

Knowledge management in a regional integrated health and social care system

Knowledge
management

15

Tuomas Hujala and Harri Laihonen
*Department of Health and Social Management,
University of Eastern Finland–Kuopio Campus, Kuopio, Finland*

Received 22 June 2022
Revised 28 September 2022
21 November 2022
Accepted 11 December 2022

Abstract

Purpose – This article analyses a major healthcare and social welfare reform establishing new regional and integrated wellbeing services counties in Finland. The authors approach the reform and service integration as a knowledge management (KM) issue and analyse how KM appears and contributes in the context of integrated care, specifically in the process of integrating social and health care.

Design/methodology/approach – The article analyses the case organisation's KM initiatives in light of the integrated care literature and recognises the tasks and requirements for effective KM when building integrated health and social care system. The empirical research material for this qualitative study consisted of the case organisation's strategy documents, the results of an external maturity assessment, KM workshop materials and publicly available documentation of the Finnish health and social care reform.

Findings – This study identifies the mechanisms by which KM can support health and social services integration. At the macro level, national coordination and regional co-operation require common information structures. At the meso level, a shared regional strategy with shared objectives guides both organisational decision-making and collaboration between professionals. At the micro level, technology supported and data-driven planning of service chains complements the experiences of professionals and may help remove obstacles to integration.

Originality/value – This study contributes to the literature on integrated care by providing a more comprehensive view of the role and tasks of knowledge and KM when reforming health and social services than approaches focussing solely on health informatics and internal efficiency.

Keywords Integrated care, Knowledge management, Public reform, Health and social services

Paper type Case study

1. Introduction

Integrating health and social services has been seen as solution to the problems of both efficiency and effectiveness in health and social care (Kaehne, 2019; Nuno-Solinis, 2019; Williams, 2012a). Service integration requires enabling information technology (Porter and Lee, 2013), integrated data (Muirhead *et al.*, 2016; Government UK, 2022), a common knowledge base and seamless flow of information between service providers, organiser (purchaser) and other health ecosystem actors (Laihonen, 2012). The literature identifies many knowledge-related obstacles to integration, including fragmented information systems (e.g. Shand and Turner, 2019), diversity of organisational cultures (e.g. Cheng and Catallo, 2020) and multi-professional work (e.g. Cheng and Catallo, 2019). Further, the conflicting values and objectives of the public and private sectors (Ikonen, 2020) and the differing interests of public reform (Laihonen and Kokko, 2020) may inhibit a common understanding and knowledge base to support service integration. Indeed, service system fragmentation and



© Tuomas Hujala and Harri Laihonen. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licences/by/4.0/legalcode>

Journal of Integrated Care
Vol. 31 No. 5, 2023
pp. 15-28
Emerald Publishing Limited
1476-9018
DOI 10.1108/JICA-06-2022-0032

the ensuing fragmentation of information and knowledge are considered key challenges to integrated care ([Murray et al., 2020](#); [Muirhead et al., 2016](#)).

The recent literature on knowledge management (KM) in healthcare has mostly considered KM within organisational boundaries ([Hujala and Laihonon, 2021](#); [Kosklin et al., 2022](#)). This internal focus is challenged by the integration agenda necessitating collaboration across organisational and professional knowledge boundaries ([Paul, 2006](#); [Meijboom et al., 2004](#)). In this article we take a multi-level and multi-actor approach to KM and aim to understand how KM can contribute in the context of integrated care. This aim is achieved by identifying KM mechanisms that support health and social services integration. We consider KM as an approach to identifying and leveraging the collective knowledge in an organisation involving processes such as creating, storing, transferring and applying knowledge ([Alavi and Leidner, 2001](#)). By KM mechanisms we refer not only to the organisational means used to promote KM but also to those wider system-level mechanisms enabling service integration. Informed by the integrated care literature, we study KM mechanisms at three levels of integration, namely micro-, meso- and macro-levels (cf. [Valentijn et al., 2013](#)), and utilise three empirical datasets to analyse, first, the information and knowledge needs of national steering, second, the strengths and weaknesses of KM in the case organisation providing integrated care, and third, the managerial information needs of clinical integration in the case organisation. The article contributes with its system-level approach, which focuses on the configurations of resources, information and technology to better understand the contributions that KM can make to the management of the health and social care service system (cf. [Vargo et al., 2008](#)).

The empirical context for the analysis is Finland, an interesting context for studying service integration due to its on-going health and social care reform, responsibility for organising health and social services being transferred to 22 wellbeing services counties from over 300 autonomous municipalities (cf. [Health and Social Services Reform, 2022](#)). The focus of the empirical analysis is on one of these wellbeing services counties called Keusote, which has a population of over 200,000 and consists of six municipalities. Focus of integration discussion is often on health service integration (e.g. [Gröne and Garcia-Barbero, 2001](#)) but in Finland social services also become part of the integrated service structure (cf. [Tiirinki et al., 2022](#)). In Finland, KM is widely considered one of the key enablers of the reform and this study illustrates how establishing a new level of governance creates new requirements for KM due to changing roles and accountabilities. The analysis underlines the multifaceted role of KM in an integrated service system, where, alongside improved availability and quality of basic public services throughout, the aim is also to curb rising social and health care costs.

