
Sustainability Information and Knowledge Management in Local Government

Harri Laihonen*

University of Eastern Finland
P.O. Box 1627, 70211 Kuopio, Finland
harri.laihonen@uef.fi

Lotta-Maria Sinervo

Tampere University
33014 Tampere University, Finland
lotta-maria.sinervo@tuni.fi

** Corresponding author*

Abstract

Sustainability has been extensively studied in different disciplines especially since the publication of the Brundtland commission's report in 1987. However, in public management as well as knowledge management literature sustainability has gained limited scholarly attention. Especially, there is a lack of understanding of sustainability as an issue that needs managing. Therefore, article approaches sustainability in organizational context and is interested in how sustainability is managed in local government and what knowledge is used to support management. While sustainability can be regarded as a pressing societal challenge, relatively little is known on how sustainability policies and strategies are implemented and managed in public organizations. In order to understand how public managers perceive sustainability as a management issue and define sustainability information, an interview study was carried out. The article analyses the data of 25 semi-structured interviews from branch and financial directors in Finnish municipalities to provide an in-depth knowledge-based view to the practice of managing sustainability in local government. The article contributes by developing new understanding about the different roles knowledge management can have in supporting public organizations and public officials to grasp the complex phenomenon of sustainability.

Keywords – Sustainability information; Sustainability management; Knowledge management; Public management, Local government

Paper type – Academic Research Paper

1 Introduction

This article aims to understand how sustainability is managed in the public sector and analyses how public managers understand sustainability information, its role in public management, and how they use it in their management tasks specifically in local government context. Sustainability has been extensively studied in different disciplines, especially since the publication of the Brundtland commission's report (WCED, 1987). While sustainability can be regarded as a pressing societal challenge that requires action in all sectors of society, relatively little is known about how sustainability is implemented and managed in public organizations. Previous knowledge management (KM) research has been scant (Martins et al., 2019), and especially for KM scholars, there is a need to better understand how KM can help public organizations foster sustainability.

In public management literature, research on sustainability is still at an early stage (Fusco & Ricci, 2019). There is a lack of understanding of sustainability in the context of management (e.g., Fiorino, 2010; Zeemering, 2018) because the main emphasis of previous research has been on policy tools and in developing indicators. Instead of this external view, this study approaches sustainability in the organizational setting of local governments. This article asks how sustainability is managed by the local government and the role of knowledge management in fostering sustainability. Most of the literature on KM and sustainability focuses on private organizations (e.g., Hörisch et al., 2015; Martins et al., 2019; Shiroyama et al., 2012), and one aim of this study is to learn from this literature and develop ideas for promoting KM in the local government. There is also an urgent need in practice to better understand how public officials take sustainability in their everyday decision-making and learn what management practices lead to improved sustainability (cf. Zeemering, 2018). Prior research has not thoroughly scrutinized the implementation of sustainability, that is, how sustainability policies and strategies are executed and managed in public organizations. Indeed, a key factor in working towards sustainability is the implementation of sustainability in practices and managerial processes. The article contributes by developing a new understanding of the different roles KM can play in supporting public organizations and public officials to grasp the complex phenomenon of sustainability.

The remainder of this paper is organized as follows. In the next section, we briefly review the KM and sustainability literature. The third section presents the empirical

methods used in this study. Section 4 presents the results of the interviews. In section five, we discuss the results, and section six draws some conclusions.

2 Literature on knowledge management and sustainability

The academic literature linking KM and sustainability in the context of local government or the public sector is still scarce. Therefore, this section provides a more general view of KM and sustainability. We briefly review the selection of studies that connect these two research streams. These studies have focused on the corporate context, which is typical in studies combining sustainability with managerial activities (e.g., Thomson 2014).

Martins et al. (2019) carried out a systematic review of the literature on KM and sustainability. According to the authors, the literature considers KM as “a new paradigm of development that aims to enhance compliance with the guidelines of economic, environmental, and social sustainability” (ibid., 490). The authors considered KM as a management mechanism for information sharing and recognized research gaps regarding KM in the context of sustainability. According to the authors, further research is needed regarding sustainability in small and medium enterprises and the role of universities as knowledge generators. The authors also highlighted the need for specific models, tools, and systems to facilitate the sharing of information and guidelines for KM implementation. Finally, they also pointed out that quantitative studies are lacking.

