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What does knowledge management in public
administrations look like in practice?
Development of KM criteria on the basis of case
study reviews

Discussion Paper 93

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1. Introduction

1.1 Background

Public institutions in Germany and Europe face various challenges that lead to the loss of institutional knowledge, such as staff departures, job rotations, and retirements (prognos & Behörden Spiegel, 2020). One estimate puts the fraction of public sector employees in Germany that will retire by 2040 at 61% (Deutscher Bundestag, 2020). However, even bureaucracies with a young and stable workforce are faced with a dynamic and sometimes overwhelming knowledge landscape. Longer-term developments such as digitisation or an increasing volume of data, and upheavals such as the Covid19-pandemic or military conflicts pose challenges to the efficient and effective workflow of public administrations. Being aware of an organisation's knowledge stock can help managers and employees to handle complex situations as these.

In particular, some organisations turn to knowledge management (KM). Knowledge management encompasses the methods and processes that an organisation purposefully employs to acquire, store, and direct knowledge and information. Given the diversity of information-related problems, KM addresses knowledge identification, preservation, acquisition, distribution, and application. Organisations may emphasize different aspects based on their needs. For example, agencies facing retirements may focus on knowledge storage. However, we cannot talk about knowledge management if this is the sole focus. In such a case, we may have an effective offboarding strategy, but not a comprehensive knowledge management. KM is supposed to help an organisation achieve resilience and flexibility in the long term, and thus has already made provisions for other knowledge-related problems. In reality, however, KM in public administrations remains a concept that often is either abstract, or used as a buzzword, reducing it to isolated practices such as offboarding or document storage. Consequently, it becomes hard to pinpoint when KM is genuinely being implemented.

This discussion paper therefore aims to establish criteria that can define good practices for holistic KM in public administrations. By examining case studies from around the world, it provides a framework for effective KM implementation. The criteria outlined in this paper are designed to be sufficiently generalised to allow for context-specific and needs-based variations in the adoption of KM. Yet, at the same time, they are specific enough to transcend impractical KM guidelines, because they are based on a comparative analysis of real-life applications of KM. This can provide practitioners with actionable insights.

This paper is intended for two primary audiences. Firstly, it addresses academia, offering a framework that can be applied to the analysis of KM strategies. Secondly, it targets leaders and managers in the public sector who wish to implement or evaluate their KM practices and seek inspiration. They may find value in the vast collection of examples that underlies the theoretical comparative analysis.

The paper begins by justifying the use of Probst et al.'s (1997) building blocks of knowledge management as a foundation for the comparative analysis of the case studies

and the deduced criteria. The authors' work is particularly useful because it directly defines knowledge management. Other popular theoretical work focuses on subprocesses of KM or on the resource knowledge, but not on KM as a holistic concept. Since the aim of this paper is to substantiate KM as a whole, their work represents a natural starting point.

Probst et al. (1997) organise KM into eight building blocks: defining KM goals, identifying knowledge, acquiring external knowledge, developing internal knowledge, distributing knowledge, applying knowledge, storing knowledge, and evaluating knowledge. Due to significant overlaps, these blocks are aggregated into five elements: knowledge identification, acquisition (both external and internal), distribution, application, and preservation. They are referred to as the five elements of knowledge management to differentiate this streamlined model from Probst et al. (1997).

Even though these elements provide a solid baseline, they remain rather nebulous concepts, so that the identification or implementation of KM in practice can remain rather unspecific. Thus, this paper defines a list of criteria that could characterise KM in a public administration. A criterion is understood to be the operationalised form of one of the elements of KM. Since these criteria are derived from real-life case studies, they are tangible and of high practical relevance.

The case studies come from two sources: firstly, a systematic literature review of KM case studies in academic journals across various disciplines. These sources are scientifically validated, but may hold administrations to difficult standards given budgetary and time constraints. Moreover, they oftentimes suffer from a sample bias and other omitted variable biases. Secondly, *Google* was employed to find information on KM initiatives in OECD countries' bureaucracies. These sources, often self-descriptions or concept papers, suffer from desirability bias as administrations aim to portray themselves favourably. However, they also provide examples of realistic actions by administrations that implemented KM organically. The source type's advantages and shortcomings will be considered in the analysis, and warrant some caution.

The criteria were derived by deducing themes and KM policies from each case study using thematic analysis, considering the reliability and quality of the source. These policies were then clustered to arrive at the set of criteria: Knowledge identification can be operationalised as self-reflection/evaluation and systematic skills assessment. Knowledge acquisition comes in the form of training and the fostering of innovation. Knowledge distribution is put into practice by strengthening collaboration and guiding a conducive internal culture. The criteria under knowledge application are the institutionalisation of KM, integration of KM into operative processes, and training of KM competencies. Lastly, knowledge preservation is operationalised as off- and onboarding strategies and information management.

While this list of criteria is meant to serve as a guiding light in the implementation and identification of knowledge management in the public sector, different administrations may place a different emphasis. Hence, a few selected cases are described to demonstrate how local conditions and needs may have shaped KM policies.