The rest of the article is organised as follows: [Section 2](#) frames the theoretical basis of the study. [Section 3](#) describes the research design, methods and empirical data. [Section 4](#) presents the empirical examination of the case and finally, [Sections 5](#) and [6](#) discuss the results and draw the final conclusions.

2. Integrated care and knowledge management

Integrated care is a way to prevent care fragmentation, especially when fragmentation is detrimental to care experience and outcomes ([Goodwin, 2016](#); [Delnoij et al., 2002](#)). [Shortell et al. \(2000\)](#) propose a four-level classification for the integration: (1) At the level of functional integration (macrolevel), it is a matter of harmonising legislation between, for example, social and health services, (2) Organisational integration (mesolevel) comprises strategic co-operation and fusions between organisations, (3) Professional integration (mesolevel) addresses *inter alia* outpatient clinic co-operation and strategic alliances in sharing expertise and (4) Clinical integration (microlevel) includes service paths of patients or clients.

Gröne and Garcia-Barbiero (2001) divided integration initiatives into vertical and horizontal. Vertical integration refers, for example, to primary care and specialised service level integration. Horizontal integration seeks to link the same levels of services together, for example health and social services.

Martin and Knowles (2020) identify four components of an integrated health system: systems, institutional, clinical and governance. Here, the systems component highlights vertical and horizontal integration, re-defines roles of organisations and services, and achieving different outcomes due to changes in service design and delivery. The institutional component concerns structures, organisational entities and administrative management practices, also addressing impacts beyond that of one organisation. The clinical component aims at seamless service chains, continuity in care delivery and integrated and comprehensive clinical protocols. The governance component acknowledges that integration requires a changeover in governance. Valentijn *et al.* (2013) note that integration plays complementary roles on the micro-, meso- and macro-levels, and that functional integration is needed to link these different levels. Measurement and evaluation, and thus KM, are considered to be an integral part of integrated care (Martin and Knowles, 2020), specifically regarding functional integration that links financial, management and information systems around the primary process of service delivery (clinical integration) (Valentijn *et al.*, 2013).

From the strategic perspective, KM starts from ascertaining what knowledge the system needs (cf. Hansen *et al.*, 1999). The same applies to the integration process as Martin and Knowles (2020, p. 165) note that “implementing an appropriate model requires an understanding of what is being integrated and for what purpose”. After considering what is being integrated and why and defining what KM aims to achieve (cf. Hujala and Laihonen, 2021), the next task is to define and select the appropriate KM initiatives and tools to achieve the desired effects. Williams (2012b) conceptualised health and social care integration as a challenge of learning and KM, claiming that these are influenced by structures, cultures, leadership and individual agency. Nicolini *et al.* (2008) divided KM initiatives into three categories: Information technology (IT)-based KM tools, social learning initiatives and education and training initiatives. Related to these categories the KM literature has discussed the aims and objectives of KM at pretty exhaustively, identified the critical success factors of KM (Ayatollahi and Zeraatkar, 2020), analysed processes of knowledge creation (e.g. Tripathi *et al.*, 2021), transfer (e.g. Fletcher-Brown *et al.*, 2020) and sharing (e.g. Maheshwari *et al.*, 2021), and even identified some indications of the effects of KM. (e.g. Hujala and Laihonen, 2021). However, Kokko and Laihonen (2021) state that the institutional perspective and system-level governance aspects of KM have received scant attention in the management of health and social care even though integrated care, and the recent discussion on value-based healthcare likewise (Porter and Teisberg, 2006) call for a systemic approach and analysis of service systems (cf. Vargo *et al.*, 2008). This necessitates rethinking KM strategies, initiatives and tools (Laihonen and Kokko, 2020; Laihonen and Huhtamäki, 2020). Indeed, moving from a decentralised model to a more centralised model turns the management focus from individual organisations and their efficiency to the effectiveness of integrated care, thereby necessitating integration of information and knowledge.

To summarise, there are several starting points for studying and developing KM to support health and social care integration. First, the literature stresses that integration takes place at different levels of the service systems (e.g. Valentijn *et al.*, 2013), thus KM also needs to be analysed at different levels (Hujala and Laihonen, 2021). Second, the literature stresses that an understanding of what is being integrated and for what purpose (Martin and Knowles, 2020) should drive the definition of KM strategy and objectives. Third, considering the main need for an empirical analysis of KM in the context of integrated care, there is very little research available focusing on KM mechanisms in integrated care, and even less on the integration of health and social services. Social care in general has received very little

attention in KM research (Hujala and Laihonen, 2021). However, healthcare is considered as a specific context for KM, specifically because of the nature of knowing in the healthcare sector that leads to highly fragmented and distributed medical knowledge (Nicolini *et al.*, 2008). In this context, the mere imposition of business-like KM models and mechanisms may not suffice; there is a need for more versatile approaches. Thereby, in the empirical part, we analyse the on-going development of KM in a case organisation to better understand the mechanisms used to harness the potential of KM when developing an integrated health and social care system.