The analysis by Hörisch et al. (2015) reveals that larger companies apply significantly more sustainability management tools, even though these tools are also applicable to small- and medium-sized enterprises. The authors provide three different theoretical explanations for this finding. First, based on the resource-based view, it is argued that large companies possess more financial and human resources that enable them to gather information, develop expertise in sustainability management tools, and unlock the potential benefits associated with them. Second, legitimacy theory explains this finding by arguing that large organizations are far more publicly exposed. Third, absorptive capacity states that larger firms have more extensive knowledge bases for sustainability management and thus know more about the available options in this area. Hörisch et al. (2015) find also that knowledge about sustainability management tools is a crucial factor between strategy and implementation. These results are also relevant for public organizations that are typically

large and have a wide range of resources both in terms of human and financial resources. They are also exposed to public opinion, and the legitimacy of their decisions is evaluated externally. Moreover, public organizations are constantly evaluated in terms of the transparency of their actions and are held accountable to various stakeholders. In addition, big cities are regarded as points of reference to smaller ones as well as for private sector entities.

Alvino et al. (2019) discuss whether IC, through the implementation of KM processes, can influence the entrepreneurial orientation towards the creation of sustainable business models. Their bibliographic analysis identified that research published on IC and sustainability focuses mainly on the measurement of results in terms of increased business performance. The results also show that IC is linked to long-term value, but less attention has been paid to the use of IC in relation to the goals set by the 2030 agenda and established guidelines for companies. This finding resonates well with the public sector literature (cf., Zeemering, 2018). In this regard, there is a growing body of literature on smart cities in the context of sustainability (Karppi & Vakkuri 2020).

Shiroyama et al. (2012) propose an analytical framework for risk-related governance for sustainability. The authors note that different actors within society hold different viewpoints on sustainability; thus, there is a need for sustainability governance. This is especially true in the public sector, where different values and expectations must be reconciled (Laihonen et al., 2023). According to Shiroyama et al. (2012), governance for sustainability requires knowledge integration to address multiple dimensions of sustainability and uncertainty. They state that multi-actor governance involves public–private and multi-level interactions, which are needed to obtain agreement on sustainable actions among actors for designing and establishing resilient systems. The authors emphasized the importance of a reflexive approach and learning that necessitates knowledge integration among experts in various academic fields and stakeholders. Regarding sustainability management, Hu et al. (2018) highlighted the importance of KM, organizational learning, and data-mining systems adopted to capture the best practices of sustainability initiatives.

Several studies have been conducted in the construction industry, in which knowledge transfer is considered a critical success factor for sustainability management. Robinson et al. (2006) suggest a maturity roadmap to facilitate the implementation of a KM strategy. They found that KM is inextricably linked to corporate sustainability and suggested a

mechanism for organizations to benchmark KM activities and to develop a KM strategy that would improve their activities. The authors argue that bringing knowledge or intangible assets to the forefront of an organization's business strategy will have a significant impact on the future wealth of organizations, and that developing a KM strategy enables an organization to unlock and leverage the different types of knowledge, to identify competencies required to become a forward thinking and learning organization with the ability to put sustainability principles into practice. Schröpfer et al. (2016) examined knowledge transfer (KT) practices in construction projects. In general, the authors suggest that enhancing KT between all project participants could help secure a certain standard of green building quality in the long run. According to Schröpfer et al. (2016), many actors involved in the construction process claim to strive for sustainability, but the ways in which different stakeholders perceive and translate it into practice vary. The concluding argument is that enhanced KT between project participants offers a solution to achieve a certain quality of the built result.

Preuss and Cordoba-Pachon (2009) aimed to determine how KM processes can foster (or impede) progress towards corporate social responsibility (CSR). They reviewed KM literature to identify areas that are particularly relevant to managing a company's social and environmental externalities toward sustainability. The authors note that KM is predominantly internally focused, whereas CSR is mainly concerned with external stakeholders' and companies' responsibilities to society. This excessive internal focus of KM is something that Laihonen et al. (2023) also pinpoint when discussing criticisms levelled at knowledge management. Evangelista and Durst (2015) provided a structured literature review of KM and KM strategies in the environmental sustainability practices of logistics service providers. The authors identified three basic elements of appropriate KM approaches and strategies: customer relationship management, quality of human resources, and the adoption of information and communication technology tools and systems. These three areas of sustainability management are relevant for all organizations, whether public or private.