1.2 Literature Review

This discussion paper most evidently contributes to the field of knowledge management studies. More specifically, it investigates KM in the context of public sector organisations and thus also relates to studies on public sector modernisation and effectiveness. As Mas-saro et al. (2015) have pointed out in their meta literature review, KM is a rather fragmented field with low barriers to entry. Consequently, there are few authors who specialise in this field, and the literature spans many academic disciplines.

KM papers can be broadly grouped into studies that analyse success and failure factors for KM, and studies which investigate the effects of KM. As for the first category, Iyengar et al. (2015) investigated real-estate franchises in the United States to find that IT usage positively impacted organisational learning by improving knowledge transfer and absorption. A work environment that satisfies employees' needs for self-determination and cognitive challenge was found to be a factor that supports KM and particularly knowledge sharing behaviour, as found by Gagné et al. (2019) and Pee & Lee (2015). Similarly, in a public sector context, Stenius et al. (2017) showed that satisfying employees' psychological needs for autonomy, competence, and relatedness enhances their knowledge-sharing behaviour. These studies are concerned with the enabling factors for KM, which, while very important, do not aid practitioners to figure out what KM should look like in practice, i.e., what it is supposed to enable. This discussion paper takes up this question and considers success factors only insofar as they can be incorporated into common KM design criteria.

Looking at the impact and effects of knowledge management systems (KMS), Massingham & Massingham (2014) propose a set of indicators which can be used to evaluate the effect of KM tools on organisational outcomes. Sykes et al. (2014) and Kim et al. (2016) show that participation in informal and formal knowledge management systems increases job performance in general. Huang & Zhang (2016), however, found that it may also increase job-hopping, a less desirable effect for employers. IT-based KM solutions are shown to positively impact process innovation according to Trantopoulos et al. (2017) in their econometric analysis of Swiss manufacturing firms. Lastly, Alsharo et al. (2017) look at the effect of knowledge sharing on team work, and find that while it positively impacts team collaboration through increased trust, it does not significantly impact the team's effectiveness. While these studies answer the question of what knowledge management can achieve, this paper steps in earlier to ask what knowledge management looks like in the first place.

Papers that simply take stock of an organisation's KMS are surprisingly rare. Massingham (2014a) comes close by describing and evaluating a set of KM tools that he implemented as part of a research project in an Australian public agency. Otherwise one may have to look to the business literature such as Probst et al. (1997), or Mader (2023) for conceptual frameworks which the authors have developed based on their experience with KM in various organisations. However, these frameworks provide little reference to exemplary real-life cases, and thus it is not always evident on which grounds the authors have constructed their framework. This discussion paper attempts to fill this gap, and gives a description of common KM practices in public sector organisations. Moreover, unlike most other studies on KM, it bases those criteria on a wide array of agencies in various countries, rather than a single institution or region. The remainder of the paper is organised as follows: Section 2

outlines Probst et al. (1997)'s work and how it is modified for the purposes of this paper. Section 3 outlines the methodology with which the case studies were collected. Section 4 is the main part presenting the results of the analysis and outlining the criteria with references to the real-life cases. Section 5 broadly analyses the context of these cases, and how the criteria can be adapted to those. Section 6 concludes.

2. Probst et al. (1997)'s Foundational Work

In their work "Managing Knowledge. How business use their most valuable resource optimally." (Wissen managen. Wie Unternehmen ihre wertvollste Ressource optimal nutzen), Probst et al. (1997) present a framework for knowledge management aimed at enhancing an organisation's performance. It centres on the concept of "building blocks" of knowledge management, which describe the various strategies involved in managing intellectual assets within an organisation. Probst et al.'s (1997) work is particularly useful for the purposes of this paper because they conceptualise KM as a holistic strategy. Other seminal works often focus either on the knowledge asset itself, such as the SECI model by Nonaka and Takeuchi (1995), or on specific sub-aspects of KM, such as knowledge adoption in Sussman and Siegal's (2003) paper.

The authors define KM as those aspects of organisational learning that can be shaped and directed through leadership, tools, and the organisation's knowledge base. Recognising that there is often a lack of clear roles, structures, and a common language surrounding KM, the authors propose a conceptual model that breaks down the key activities involved into eight interconnected building blocks. Similar to the model presented in this paper, these building blocks are designed to be practical and grounded in real-world experiences. However, unlike Probst et al. (1997), this paper provides many detailed accounts of these real-world examples to make the concepts more tangible. Furthermore, it includes peer-reviewed scientific case studies as reference points to enhance the model's generalisability and reproducibility.

According to Probst et al. (1997), before an organisation embarks on building new knowledge, it must first identify which intellectual assets it already possesses. The knowledge identification building block deals with creating awareness of where the know-how resides. This encompasses internal knowledge, such as expertise across departments or teams, as well as external knowledge from other stakeholders. The authors suggest using tools like knowledge maps, which provide a structured overview of who holds specific knowledge and where these assets are located. Knowledge identification ensures that existing resources are fully exploited and gaps identified before seeking new skills and expertise.