3. Research design

3.1 Context of the empirical study

Finland has had a decentralised system of health care and social services with over 300 municipalities responsible for service provision. This decentralised system posed challenges in terms of multi-channel funding, equality of services and the carrying capacity of municipalities (Health and Social Services Reform, 2022). In 2023, 22 new welfare services counties will start operations and assume responsibility for organising and providing health, social and rescue services. Alongside the reform, the importance of KM has been proclaimed. Welfare services counties are required to manage their functions with information, and funding criteria will depend on the information base formed through the population's service needs (Act on Organising Healthcare and Social Welfare Services, 2021).

A case study method was chosen as the research design to better understand the role of knowledge and KM in an integrated health and social care without removing it from its context. This approach was also deemed appropriate to study KM processes and critical events in greater detail (cf. Yin, 2009). The case organisation studied was Keusote (Keski-Uusimaa health and social services), a public organisation arranging and providing health and social care services in the area of six municipalities in southern Finland (namely Hyvinkää, Järvenpää, Mäntsälä, Nurmijärvi, Pornainen and Tuusula). The catchment area in question includes over 200,000 inhabitants and the consortium of municipalities has 3,500 employees. Keusote was chosen for two reasons. First, it is widely considered among the most active and advanced counties for KM and is currently building and developing its KM system to meet the requirements of regional and integrated care. Second, we had good access to the organisation because the first author had worked in Keusote and was responsible for its KM development.

3.2 Empirical data and methods

We used three primary datasets gathered in Keusote and publicly available documentation of social and healthcare reform as the empirical data for the research. First, the legislation brings out the national requirements for the development of KM. Second, the Keusote strategy documents were reviewed to ascertain what is being integrated and why and what information and knowledge were considered relevant from the perspective of strategic management. The strategy documents are available in Finnish on the Keusote website. Third, the results of an external KM evaluation were used to identify the strengths and weakness of KM in Keusote. The evaluation was conducted in late autumn 2020 and the data were provided by Keusote at our request. The material included an executive summary word document (6 pages) and power point slides (72 slides) with more detailed results of the evaluation. The KM status was assessed by top management, middle management and IT professionals. The assessment mainly used a Likert (1–5) scale but included a few qualitative questions (see Jääskeläinen *et al.*, 2020). The questionnaire was sent to 103 people and yielded 68 responses (66%). Fourth, documentation from 36 workshops arranged by Keusote to

determine the managerial information needs of integrated care was used to explore the KM mechanisms deemed critical when managing an integrated health and social care system. The workshops held during 2021 used business model canvas as a template to describe value propositions and avoid silo-like thinking. The workshop themes were: children and youth, ageing and integrated care. Three groups (top management, middle management and IT) met weekly for two hours over a four-week period. Top management focused on strategic issues, middle management on operational issues and IT on issues such as concepts and their feasibility in the information production pipeline. On average, 12 people participated in the groups per meeting. Minutes were kept of the workshops, with essential parts transcribed without any individual being identifiable. These minutes were also used by the researchers. This empirical data provides a diverse and multi-professional view of KM.

The qualitative content analysis was carried out abductively (Yin, 2009), aiming to be open-minded and neutral regarding the data. However, first author, who analysed the workshop data, was responsible for KM development in Keusote and acknowledged his preconceived notions on the topic. Therefore, to improve the transparency of the analysis, we used abductive content analysis in coding and clustering and utilised three different empirical datasets to identify the KM mechanisms at the three levels of integrated care discussed in Section 2. Table 1 summarises the datasets used to identify KM mechanisms at different levels of integration. In the results section, we describe the stages of our content analysis in more detail: reduction, grouping and abstraction (cf. Neuendorf, 2017). Further, the results of the analysis were discussed with the second author to compare the consistency of the results. Thus, triangulation of data, methods and analysts were used to increase the credibility and validity of research findings (Patton, 1999).

4. Three levels of knowledge management in the integrated health and social care system

4.1 Macro-national steering

The health and social service reform in Finland will enter into force in 2023, with new needs for KM. The horizontal and vertical integration promoted by the new legislation requires the integration of information and knowledge; hence KM is considered a key enabler of the reform. The common integration agenda and objectives are set in the legislation. At the macro-level, two types of KM tasks arise from the integration agenda. First, central government needs information to assess and guide the new regional actors. Assessment and guidance of the service system necessitate information for resource allocation and prioritise investments. Second, welfare services counties are required to benchmark their performance against those of other counties (Act on Organising Healthcare and Social Welfare Services, 2021). Both tasks require agreement on the so-called minimum information content defined in the reform of health and social services. Counties are moreover required to use the same

Levels of integration	Components of an integrated health system	Primary empirical data sources and abbreviation (x) used in Tables 2–4
Macro-level	Systems and governance perspectives	Act on Organising Healthcare and Social Welfare Services (l)
Meso-level	Institutional perspective	Keusote strategy document (s) External maturity assessment (e) and KM workshops (w)
Micro-level	Clinical perspective	KM workshops KM workshops and external maturity assessment

Table 1.
Data sources

information when managing their own operations and when conducting their annual financial negotiations with the Ministry of Social Affairs and Health.