3 Methodology

To understand how public managers perceive sustainability as a management issue and to define sustainability information, an interview study was chosen as the most suitable

method. Empirical data were collected using semi-structured interviews. Interviews are an efficient method for gathering rich empirical data (Eisenhardt & Graebner, 2007). This article analyzes the data of 25 semi-structured interviews with branch and financial directors in Finnish municipalities to provide an in-depth view of the practice of managing sustainability in local governments. Data were collected during October-November 2022, when Finnish municipalities were at the edge of a historical social and welfare service reform. Interviewees were selected to represent the service branches that remained in the responsibilities of municipalities after the reform: education, environmental, technical, development, and city planning services. Interviews were conducted in teams, video-recorded, and transcribed verbatim. All interviews lasted approximately an hour.

The interviews dealt with the following six themes: 1) sustainability as a phenomenon and part of your work, 2) sustainability and municipal strategy work, 3) management of sustainability, 4) sustainability knowledge base, 5) sustainability reporting, and 6) external steering mechanisms for sustainability. In this article, we focus on Themes 1 and 4 and first show how the interviewees perceive the phenomenon. Second, we provide preliminary results on the role of sustainability information and KM. During the analysis, the interview transcripts were first carefully analyzed line by line to recognize different interpretations and definitions. In the second phase, the focus was on sustainability information and the underlying knowledge processes. Through this two-step analysis, the researchers gained an understanding of the different roles and impacts of KM on sustainability management.

4 Results

4.1. What is sustainability – different views and definitions

The interview data showed how different interpretations and definitions of public managers affect sustainability, depending on their position and tasks. Therefore, it is important to understand that the definition of sustainability depends on several factors.

The financial directors approached sustainability from the viewpoint of financial sustainability. Financial sustainability was also highlighted by most of the directors, which was less obvious because of their strategic position and role in resource allocation decisions. Financial directors defined financial sustainability for example in the following ways:

“Financial sustainability means that you do not live beyond the resources, not make the type of settlements that burden the city’s future or the future of the economy so that you do not basically eat its base or other. It is a durability.” [Financial Director]

Like all interviewees, the directors of the education branch approached the phenomenon as a major societal change and emphasized the multifaceted nature of sustainability management. However, for them, social sustainability played a special role in how they approached the questions regarding the definition of the phenomenon and how it is reflected in their work.

“All four dimensions of sustainable development, economic, social, cultural and ecological, are important to us. All of this is very strongly reflected in our operations, the aim is that our operations are financially sustainable so that we have resources going forward as well, we take into account what is happening in the operating environment.” [Director of Education]

Infrastructure and development directors pretty much continued the same agenda but an emphasis on ecological and environmental sustainability could be recognized.

“Well, the first three things that come to mind in terms of sustainability are ecological sustainability, then the economic perspective, economic sustainability, sustainable municipal economy. And perhaps the third point of view in urban structure services, which is emphasized, is this kind of social sustainability or sustainable urban structure.” [Director of Urban Planning and City Infrastructure].

It is also worth noticing that local government has an important role in fostering the vitality of the area. This viewpoint is well captured in the following quote from an interview with a Director of Development.

“For me, that sustainability is how this city remains a growing and developing city in terms of both attraction and holding power. In other words, the kind of continuous, permanent development of the city in such a way that all the time it is ensured that the conditions for development exist and the requirements of the environment are taken into account in that development.” [Director of Development]

From the KM viewpoint, especially concerning decision-making information, it is critical to understand how organizational objectives affect the priorities and emphasis of KM. The strategic KM literature has highlighted that “business objectives” should drive all knowledge initiatives (e.g., Zack, 1999; Hansen et al., 1999; Laihonen & Mäntylä, 2018) and this concerns also defining, gathering, and use of sustainability information.