When it comes to learning and acquiring new knowledge, Probst et al. (1997) differentiate between knowledge acquisition and knowledge development. The former building block involves strategies for obtaining critical knowledge from outside the organisation, which may occur through partnerships, mergers, or hiring external experts. Another method could involve purchasing products such as software and databases. Knowledge development, by contrast, is the process of creating new knowledge within the organisation rather than from external sources. This building block consists of innovation, service development, and the generation of new skills and capabilities. For the purposes of this paper,

these two building blocks are considered as one, termed the element of knowledge acquisition. Thus, it concerns the generation of new skills and capabilities, regardless of whether they stem from outside or are created within the organisation. Often, these two processes go hand in hand; for instance, attending a seminar outside the agency can lead to new skills being developed within the agency.

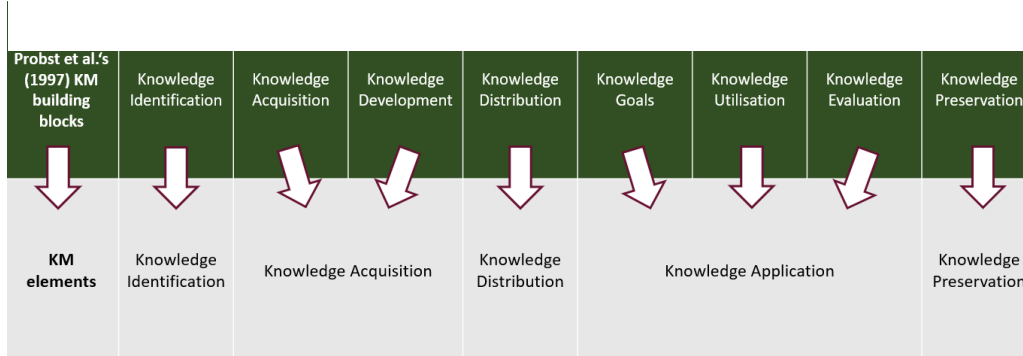
Once knowledge has been identified or acquired, it needs to be distributed throughout the organisation. Probst et al. (1997) emphasise that not everyone needs to know everything; instead, knowledge should be shared according to the needs of specific roles and departments. To distribute knowledge effectively, it is essential to have a system in place to determine who needs to know what, technology platforms to facilitate the dissemination of that knowledge, and organisational structures that promote the sharing of knowledge across silos.

All efforts in identifying, acquiring, and distributing knowledge are moot if that knowledge is not applied effectively. Probst et al. (1997) conceptualise three building blocks that this paper aggregates under the element of knowledge application. The first building block is the establishment of knowledge goals, which provide direction for knowledge management activities and align them with the organisation's broader strategy. The second building block is knowledge utilisation, which involves the purposeful application of knowledge to solve problems, improve processes, and achieve goals. This can be accomplished by ensuring that information is accessible and accurate, by integrating knowledge management activities into the regular workflow, and fostering an organisational culture that values knowledge sharing and openness. The third building block is knowledge evaluation, which assesses the effectiveness of the knowledge management strategy. Probst et al. (1997) acknowledge that this may be challenging, but tools such as skills audits and training evaluations can provide valuable insights. The three building blocks—goals, utilisation, and evaluation—are summarised under the element of knowledge application, as they all pertain to strategic considerations carried out at the managerial level. Management determines the objectives of knowledge management, the strategy, and the tools needed to achieve those objectives. Ideally, such a knowledge management strategy is periodically evaluated and readjusted if necessary.

Finally, the authors define knowledge preservation as the processes to store and update knowledge critical for the organisation's future. This is particularly relevant when employees leave, or during a restructuring. Probst et al. (1997) emphasise the need for formal systems, such as databases, as well as informal ones, such as mentoring, to safeguard this information.

Figure 1 displays the eight building blocks by Probst et al. (1997), along with the restructuring into the five elements as proposed in this paper. The reduction to five elements hopefully makes the conceptual model simpler to grasp and more tangible to practitioners in the public administration.

>> **Figure 1: Elements of KM based on Probst et al. (1997)'s building blocks**



3. Sample & Methodology

To establish criteria that exemplify a knowledge management system in public administrations, a wide range of case examples from various countries and agencies were gathered at various points in time between January 2024 and January 2025. The cases were sourced from both scientific literature on knowledge management, as well as self-descriptions, guidelines and newspaper articles found online.

3.1 Sample Collection from Scientific Literature

A systematic literature review was conducted to gather a wide range of articles on knowledge management in the public sector. The databases De Gruyter, Science Direct, Wiley, Ebsco Business Source Premier, and Repec were examined. De Gruyter is a scientific publishing house headquartered in Berlin, primarily publishing in the social sciences and some hard sciences. Science Direct is a large bibliographic database operated by the Dutch publisher Elsevier, featuring articles across all academic disciplines. Wiley is a major US-based database and publishing house. Ebsco Business Source is one of several databases provided by Ebsco, focusing mainly on business journals. Finally, Repec is an indexed database of economics papers that links to various publishers. The search query applied to the databases aimed to find any journal article in English containing the term "knowledge management" along with any of the terms "public administration", "public sector", or "bureaucracy". Alternatively, a query looking for journal articles in German containing the term "Wissensmanagement" (knowledge management) along with the adjective "öffentlich" (public)¹ was also conducted. These terms were required to appear in the abstract, title, or keywords, though not necessarily together. For example, "knowledge management" could be in the title, while "public sector" might appear in the abstract. No restrictions on publication year were applied, as knowledge management, particularly in the public sector, is a relatively recent area of research. As a result, 231 unique articles were collected. By reviewing all the abstracts, articles that empirically investigate knowledge management in public administration were selected, while purely