During the last two years a core KM task for regional actors has been to participate in national-level networks, with the minimum information content defined in collaboration with the guiding authorities. This work has been led by the Ministry of Social Affairs and Health through the national TOIVO-programme aiming to create preconditions for data-driven decision-making. A new state-owned company, DigiFinland, is responsible for co-ordinating KM development at the national level. The nationally designed minimum information content and the related KM processes are both a tool for national steering and for wellbeing services counties to identify, measure and compare key strategic objectives with other counties. The same information is also utilised by the National Institute for Health and Welfare (THL), tasked with carrying out an independent expert assessment of the welfare services counties in accordance with section 30 of the reform ([Act on Organising Healthcare and Social Welfare Services, 2021](#)). To enable and support the secondary use of health and social care data, for example in research, innovation and KM, legislation on the secondary use of health and social care data was enacted in 2019 ([Findata, 2019](#)). This sets the boundary conditions for how data may be utilised and processed in organisations. This work is supervised by the recently established organisation of the Social and Health Data Permit Authority (Findata). [Table 2](#) illustrates how KM mechanisms were derived from the empirical data with content analysis.

4.2 Meso – A shared regional strategy

The welfare services counties add a new administrative layer to the Finnish health and social care system. Regional councils are the highest decision-making body in these new counties. In Keusote, services integration brought together six independent municipalities, necessitating compromises in strategy. The key question posed in the strategy of Keusote in 2019 was: how to guarantee equal services for all.

Compromises were also needed regarding KM because the six municipal health and social service systems were not at the same level of KM maturity. In its first strategy, Keusote create a shared regional strategy and KM agenda ([Keusote Strategy, 2019](#)). At the time of strengthening national guidance, external maturity assessments of KM were conducted in Finland for the future welfare services counties. In Keusote three main observations from this assessment were: First, the organisation had a positive attitude towards KM and enjoyed strong support from top management. Second, the benefits of KM were well understood in the organisation. Third, the technical capability of KM in the organisation was weak in terms of both data availability and KM products. Despite commitment and strategic will, in general, according to the evaluation, the state of KM was found challenging and development work was needed. The integrity of knowledge, the fragmentation of information systems and the siloed nature of an integrated health and social care organisation were considered to pose major challenges for KM.

The regional level has two fundamental KM tasks. First, KM needs to serve political decision making and legitimacy, and second, to improve organisational performance and clarify internal information needs. In Keusote these aims included promoting integration through closer co-operation between actors and the data-driven design of services. In this way KM merged with the strategic aims of the welfare services county ([Keusote strategy, 2019](#)). Two more specific aspects of KM emerged. The first of these could be considered a human perspective on KM. Individuals' tacit knowledge, experience and capabilities are vital knowledge resources driving organisational performance. Individuals' tacit knowledge, experience and capabilities are vital knowledge resources driving organisational performance. Although KM in some parts (especially the reporting needs) is defined by the national guidance, the specific features of the regional operating environment must also be

Table 2.
Content analysis of
macrolevel integration

Coding unit	Grouping	KM mechanism	Unifying class
“In the health and social service reform, the responsibility for organising social and healthcare services is transferred from municipalities and municipal associations to wellbeing services counties. In order for the wellbeing services counties to be established to be able to function effectively and offer the right type of services to their residents, they need correct and up-to-date information about the well-being and health of the population in the area, as well as the costs and effectiveness of the social and health services offered.” (l)	Normative framework	Legislation	Macro-level integration
“According to § 29 of the Act on the Organization of Social and Health Care (612/2021), the wellbeing services counties must monitor the well-being and health of the population in its area by population group, service needs, access, availability, quality, effectiveness and equality of the social and health care it organises, the coordination of customer services and social and health care costs and productivity.” (l)	Minimum information content	Minimum information content	
“The decree of the Ministry of Social Affairs and Health can regulate the minimum information content of the monitoring referred to in subsection 1 , including the minimum information content of the welfare report and plan referred to in sections 6 and 7 . In addition, the decree of the Ministry of Social Affairs and Health can regulate more precisely the information that must be included in the report referred to in subsection 2 .” (l)			
“The wellbeing services counties must compare information (minimum information content service needs, access, availability, quality, effectiveness and equality of the social and health care it organises, the coordination of customer services and social and health care costs and productivity) with the corresponding information on other wellbeing services counties.” (l)	Benchmark	Benchmarking	

considered. KM should therefore facilitate dialogue between professional groups and between politicians, citizens and the organisation. The new accountabilities to different interest groups also impose requirements on KM, especially when the reform casts most actors in new roles and the new organisational culture is only emerging. Collaboration and managerial judgement are called for and KM is considered to have an important role in enabling evidence-informed dialogue, which was highlighted also by the workshop participants: *“Care and management are important, and require data and information.”*

The second aspect concerns technology. A common information base and system must be designed, implemented and introduced, all conforming with the national requirements of minimum information content. In Keusote, and elsewhere in Finland, information systems and technology pose a challenge to such integration due to various data structures and organisational recording practices. This fragmentation of technology and practices results from the independent municipalities previously. The technology path also requires new

expertise and technologies of the organisation. Technology-wise Keusote has invested in modern data management solutions, with new data lake and data warehouse solutions to support data storage and processing and analytics software to produce the needed analytics and visualisations. In addition, the data modelling tool was used for modelling the data to meet decision-making requirements. The systems were built to enable information exchange across organisational boundaries. Together with the technology development, know-how and expertise were also considered and Keusote recruited a core group to lead the development of the KM capability. [Table 3](#) illustrates how KM mechanisms were derived from the data using content analysis.

