos and fostered multi-professional dialog. At the beginning of the workshops, the various service areas of the organization posed service-oriented challenges and information needs, but as the workshops progressed, they also found common denominators for the themes to be addressed. The workshops strengthened not only the dialog related to individual information needs but also around KM more generally. Central to this method was to summarize the issues related to the development work and the achievement of the organizations’ goals in one page of plain language, which contributes to facilitating communication between management, health and social care professionals, and IT to accelerate KMS design. Also, the hypothesis-canvas supported the discussion related to goal setting and performance.

5. KMS development needs and suggested KM initiatives in integrated health and social care

As the case study showed, the case organization clearly positioned KM as an entity in its own right to make the rationale for investments clearer and the monitoring of objectives transparent. However, positioning KM as a separate organizational unit did not mean that KM became detached from the rest of the organization. This is also a central message of the previous literature, KM should be closely involved with various areas of the organization in terms of technology, operations, and strategy (Starns & Odom 2006; Lee & Choi 2003). Only in this way can KM have an impact on organizational performance, service quality, customer understanding and more efficient decision-making (cf. Hujala & Laihonen, 2021).

After the objectives for KM were set and the organizing model was decided, the next step was to determine how the objectives are to be achieved. This was a matter of operative planning and implementation. Adequate resources are crucial to successful KM, and in the case organization a separate KM unit was found to be an appropriate approach to resourcing and competence development. Ali et al (2016) state that a successful KMS requires initiators and in the case organization KM unit acted as an initiator. Another important starting point for the development work was the mapping of the current state. In the case organization the external maturity assessment provided this starting point. With limited resources it is essential to prioritize. Indeed, an organization needs to choose its battles wisely. Managerial judgement is therefore needed to identify and invest in those projects and initiatives likely to yield the best return on investment.

Identifying managerial information needs in the case organization brought to the fore two different viewpoints. First, a concrete and practical framework for structuring information needs, like the hypothesis canvas in our case, provided all workshop participants with a clear picture of the organization’s strategy and helped to communicate the strategy in terms of managerial information needs. It also linked these two to underlying
information structures and technology and provided a holistic understanding of the whole information management cycle (cf. Choo, 2002), that is, a knowledge-based view of integrated care. Second, the canvas workshops can be considered as examples of performance dialogs (Laihonen & Mäntylä, 2017; Rajala & Laihonen, 2019), where performance information is interpreted in a collaborative manner. This highlights the importance of focusing not only on the efficiency of information production but also on those interpretative processes where meanings are attached to the data. Indeed, focusing on relevant business cases is very close to prioritization. Massingham et al (2018) propose similar ideas in their KMS design research by arguing that KM should be positioned to resolve key issues for the organization. Likewise, Dumay (2020) has suggested that KM should be harnessed to solve complex societal issues and not merely tame organizational problems.

Considering the key factors affecting KM implementation, it can be claimed that there are often many challenges at the starting point. The main challenges arise from the ways in which the utilization of information is perceived across the organization. Sub-optimization is a well-known challenge calling for integration (Nuno-Solinis, 2019) and KM should provide a way to overcome this problem by providing a holistic and inter-organizational overview of health and social services. In terms of resources, time allocation poses a continuous challenge for leading the organization based on knowledge. From the point of view of data, several entities emerged, the most important of which were fragmented systems, data quality, and recording practices. In terms of tools, the lack of analysis tools was highlighted in the workshops. Based on the description of the case organization and considering Choo’s (2002) information management cycle, many challenges in KMS design and implementation originate from technological issues, but even more importantly the organization’s culture and how this succeeds in promoting knowledge-based management are often the defining factors in the implementation of KMS. This is supported by Ghosh and Scott (2006) who also found technology as an important enabling factor, but organizational culture with an even greater role in a knowledge-driven organization (Starns & Odom, 2006; Lee & Choi, 2003). Table 1 summarizes the development needs and related KM initiatives for an integrated health and social care organization.

Table 1: KMS development needs and suggested KM initiatives in integrated health and social care.