¹ Unlike the English query, the German query only looks for the adjective "öffentlich" because of the various ways in which the adjective may be spelled in the queried texts due to declination, e.g. öffentliche, öffentliches etc.

conceptual articles or meta-literature reviews were excluded. In the end, 98 papers remained that were both accessible and that described an empirical investigation of KM in the public sector. These papers were analysed to extract any information on specific knowledge management practices within the organisations studied. However, this was rarely the central focus of most papers, which often concentrate instead on success factors or the effects of KM, providing limited descriptions of the knowledge management systems themselves.

Table 1 presents the geographical location of the organisations studied in the sampled papers. The majority of sampled studies are conducted in Europe and Asia; however, when considering individual countries, many authors focus on the United Arab Emirates, where the government is particularly invested in public sector modernisation and digitisation (Sarker & Rahman, 2023). Australia, Canada, Malaysia, and the UK are also comparatively well-represented.

>> Table 1: Distribution of KM cases in public organisations in sampled scientific papers by region and country

Region	Frequency	Percentage	Countries
Africa	4	4.08	South Africa (2), Ghana (1), Nigeria (1)
Asia	27	27.55	Malaysia (6), India (5), Indonesia (4), Singapore (4), Hong Kong (3), Pakistan (2), China excl. HK & Taiwan (1), South Korea (1), Taiwan (1)
Australia	7	7.14	Australia (7)
Europe	30	30.61	UK (6), Finland (3), Germany (3), Greece (2), Norway (2), Portugal (2), Spain (2), Belgium (1), Czech Republic (1), Denmark (1), France (1), Netherlands (1), Serbia (1), Sweden (1), Turkey (1), Unspecified (2)
Latin America	3	3.06	Brazil (2), Mexico (1)
Middle East	16	16.33	UAE (8), Saudi Arabia (3), Jordan (2), Kuwait (2), Iran (1)
North America	10	10.20	Canada (6), US (2)
International	1	1.02	Unspecified (1)

The types of organisations investigated are listed in Table 2. Most papers study various organisations across different fields, often without specifying which agencies were involved, nor their specific activities. Among the papers that focus on a particular type of organisation, research centres and universities are popular choices, likely due to their

knowledge-intensive nature. Local administrations, such as municipalities, are also frequently studied, as are healthcare institutions, including hospitals and health departments. The wide range of organisations examined allows for the deduction of fairly universal criteria for a knowledge management system in public administrations. However, the significant number of papers that study multiple organisations without specifying which ones makes it more challenging to consider contextual factors.

Lastly, Figure 2 shows the distribution of papers by publication year, serving as a proxy for the time in which the case studies were conducted, as this information is not available in all articles. Interest in knowledge management in the public sector has clearly increased over the years, although it appears to have declined slightly more recently. The majority of articles were published between 2012 and 2020, making them a relatively up-to-date source on which to base KM criteria, given that issues such as digitisation and retirement waves, which may motivate a KMS, began to emerge in the 2000s and 2010s (e.g., O'Reilly, 2010; Dohm, 2000).

>> Table 2: Distribution of KM cases in public organisations in sampled scientific papers by organisational type

Organisation Type	Frequency	Percentage
Economics	2	2.04
Education	6	6.12
Health	8	8.16
Industry	2	2.04
Infrastructure	5	5.10
Local Administration	9	9.18
Public Sector Company	6	6.12
Research & University	10	10.20
Social Security	4	4.08
Various	11	11.22
Various (Unspecified)	25	25.51
Other	10	10.20