4.3 Micro – Service chains to support integration

At the micro-level integration focuses on clinical integration. In Keusote, the most typical service chains were modelled to enable integration of the service offering. In the Finnish context, this meant looking at primary health care, specialised care and social services. The role of KM in designing service chains was twofold that became evident in the workshop materials. First came customer segmentation based on data on strategically relevant customer groups, with elderly care customers divided into four categories according to their service usage. Second came data-driven modelling of service chains – how customers in different segments navigate the service system. Data-driven modelling was supported and complemented with professionals' experiential (tacit) knowledge. The service chains sought to break the organisation's knowledge silos and combine the services to best serve customers on a "one-stop-shop" basis. A brief quote from the workshop material explains the reasoning behind data-driven modelling:

Limited general measures are available to support integration and coordination, despite being one of the most important areas in the reform. Innovation and development are therefore also needed in these areas: One option would be to do flow modelling of the entire operation, in order to see how customers move between different services and units. The flow model would show, for example, whether a unit or point is a bottleneck. From a flow model, you could see how the flows change if you make changes in some places. This would be very useful when planning what should be developed. A value-chain analysis would be another option

At the micro-level, Keusote aimed to increase interest in and commitment to KM in multi-professional workshops. In these workshops professionals discussed the most significant customer segments and modelled service chains in a participatory manner combining their tacit knowledge with the available data. A common understanding about KM and technology as an enabler were considered a significant step towards service integration. [Table 4](#) illustrates how KM mechanisms were derived from the data using content analysis.

5. Discussion

Integration of health and social services is a multi-layered phenomenon. We have shown above how the roles of knowledge and KM likewise differ at various levels of the service system. The Finnish health and social care reform illustrate how national information steering and active inter-regional co-operation and knowledge exchange are required to achieve system-level integration (cf. [Tiirinki et al., 2022](#); [Gröne and Garcie-Barbiero, 2001](#)). The case also shows how legislative changes, new actors and new tasks and roles follow from the integration agenda ([Martin and Knowles, 2020](#); [Shortell et al., 2000](#)) calling for a major shift in how KM is perceived ([Laihonen and Kokko, 2020](#)).

The literature highlights that successful integration requires information technology ([Porter and Lee, 2013](#)), integrated data ([Government UK, 2022](#); [Muirhead et al., 2016](#)) and seamless flow of information ([Laihonen, 2012](#)). It also acknowledged that the management

				Knowledge management
Coding unit	Grouping	KM mechanism	Unifying class	
"In the preparation of the first strategy, the focus is on defining the joint future direction. By clarifying the vision and goals, clarity is created amid change" (s)	Strategy and future direction	Shared regional strategy	Meso-level integration	<div>23</div>
"The background report of the strategy will be discussed at the June council seminar and at the seminar values and vision will be addressed. The top management team based on council members' initiatives will determine the priorities of the strategy, after which the result areas will prepare strategic goals." (s)	Political context	Political legitimacy and decision-making		
"In these workshops, strategic goals should be looked at. [...] so that what is being done is really related to the strategy. Scattered and less important things go remain unfollowed and unassessed." (w)	Performance	Organisational performance and decision making		
"Regarding the metrics, we should stay at the strategic level, and not go to the operational level. Things could be looked at, for example, from an economic point of view." (w)				
"We support employees' professionalism and resilience." (e)	Employees	Support for health professionals		
"There is a lack of staff for data production, processing and analysis. Managers and senior doctors must often retrieve the data and analyse it themselves. This takes up a lot of working time." (e)				
"There is also often conflicting information between different systems. Analysing and reporting wastes time, and you don't get to use the data directly because you must think about why the information differs between different systems." (e)	Technology	Technological development		
"All social and health care information, as well as financial and Human resources (HR) information, are collected in the datalake." (e)				

Table 3.
Content analysis of
mesolevel integration

focus needs to be turned onto service systems (cf. [Vargo et al., 2008](#)) and new KM strategies, initiatives and tools are needed (cf. [Laihonen and Huhtamäki, 2020](#)). The Finnish reform demonstrates the need for a systemic approach to KM and underlines the importance of common national specifications and investments in technology. The case highlighted the understanding of the institutional framework in which KM is developed, which has been highlighted by [Martin and Knowles \(2020\)](#), contemplating the re-defined roles of organisations as well as structures and administrative practices when building an integrated health system. However, this institutional perspective is mostly lacking in the KM literature (cf. [Laihonen and Kokko, 2020](#)) and therefore this study contributes by extending earlier organisation-focused studies by illustrating the multi-level mechanisms whereby KM may support integration. In the Finnish case, legislation was updated, several new organisations were launched, and the roles and tasks of the existing authorities were

Table 4.
Content analysis of
microlevel integration

re-defined. Impacts beyond individual organisations necessitate integration of knowledge and capabilities, and the foundation for the organisational and service integration is built at the macro-level. Indeed, the integration agenda redefined the institutional framework and governance model of health and social care. Co-operation is vital to prevent fragmentation of the governance framework while maintaining comparability both nationally and regionally.