4.2. Sustainability information – what is it and how is it used in public management?

Following their different positions and roles in the organization, the interviewees also defined sustainability information differently. Discussions with directors did not really go into detail; directors only gave some overall direction on the concrete metrics and data used for evaluating their services. In general, all directors linked the discussion to city strategy and, in some cases, to the legislative task of the city. The following quote from the Director of Technical Services illustrates the ambiguity of sustainability management in the public sector:

“Yes, of course, I think about this point in relation to sustainability in that way, a bit like a tripod, you probably can't think of it specifically from the point of view of sustainable development, environmental legislation and environmental protection, the ecological point of view, that of course it is important from the point of view of my own industry. Since I am in the role of a leader, of course the economy also comes into question as a whole, that the economy is also on a sustainable basis, and this balances out certain choices. [...] there are also very strong values in this field of activity, and through that the social perspective also comes into play, i.e. issues of equality and equality. Inclusion is also very strongly included as a legislative program here. Such a diverse field, I see these things from the point of view of the ecological field, the economic field and the social field. Such a mixed fruit soup, and of course, from time to time, one is emphasized more than the other.”
[Director Of Technical Services]

Financial directors emphasize the role of financial information. They work with budgets, investments, and tax revenues, and this information is critical to their role.

“At the whole city level, I would say that from the point of view of monitoring, the top should be the income statement. Of course, investments in relation to the targeted amount. it says a lot about the activity as well, about the ability to promote what has been planned. [...] From a monitoring point of view, if we are thinking about the government level, then we need to pay attention to two different things. There is the development of operating expenses and income in relation to the budget. [...] And operating margin is of course important in the sense that then we respect the things that happen in our core tasks. [...] At the government level, it is natural to always assess the outlook for tax revenues at a fairly precise level.” [Financial Director]

For educational directors, important decision-making information relates, for example, to the well-being of both teachers and students as well as the social environment provided by the education services area.

“In the entire strategy work, we have taken these SDG indicators. We chose ten, those that we felt were the most relevant for us in. And then, of course, there are others besides these SDG indicators that we consider, for example, school health surveys, it is a really important document for us, and on the basis of that we draw up well-being plans, and which in turn affect that well-being. [...] In terms own service production, there are different metrics that are then monitored, related to meals, energy use and things like that. And, of course, also social sustainability and how you do it, how people work and so on, so these types of metrics exist.” [Director of Education].

It was already evidenced in the previous section that, because the definition of social sustainability covers many aspects, the required information cannot be easily defined and is ambiguous.

“There is a lot of variety. For us, student absences, the amount of support needed, etc. New needs are emerging [...] Then, service processes and service network. How much with different calculations, how much, for example, students from different schools cost us per student.” [Director of Education]

One of the main points of sustainability management and the needed information and knowledge is the overwhelming amount of data.

“I would say that the main question related to information is not that we should have more of it, but that existing information should be simplified and bundled, and we are currently working on such reporting that would bring together the essential information to support management.” [Director of Education]

The question related to sustainability information also challenged the infrastructure and development directors.

“Well, financial information of course. Continuously, as far as the finances of one's own operations are concerned. We make a lot of use of data related to demographic development. That is public information. And population, migration, all of this is of course the same basic thing, we already use it in connection with planning. We use not only information on resources but also various information that is collected. Our ‘resource wise program’ has about 180 separate measures. Also, location information is very important.” [Director of Urban Planning and City Infrastructure].

“We compile an ecological road map and the data of the related meters, from which we can see whether our actions are sufficient. We are thinking about how many solar panel sites we need to put into use every year, we have an energy saving working group that monitors the energy consumption of our buildings on a property-by-property basis, and of course, the financial monitoring systems are part of where we monitor how our operations for that year are progressing.” [Director of Environmental and Technical Department]

One interviewee nicely summarized that it is not only directors that know it all, but their role is more in a team building that is able to efficiently gather and use various information and knowledge.

“I don't need to know everything myself, but I have a good orchestra with very good experts, and they are experts in their field and do their work with a certain passion and manage that knowledge reserve better I could. I trust them. For me the main thing is to ask the right questions.” [Director Of Technical Services]

5 Discussion

The aim of this study was to investigate sustainability management in local governments. Special attention was paid to sustainability information and the knowledge base of sustainability management. Local governments are a fruitful and relevant research object for sustainability management research, as their role in promoting and creating sustainable practices has been recognized (e.g., Krause et al., 2016). Local governments carry out local activities for the local people, and they inevitably play a special role in promoting sustainability. This study demonstrated that sustainability can be managed in many ways and at many levels.