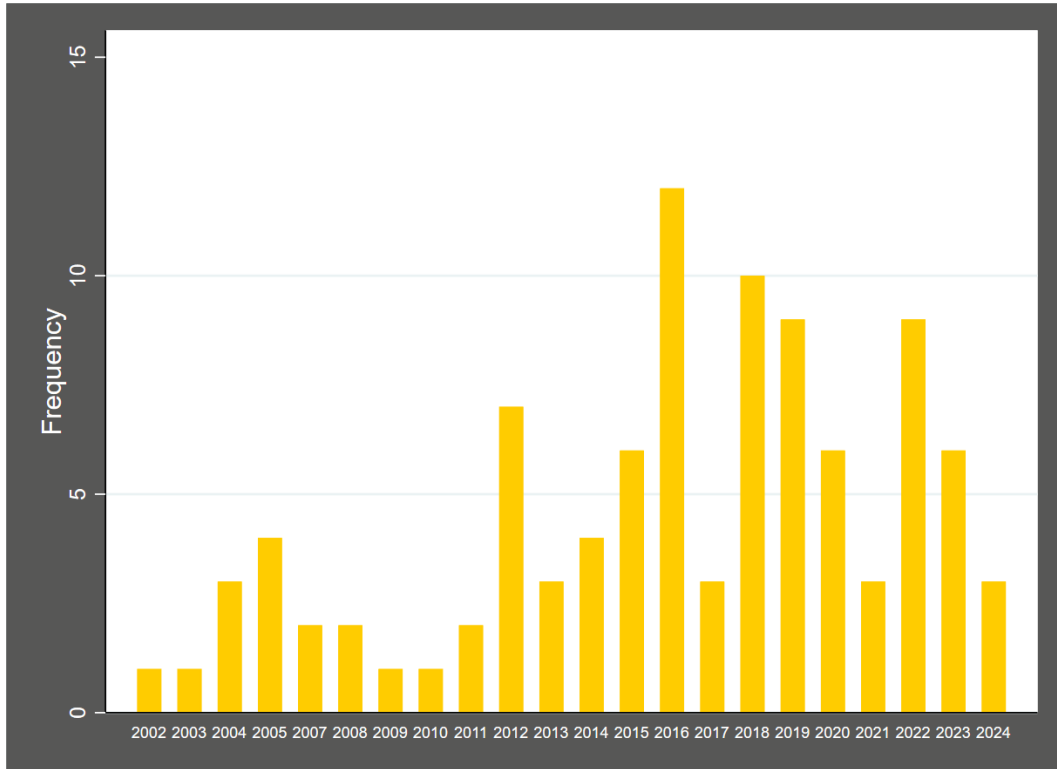
The category "Other" includes organisations in agriculture, accounting, defence, environment, foreign affairs, intelligence, labour unions, police, social services, and a study where no specific organisation is discernible.

The sample of scientific articles involving case studies of knowledge management in public administrations spans a wide range of organisations across various countries, resulting in a diverse dataset that can be analysed for KM practices. The aim is to identify criteria that exemplify a KM system, generalised enough to be applicable to any public administration, regardless of organisational structure or location. Contextual information on the type,

structure, or location of the organisation can then be used to further refine the criteria and demonstrate how they are adapted in practice.

The articles provide a relatively reliable base of information, given that the studies were conducted with scientific rigour by researchers. This reduces the likelihood of researchers portraying KM initiatives as more successful or extensive than they truly are, which can often be the case with self-reports by public administrations. In fact, many papers criticise insufficient or poorly implemented KM practices. However, the sample does come with a few caveats. Firstly, compared to self-descriptions by public agencies, most articles provide far less concrete information on KM practices. For example, they may refer to "knowledge storage systems" without detailing what those systems entail. This is usually because a detailed description and analysis of the KMS is not the primary focus of the paper. Furthermore, the authors employ a wide range of methodologies, from standardised surveys and interviews to participant observations and action research studies. Naturally, the level of detail is higher in a participant observation study than in a survey-based one. Secondly, the articles originate from various academic fields, such as information systems, business and management, and public administration. As a result, the authors tend to focus on aspects related to their discipline, without providing a holistic, interdisciplinary account of the KMS. For instance, information systems scholars typically discuss IT-related aspects, whereas management scholars might concentrate on leadership styles and HR management. Lastly, while all the articles are published in scientific journals and thus maintain a certain degree of rigour, the journals vary in academic reputation, which may be viewed as a proxy for the quality of the articles. All these factors should be taken into consideration when comparing and analysing the case studies.

> **Figure 2: Distribution of KM cases in public organisations in sampled scientific papers by article publication year**



3.2 Sample Collection from Online Sources

To complement the sample of cases from scientific articles and to address some of the issues outlined above, information on KM projects in public administrations around the world was researched directly online. A search using *Google* was conducted to identify KM initiatives in public administrations and governmental bodies across all OECD countries, as well as China, Singapore, the Philippines, South Africa, Qatar, and the United Arab Emirates. This search was performed in both English and the respective country's language. Any search results in languages other than English, German, or French² were translated using the online platform *DeepL*. A total of 37 documents describing KM initiatives in 36 different organisations were collected³.

The documents are mostly self-descriptions from the organisations on their websites, but also include some papers that were not published in journals, as well as two online news articles. A list of organisations and countries is provided in Table 3. European countries,

² German, English, and French are languages familiar to the author.

³ Some documents refer to KM initiatives in multiple organisations, while some organisations are mentioned in multiple documents.

and particularly German institutions, are comparatively over-represented due to a greater familiarity with potentially relevant case studies in that region, leading to more effective online search queries. Specifically, the familiarity with KM initiatives in German municipalities has led to a larger number of sampled cases at the municipal level compared to federal or national levels, as seen in other countries.

Given the open nature of the online research, the methodology employed most closely resembles convenience sampling, where, rather than following a systematic procedure, all available information avenues were explored. As a result, the dataset suffers from sampling biases due to factors such as language availability and search engine optimisation issues. Therefore, any claims to generalisability can only be made in conjunction with the dataset from scientific articles. However, the value of this convenience sample lies in the significant level of detail with which KM practices are described. From blog posts to extensive booklets on KM practice guidelines, public administrations everywhere take considerable care in showcasing their efforts to manage intellectual capital. Additionally, a substantial portion of the online sources were published in the 2020s or are accessible as up-to-date information on websites, as shown in Figure 3. This highlights their relevance to the research, as the descriptions of KM initiatives are not only rich in detail but also very recent.