The changes at the macro-level and in national steering are naturally present in the meso-level integration debate. When a new governing body is created and the strategies of several actors merged, compromises are inevitable, as described in our case example. A new strategy must answer the question posed by [Martin and Knowles \(2020\)](#) – what is being integrated? The strategy sets objectives and organisational roles, and then, from the point of view of KM, it is essential to understand what information is important for the new regional actor and what knowledge strategy best supports organisational objectives (cf. [Hansen *et al.*, 1999](#)). This creates a context where a new organisational culture and practices start to develop, and an understanding of KM and its aims evolves (cf. [Williams, 2012b](#)). This understanding of KM then drives the selection of KM tools and the working, learning and training activities (cf. [Nicolini *et al.*, 2008](#)). As described, KM was positioned in a new way through a new

strategy. The disparate KM practices and cultures must be unified and must consider both the internal information needs and national-level reporting requirements.

At the micro-level, the tasks and roles of KM focus on service integration. Seamless flow of data and information are critical in service integration and advancing technology continuously creates new opportunities for data-driven service development. As stated by [Vargo *et al.* \(2008\)](#), the service system represents the unifying value propositions of multi-level service systems and the value of information as a co-creation assembly. Here, the case illustration highlighted the role of data-driven approaches to modelling service chains and the regional service system to support integrated care management (cf. [Martin and Knowles, 2020](#)). These modern approaches can complement the more traditional ways of expert surveys and interviews in identifying bottlenecks in service provision. [Table 5](#) summarises the various tasks of KM in the integrated health and social care system and shows the nestedness of KM highlighting the need for functional and normative integration (cf. [Valentijn *et al.*, 2013](#)). As the analysis has shown, there are multiple interdependencies between the levels. In addition to the critical role of knowledge and KM at various levels, it can be argued that data, information and knowledge create a basis for the interaction between the levels and sectors of an integrated service system. Our results show a need for continuous dialogue between different interpretations and knowledge fields to form a shared understanding of what is being integrated and for what purpose.

6. Conclusions

This research contributes to the literature on integrated care by providing a more comprehensive view of KM than approaches focussing solely on health informatics and internal efficiency. System-level analysis and the institutional perspective in particular are lacking in the existing literature. In addition to underscoring the importance of a holistic perspective on information and knowledge, the study identified mechanisms whereby KM helps build and manage an integrated health and social care system at macro-meso-, and micro-levels of service integration. The study shows that KM is not only a technical manoeuvre but should be considered as a strategic initiative that aims to understand how the knowledge assets of the whole health and social care system can be used to achieve an impact on patients' welfare. Integration of health and social care especially brings together very different knowledge fields and organisational cultures, and the KM mechanisms identified

Levels of integration	Recognised KM mechanisms	
Macro-level	Systems and governance Perspectives	<ul style="list-style-type: none">• Legislation• Minimum information content• Benchmarking
Meso-level	Institutional Perspective–Networks Institutional Perspective–Organisational	<ul style="list-style-type: none">• Shared regional strategy• Political legitimacy and decision-making• Organisational performance and decision-making• Knowledge sharing and support for health professionals
Micro-level	Clinical Perspective–Service Clinical Perspective–Individual	<ul style="list-style-type: none">• Technological development and digital tools• Data-driven service chains• Tacit knowledge of health professionals• Individual capabilities and skills• Commitment to KM• Multi-professional dialogue

Table 5.
Summary of the KM mechanisms in a regional integrated health and social care system

could together provide a starting point for a collective knowledge formation process where a new integrated health and social care system is constructed.

We do concede some weaknesses in the analysis that leave ample options for future research. The main limitation of the study relates to having only one case organisation. We focused on only one of the 22 well-being counties in Finland. However, the organisation studied has systematically developed its KM in recent years and is among the most advanced well-being counties in terms of KM maturity in Finland. Nevertheless, a comparative analysis of different strategic approaches would provide important data on best practices. It also worthy of note that the first author has previously worked in the case organisation studied. However, during the research process, we have followed good research methods. Both authors had access to the research materials and the results were iterated several times during the research process. As the new welfare services counties in Finland begin operations in 2023 and a follow-up analysis will be needed to assess the effectiveness of the chosen KM mechanisms. Also, international comparisons of KM strategies and mechanisms would provide several avenues for future research. We recognise an increasing interest in integrated data and KM both in integrated care in the United Kingdom (UK) and in value-based health care in the United States of America (USA) and consider that the Finnish experiences may provide valuable lessons when further developing these approaches and the respective KM mechanisms. Finally, the strategic KM analysis reported should be complemented with more concrete and practical approaches at the level of service chains and customer interaction.