<table>
<thead>
<tr>
<th>Activity of the information management cycle (Choo, 2002)</th>
<th>KMS development needs in integrated health and social care</th>
<th>Suggested KM initiatives in integrated health and social care</th>
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<tbody>
<tr>
<td>- Identification of information needs</td>
<td>- Unclear information needs</td>
<td>- Strategy-based hypothesis canvas workshops to further specify the managerial information needs</td>
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<tr>
<td>- Information acquisition</td>
<td>- Unclear information gathering processes</td>
<td>- Multi-professional dialog regarding reporting needs and roles of different actors in information acquisition</td>
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<td></td>
<td>- Time-consuming information processes</td>
<td>- Technological development</td>
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<tr>
<td>- Information organization and storage</td>
<td>- Decentralized information systems</td>
<td>- Technological development (such as data platforms and data lakes)</td>
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<td></td>
<td>- Different recording practices</td>
<td>- Development of the data architecture and interfaces</td>
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<tr>
<td></td>
<td></td>
<td>- Integration of systems, practices and data</td>
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<tr>
<td>- Development of information products and services</td>
<td>- Static reports</td>
<td>- Integrated reporting and development clearly defined information products</td>
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<td></td>
<td>- Lagging indicators</td>
<td>- Codesign of information products and services with end-users</td>
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<td>- Modern technology to enable dynamic reporting</td>
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<tr>
<td>- Information distribution</td>
<td>- Unclear information needs</td>
<td>- Strategy-based hypothesis canvas workshops</td>
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<td></td>
<td>- Different expectations, unclear accountabilities, and varying understanding of KM</td>
<td>- Multi-professional dialog focusing on information use</td>
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<td>- Developing a shared understanding of the roles of KM unit</td>
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<tr>
<td>- Information use</td>
<td>- Misfit between managerial information needs and information products</td>
<td>- Development of the data architecture and interfaces</td>
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<td></td>
<td>- Incompatible information systems induce extra work</td>
<td>- Developing knowledge-based management culture</td>
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<td></td>
<td>- Lack of KM capabilities</td>
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</table>
Activity of the information management cycle (Choo, 2002) | KMS development needs in integrated health and social care | Suggested KM initiatives in integrated health and social care
--- | --- | ---
- Adaptive behavior | - Focus on data and reporting not on information use and learning | - KM as part of the organization’s culture
- Information changes behavior only in rare cases

6. Concluding remarks

This study aimed to provide empirical evidence of the design and implementation of KMS in integrated health and social care. The study contributes to the KM literature by recognizing, which KM initiatives are critical for the integration of highly specialized and professionalized organizational cultures. More practically, the research provides new information to support the development of an effective KMS by recognizing the KMS development needs in different stages of the information management cycle and in the different phases of KM development.

The study also suggests ways to overcome the recognized development needs, or pitfalls of KM, by suggesting KM initiatives that may help in responding to the recognized development needs. The descriptive study also contributes to the literature on the management of health and social care because there is still little empirical research elaborating the application of KM to promote service integration. The case study illustrates that in the integration of health and social care, when it comes to multidisciplinary work across organizational boundaries, the KM activities described by Choo (2002) are more challenging and complex like discussed by Laihonen and Kokko (2020) in connection to institutional complexity and by Laihonen and Huhtamäki (2020) in the specific contexts of hybridity and organizational fluidity. The following managerial guidelines for the design and implementation of KMS in integrated health and social care can be identified:

1. Consider the mutual link between organization’s strategy and KM.
2. Start by mapping KM maturity and choosing the right battles, that is, focus on the most relevant and impactful processes.
3. Define such objectives that force breaking organizational silos. This creates new managerial information needs and necessitates multi-professional dialog.

The study leaves ample options for future research. The new welfare services counties begin operations in early 2023 and a follow-up analysis is needed to assess the effectiveness of the chosen initiatives. We also focused on only one of the 22 counties in Finland. However, the organization studied has systematically developed its KM in recent years and is among the most advanced counties in terms of KM maturity. Nevertheless, a comparative analysis of different strategic approaches would provide important data on best practices.

References