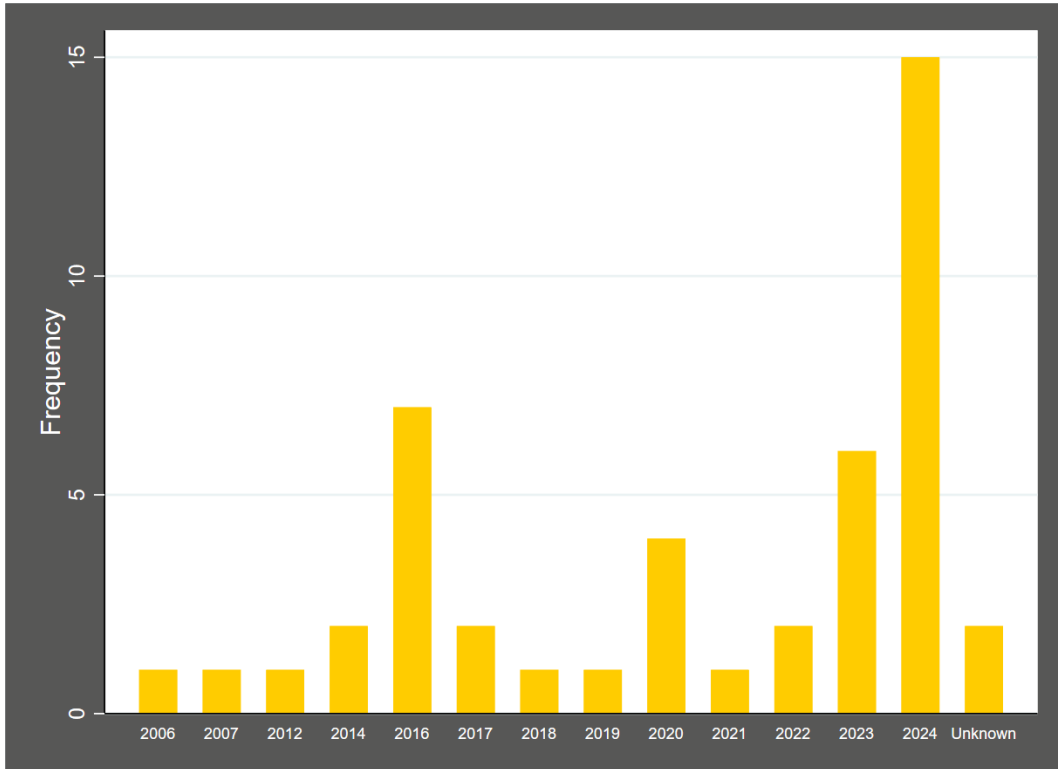
» **Table 3: List of KM cases in public organisations sampled via online search**

Country	Organisation
Australia	Australian Signals Directorate
Belgium	Ministry of Finance; Ministry of Foreign Affairs
Chile	Customs; Public Defender's Office
Germany	Federal Administration Office; City Erlangen; City Dortmund; City Dresden; City Karlsruhe; City Mannheim
Estonia	Ministry of Economics and Communication
United Kingdom	Civil Service
Hong Kong	Hong Kong Police Force
Ireland	Office of the Attorney General
Iceland	Ministry of Finance and Economic Affairs
Canada	Natural Resource Center; Treasury Board; Hydro Quebec; Center for Security Science; Tobacco Control
Austria	Ministry of Art, Culture, Civil Service and Sports; Federal Bureau of Investigation; City Vienna

Country	Organisation
Qatar	General Authority of Customs
Switzerland	State Secretariat for Economic Affairs
Singapore	International Enterprise Singapore; Agency for Science, Technology and Research; Ministry of Health
Spain	Centre for Studies and Knowledge Management
South Korea	Ministry of Economy and Finance
United Arab Emirates	Dubai Water & Electricity Authority; Federal Authority for Government Human Resources; Ministry of Cabinet Affairs and Future; Dubai Municipality
South Africa	Department for Public Service and Administration

These descriptions should, of course, be taken with a grain of salt. Public administrations may feel they are under considerable scrutiny from citizens and may therefore present themselves as more competent than they actually are. Even without this sense of public accountability, employees in bureaucracies may be prone to self-serving bias, exaggerating the scale and impact of their KM efforts compared to how they might appear to an external observer. Furthermore, particularly when it comes to guidelines and statements of intent, it remains questionable how effectively KM structures are implemented in practice. For instance, an online wiki is only useful if employees populate it with reliable and helpful information, yet the extent to which this actually happens is rarely discussed in the self-descriptions, newspaper articles, and other sources that form this sample. Therefore, great care is taken to contextualise each case, including the source from which it originates. Where available and appropriate, documents from the convenience sample are compared with those from the scientific journal sample to provide as accurate and holistic an account of KM practices as possible. However, due to the limitations of the sample, no conclusions can be drawn regarding the effectiveness of these practices. Instead, the study offers a snapshot of KM activities in public organisations across various institutions and countries, rather than a detailed examination of any singular case. All sources that make up the full sample are listed in Appendix A.