References

- Act on Organising Healthcare and Social Welfare Services (2021), "Act on organising healthcare and social welfare services: 612/2021", available at: <https://www.finlex.fi/fi/aki/alkup/2021/20210612> (accessed 22 June 2022).
- Alavi, M. and Leidner, D. (2001), "Review: knowledge management and knowledge management systems: conceptual foundations and research issues", *MIS Quarterly*, Vol. 25 No. 1, pp. 107-136.
- Ayatollahi, H. and Zeraatkar, K. (2020), "Factors influencing the success of knowledge management process in health care organisations: a literature review", *Health Information and Libraries Journal*, Vol. 37 No. 2, pp. 98-117.
- Cheng, S.M. and Catallo, C. (2019), "Case definition for health and social care services integrated initiatives", *Journal of Integrated Care*, Vol. 27 No. 4, pp. 264-275.
- Cheng, S.M. and Catallo, C. (2020), "Conceptual framework: factors enabling collaborative health care and social services integration", *Journal of Integrated Care*, Vol. 28 No. 3, pp. 215-229.
- Delnoij, D., Klazinga, N. and Kulu Glaskow, I. (2002), "Integrated care in an international perspective", *International Journal of Integrated Care*, Vol. 2 No. 1, pp. 1-4.
- Findata (2019), "Act on the secondary use of health and social data", available at: <https://findata.fi/en/utiset/act-on-secondary-use-of-health-and-social-data-will-not-be-applied-to-clinical-trials/> (accessed 22 June 2022).
- Fletcher-Brown, J., Carter, D., Pereira, V. and Chandwani, R. (2020), "Mobile technology to give a resource-based knowledge management advantage to community health nurses in an emerging economies context", *Journal of Knowledge Management*, Vol. 25 No. 3, pp. 525-544.
- Goodwin, N. (2016), "Understanding integrated care", *International Journal of Integrated Care*, Vol. 16 No. 4, pp. 1-4.
- Government UK (2022), "Data saves lives: reshaping health and social care with data", available at: <https://www.gov.uk/government/publications/data-saves-lives-reshaping-health-and-social-care-with-data/data-saves-lives-reshaping-health-and-social-care-with-data> (accessed 22 June 2022).
- Gröne, O. and Garcia-Barbero, M. (2001), "Integrated care: a position paper of the who European office for integrated health care services", *International Journal of Integrated Care*, Vol. 1 No. 1, pp. 1-10.

- Hansen, M., Nohria, N. and Tierney, T. (1999), "What's your strategy for managing knowledge?", *Harvard Business Review*, Vol. 77 No. 2, pp. 106-116.
- Health and Social Services Reform (2022), "Reform of the organisation of health, social and rescue services", available at: https://soteuudistus.fi/documents/16650278/92491799/Sote-+ja+pelastustoimen+uudistus_laaja_englanti+7.10.pdf/f15f9156-76da-fda9-5e42-13d5cf11d745/Sote-+ja+pelastustoimen+uudistus_laaja_englanti+7.10.pdf?t=1661257156633 (accessed 10 September 2022).
- Hujala, T. and Laihonen, H. (2021), "Effects of knowledge management on the management of health and social care - a systematic literature review", *Journal of Knowledge Management*, Vol. 25 No. 11, pp. 203-221.
- Ikonen, A.K. (2020), "Knowledge as a critical success factor in the Finnish social and health-care reform", *Knowledge Management Research and Practice*, Vol. 18 No. 1, pp. 69-80.
- Jääskeläinen, A., Sillanpää, V., Helander, N., Leskelä, R.-L., Haavisto, I., Laasonen, V. and Torkki, P. (2020), "Designing a maturity model for analyzing information and knowledge management in the public sector", *VINE Journal of Information and Knowledge Management System*, Vol. 52 No. 1, pp. 120-140.
- Kaehne, A. (2019), "Big Data and what it means for evaluating integrated care programmes", *Journal of Integrated Care*, Vol. 27 No. 3, pp. 249-258.
- Keusote strategy (2019), "Best to everyone: the strategy of Keski-Uusimaa health and social services district 2020-2025", available at: [https://keusote.cloudnc.fi/fi-FI/Toimielimet/Yhtymaumlhallitus/Kokous_22102019/KeskiUudenmaan_sote_kuntayhtyman_strateg\(1240](https://keusote.cloudnc.fi/fi-FI/Toimielimet/Yhtymaumlhallitus/Kokous_22102019/KeskiUudenmaan_sote_kuntayhtyman_strateg(1240) (accessed 15 June 2022).
- Kokko, P. and Laihonen, H. (2021), "Performance management and hybridization of healthcare—case of the accountable care organization", *Journal of Public Budgeting, Accounting and Financial Management*, Vol. 34 No. 3, pp. 411-429.
- Kosklin, R., Lammintakanen, J. and Kivinen, T. (2022), "Knowledge management effects and performance in health care: a systematic literature review", *Knowledge Management Research and Practice*, Vol. ahead-of-print No. ahead-of-print, pp. 1-11, doi: [10.1080/14778238.2022.2032434](https://doi.org/10.1080/14778238.2022.2032434).
- Laihonen, H. (2012), "Knowledge structures of a health ecosystem", *Journal of Health Organisation and Management*, Vol. 26 Nos 4-5, pp. 542-558.
- Laihonen, H. and Huhtamäki (2020), "Organisational hybridity and fluidity: deriving new strategies for dynamic knowledge management", *Knowledge Management Research and Practice*, Vol. ahead-of-print No. ahead-of-print, pp. 1-13, doi: [10.1080/14778238.2020.1794993](https://doi.org/10.1080/14778238.2020.1794993).
- Laihonen, H. and Kokko, P. (2020), "Knowledge management and hybridity of institutional logics in public sector", *Knowledge Management Research and Practice*, Vol. ahead-of-print No. ahead-of-print, pp. 1-15, doi: [10.1080/14778238.2020.1788429](https://doi.org/10.1080/14778238.2020.1788429).
- Maheshwari, B., Sarrion, M., Motiani, M., O'Sullivan, S. and Chandwani, R. (2021), "Exploration of factors affecting the use of Web 2.0 for knowledge sharing among healthcare professionals: an Indian perspective", *Journal of Knowledge Management*, Vol. 25 No. 3, pp. 545-558.
- Martin, L. and Knowles, E.E. (2020), "Model for an integrated health system", *Journal of Integrated Care*, Vol. 28 No. 2, pp. 161-170.
- Meijboom, B., de Haan, J. and Verheyen, P. (2004), "Networks for integrated care provision: an economic approach based on opportunism and trust", *Health Policy*, Vol. 69 No. 1, pp. 33-43.
- Muirhead, A., Ward, D.G. and Howard, B. (2016), "The digital house of care: information solutions for integrated care", *Journal of Integrated Care*, Vol. 24 Nos 5-6, pp. 237-248.
- Murray, G.F., Rodriguez, H.P. and Lewis, V.A. (2020), "Upstream with a small paddle: how ACOs are working against the current to meet patients' social needs: a study of how some ACOs are attempting to address patients' social needs", *Health Affairs*, Vol. 39 No. 2, pp. 199-206.
- Neuendorf, K. (2017), *The Content Analysis Guidebook*, SAGE, Los Angeles, CA.