It has been noted that sustainability is at the heart of public administration as a starting point, main aim, and desired outcome (e.g., Fiorino 2010) and that there is an urgent need to better understand how public officials implement sustainability (cf. Zeemering, 2018). This adds public sector sustainability management to Martins et al. (2013) list on the important and highly relevant areas of future research. Cities and public organizations more generally are big organizations with multiple resources, and it is therefore of great importance to prioritize sustainability, allocate resources, share information, develop expertise, and encourage the use of various tools to support sustainability management (cf. Hörisch et al., 2015). In addition, the publicness of their activities necessitates a careful

analysis of the sustainability of all services. It is also critical that sustainability management is not considered only as a transfer of sustainability information (Schröpfer et al., 2016), but also its strategic implications need to be considered (Robinson et al., 2006), which also relate to the management of intellectual capital, which poses a critical success factor for any knowledge-intensive organization (cf. Alvino et al., 2019). Sustainability management must consider both short- and long-term strategic objectives.

Based on our data, sustainability is a well-known phenomenon, but its interpretation involves caution, uncertainty, and a lack of awareness. Sustainability appears as a phenomenon recognized as important in strategy work; however, in terms of implementation, the responsibilities and tasks are not clear. Therefore, it can be stated that there should be space, time and opportunities in the municipal organization for the interpretation of sustainability and the building of a common understanding. This clarifies the responsibilities of sustainability management. Knowledge integration and multi-actor governance are required, as highlighted by Shiroyama et al. (2012), to agree on sustainable actions among actors in designing and establishing resilient systems. Sustainability management necessitates continuous dialogue between different actors and levels of society about what is acceptable and the assessments of what to aim for as well as with what means to build the desired future (Laihonen & Mäntylä, 2018). This type of joint knowledge formation (Laihonen et al., 2023) is a prerequisite for structuring multifaceted and wicked problems such as sustainability.

It has become evident that learning from sustainability information is a key mechanism in sustainability management. This was highlighted by Hu et al. (2018), who stressed the importance of KM, organizational learning, and data mining systems in capturing the best practices of sustainability initiatives. Preuss and Cordoba-Pachon (2009) discussed the different standpoints of KM and CSR and stated that it is not enough in sustainability management to focus only on the internal efficiency of operations (see also Laihonen et al. 2023). Thus, there is a need for a balanced measurement of the success of sustainability management. This was also highlighted by Evangelista and Durst (2015), who recognized customer relationship management, quality of human resources, and the adoption of information and communication technology tools and systems as the three basic elements of KM in environmental sustainability practices. This finding has important implications for the perception of sustainability information. In our interview data, financial information emerged as the most frequently used information from the local government. In addition to

financial information, various expert information, analyses, publications, and statistical information form the information base public managers use to support their decision-making. The information provided by national institutions and actors (e.g., central government actors and ministries) was also perceived as useful in sustainability management. It was somewhat surprising that managers were quite satisfied with the available sustainability information. Sustainability information is used for budgeting, goal setting, operations management, strategy implementation, procurement, and investment. The interviews also evidenced the multidimensionality of sustainability information. The data showed that information is available from different sources; however, information on sustainability is not always identified. In addition, sustainability information often remains siloed into individual service branches or areas of responsibility. Despite this, no specific wishes regarding sustainability information came up in the interviews. It appears from the data that it would be hoped that the information would be as comparable as possible, in which case the interpretation of the information could be done between different municipalities. National and inter-municipal statistics and numerical data are particularly useful. Overall, based on the data, it can be interpreted that the role of information, and thus its management, is perceived as an important element in managing sustainability, but identifying sustainability information needs is still perceived as difficult.

6 Conclusions

Sustainability management should not be approached from a single perspective. It is necessary to consider the different starting points and capabilities of local governments to deal with such multifaceted phenomena. This research has revealed the versatility of conversation and provides tools to conceptualize the phenomenon. In this regard, our key message is that managing sustainability requires a comprehensive review of local government organizations and consideration of different sustainability perspectives. Based on our findings, sustainability management seems to focus primarily on quantifying and making the phenomenon visible. This is important, but from a management viewpoint, even a slightly imperfect metric can sometimes be useful in indicating the direction of development. In recent years, the use of sustainability information has been strongly emphasized in performance management literature. We call for this, also in terms of sustainability management. A more structured discussion on how sustainability is

positioned in other areas of performance is needed. According to our understanding, it is not a new performance goal per se but a phenomenon that forces us to redefine the traditional ways of conceptualizing performance in the public sector. This finding has clear implications for KM and requires further investigation.

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