» Figure 3: Distribution of KM cases in public organisations in the online sample by source publication year



3.3 Methodology

To investigate the wide range of sources and cases, a systematic thematic analysis approach, as outlined by Naeem et al. (2023), was employed. The aim is to produce a model of KM criteria that is evidence-based and can be traced back to real examples and data. Naeem et al. (2023) suggest following a six-step approach to sift through the data and construct a model of KM criteria for public administrations. Firstly, all the sources were reviewed and any information related to how knowledge management is practised within the case study organisations was highlighted. Two examples of such highlighted quotations, the first from a scientific article and the second from a self-description, are:

The start of the microlearning was also announced on the organization's intranet just before the launch of the first lesson. (Beste, 2023)

To enable officers to communicate, share knowledge and access relevant information via a single portal, the Administration has developed a platform on its intranet. (Shbail, 2023)

All exact quotations were entered into a dataset, along with metadata about the source, such as the author, year, the institution studied, and its location. This provides insight into

how environmental and cultural factors, as well as institutional goals and policies, shape the choice of KM practices. For example, legal and cultural guidelines on information privacy may dictate what knowledge can be identified, stored, and shared, and to what extent. For the sample of scientific articles, additional contextual information was recorded, including the journal, research methodology, the journal's h-index, the academic field of the journal, and the research intention of the author. The h-index and academic field were sourced from *Scimago*. This helps to illuminate how the author's academic background may have influenced which KM practices were identified. Overall, a rich dataset of exact quotations on KM practices, along with the context in which they are situated, was constructed. In total, 758 quotations from scientific articles and 267 quotations from the convenience sample were compiled.

In the second step, the quotations are grouped under recurring and relevant keywords. Following Naeem et al. (2023)'s suggestion, the keywords were picked directly from the quotations to minimise subjective bias and interpretation during this fundamental early stage of the research. This was done by looking for words and phrases that are repeated across multiple sources and that accurately and clearly describe the KM process in question. An example would be the keyword "intranet", which appears in multiple papers and online sources.

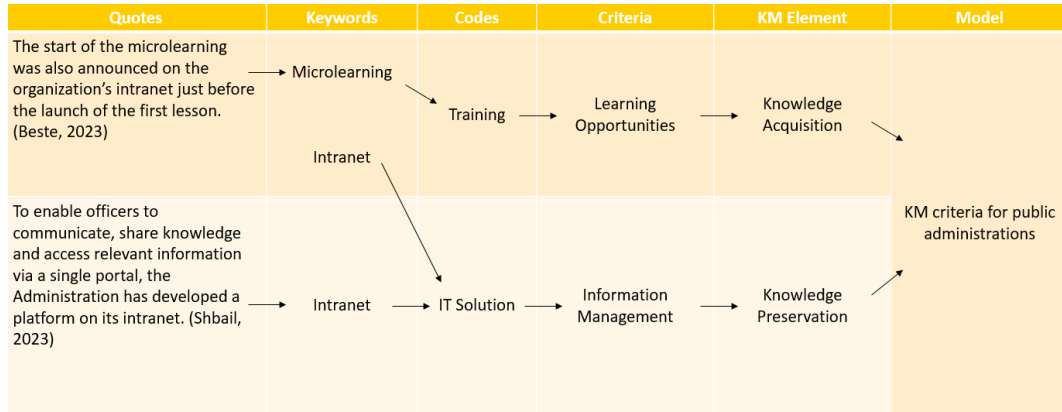
Thirdly, the keywords are summarised and condensed into codes. The code captures the essence of a group of keywords and represents the first instance where the exact wording of the data may be altered. Multiple codes may be assigned to a single quote. For example, the keyword "intranet" could contribute to the codes "IT Solution," "Social Platform," and "Database," depending on the context. The process of deriving codes helps in indexing the data, allowing quick access all case examples that fall under a particular KM practice.

The fourth step, referred to as theme development by Naeem et al. (2023), is where the KM criteria are derived. This is achieved by grouping the codes in a meaningful way that highlights more abstract practices embodying knowledge management. By continually referring back to the original quotes, it was ensured that the intention of the source material is not misrepresented. For example, the codes "IT Solution" and "Database" can be grouped under the criterion "Information Management", signifying strategies and tools used to store data and information, typically with the support of technology. Similarly, the code "Social Platform," along with codes such as "Socialising Events," could be grouped under the criterion "Strengthening Collaboration", representing strategies and tools used to facilitate interaction and encourage the sharing of tacit knowledge.

In the fifth step, the criteria were assigned to the elements of knowledge identification, acquisition, distribution, preservation, and application, as derived from Probst et al.'s (1997) work. Thus, a deductive approach is employed, where a pre-existing theoretical model informs the conceptualisation. Finally, the KM criteria, grouped under these various concepts, are integrated into a conceptual model with strong practical relevance. The criteria offer a concrete list of common KM practices in public administrations worldwide. Public agencies can use this list as guidance and inspiration, while tailoring their focus on certain criteria to suit their specific needs and constraints, just as the case study organisations in this research have done.