- Nicolini, D., Powell, J., Conville, P. and Martinez-Solano, L. (2008), "Managing knowledge in the healthcare sector: a review", *International Journal of Management Reviews*, Vol. 10 No. 3, pp. 245-263.
- Nuno-Solinis, R. (2019), "Advancing towards value-based integrated care for individuals and populations", *International Journal of Integrated Care*, Vol. 19 No. 4, pp. 1-3.
- Patton, M.Q. (1999), "Enhancing the quality and credibility of qualitative analysis", *Health Services Research*, Vol. 34 No. 5, pp. 1189-1208.
- Paul, D.L. (2006), "Collaborative activities in virtual settings: a knowledge management perspective of telemedicine", *Journal of Management Information Systems*, Vol. 22 No. 4, pp. 143-176.
- Porter, M.E. and Lee, T.H. (2013), "The strategy that will fix health care", *Harvard Business Review*, Vol. 91 No. 10, pp. 1-19.
- Porter, M.E. and Teisberg, E. (2006), *Redefining Health Care: Creating Value-Based Competition on Results*, Harvard Business School Publishing, Boston.
- Shand, J. and Turner, S. (2019), "System wide collaboration? Health and social care leaders' perspectives on work across boundaries", *Journal of Integrated Care*, Vol. 27 No. 1, pp. 83-94.
- Shortell, S., Gillies, R., Anderson, D., Erickson, K. and Mitchell, J. (2000), *Remaking Health Care in America: The Evolution of Organized Delivery System*, 2nd ed., Jossey-Bass, Hoboken, NJ.
- Tiirinki, H., Sulander, J., Sinervo, T., Halme, S. and Keskimäki, I. (2022), "Integrating health and social services in Finland: regional approaches and governance models", *International Journal of Integrated*, Vol. 22 No. 3, pp. 1-11.
- Tripathi, V.R., Popli, M., Ghulyani, S., Desai, S. and Gaur, A. (2021), "Knowledge creation practices at organizational boundaries: the role of ICT in sickle-cell care for tribal communities", *Journal of Knowledge Management*, Vol. 25 No. 3, pp. 595-617.
- Valentijn, P., Schepman, S., Opheij, W. and Bruihnzeels, M. (2013), "Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care", *International Journal of Integrated Care*, Vol. 13 No. 1, e010.
- Vargo, S.L., Maglio, P.P. and Akaka, M.A. (2008), "On value and value co-creation: a service systems and service logic perspective", *European Management Journal*, Vol. 26 No. 3, pp. 145-152.
- Williams, P. (2012a), "The role of leadership in learning and knowledge for integration", *Journal of Integrated Care*, Vol. 20 No. 3, pp. 161-174.
- Williams, P. (2012b), "Integration of health and social care: a case of learning and knowledge management", *Health and Social Care in the Community*, Vol. 20 No. 5, pp. 550-560.
- Yin, R. (2009), *Case Study Research - Design and Methods*, SAGE, Thousand Oaks, CA.

Corresponding author

Tuomas Hujala can be contacted at: tuomhu@uef.fi