Figure 4 illustrates the coding and criteria development procedure with two sample quotations.

>> Figure 4: Code and criteria development example



4. Case-study based KM Criteria

Knowledge management, like other management strategies, should ultimately foster resilience and adaptability. Even organisations primarily dealing with the effects of demographic change may soon face challenges related to knowledge acquisition, such as having to learn IT skills, or knowledge distribution as new employees share their expertise. A well-designed knowledge management system anticipates these scenarios and incorporates strategies accordingly. Knowledge management must therefore address several key aspects: knowledge identification, distribution, acquisition, preservation, and application. Organisations may prioritise one element over another based on their immediate needs. For example, a public administration facing a wave of retirements might focus on capturing the knowledge of departing employees. However, this should not be the sole focus. In such a case, one might refer to a well-planned offboarding strategy, but not to comprehensive knowledge management.

Thus, this paper examines all criteria that characterise knowledge management in public administrations. A criterion is defined here as the operationalised form of the elements of knowledge management, based on the modified version of Probst et al.'s (1997) building blocks. These criteria were derived through a systematic thematic analysis of 130 case examples⁴. They can be used to assess how advanced an organisation is in its knowledge management.

To implement the criteria, public administrations can draw from a wide range of tools, such as those developed by Armutat (2002). For instance, to improve knowledge management competencies, administrations can utilise e-learning platforms, mentoring systems,

⁴ A case example is defined as every unique combination of an institution and the country it is located in.

or traditional seminars. However, this paper will not explore potential tools in further detail. Firstly, many excellent lists of tools already exist. Secondly, the selection of tools should be tailored to the specific needs and limitations of each authority, making generalisation difficult.

4.1 Descriptive Results

Table 4 presents all the derived criteria, along with the codes that comprise them. A total of 72 unique codes were identified, which were grouped into 11 criteria. The following sections will elaborate on these criteria and their components. Here, only a few outliers will be briefly addressed. Firstly, there is an especially large number of codes in the "Information Management" criterion. This is likely because, for both administrations and researchers, information management is the most tangible aspect of KM. Hardware, software, and technology are much easier to implement and identify than cultural aspects or long-term strategies. This is also reflected in the fact that 39 case study organisations had some form of IT solution in place to support KM, not to mention those that also referred to databases or document management systems. Leadership support was also frequently cited as a key aspect of successful KM. While the importance of this factor is not disputed, it is worth noting that many researchers interviewed leadership figures, who may have overstated their role due to self-serving bias. Lastly, having an individual or a team officially responsible for KM is common, particularly in administrations that actively implement and practice KM.

» **Table 4: Deducted criteria and codes with frequency of individual case examples and corresponding average h-index of academic journals**

	Case Frequency	Average h-index
Criterion: Self-Reflection		
Lessons Learned	7	145.63
Review	12	115.30
Criterion: Knowledge Audit		
Expert Locator	9	83.0
Knowledge Audit	18	78.13
Knowledge Mapping	8	82.0
Criterion: Information Management		
Business Intelligence	5	78.5
Codification	17	132.69
Database	23	91.31
Document Management	13	82.63

	Case Frequency	Average h-index
Information Management	6	48.0
Online Search Function	3	30.0
Open Information	9	58.33
Updating	9	67.75
IT Security	8	80.43
IT Solution	39	64.32
IT Support/Help	3	89.5
Metadata	7	109.0
Storytelling	3	53.0
Criterion: On- and Offboarding Strategy		
Onboarding Measures	4	33.0
Offboarding Measures	9	55.67
Criterion: Learning Opportunities		
External Expertise	18	77.65
Knowledge Sources	3	69.5
Learning by Doing	2	72.5
Mentoring	6	109.0
Qualified Employees	13	81.0
Training	32	81.73
Criterion: Fostering Innovation		
Openness to Innovation	7	105.9
R&D	4	97.33
Universities	3	47.33
Criterion: Institutionalisation of KM		
Evaluation	16	95.2
Feedback	8	90.29
Financial Resources	12	111.73
Responsibility for KM	32	83.83

	Case Frequency	Average h-index
KM Strategy	25	85.71
Marketing	10	80.21
Leadership Support	34	92.5
Pilot Studies	10	63.2
Strategic Alignment	22	80.21
Systematic KM	18	66.67
Criterion: Integration in Organisational Structures		
Bureaucratic Restrictions	9	65.11
Government Mandate	21	86.81
Integration in Working Routine	8	110.7
System Interoperability	8	61.88
KMS Relevance	9	83.67
KMS Reliability	10	80.36
KMS User-friendliness	13	57.58
Specific Instructions	10	95.5
Multimedia	3	90
Criterion: Developing KM Competencies		
Best Practices	10	122.5
KM Competencies	19	85.33
Criterion: Fostering Collaboration		
Communities of Practice	16	86.82
External Cooperation	13	91.92
Horizontal Working Structures	14	74.0
Informal Socializing	15	77.0
Knowledge Sharing	12	85.5
Social Platform	14	60.5
Social Structure	16	122.64
Socialising Events	11	59.0

	Case Frequency	Average h-index
Trust	14	79.64
Email	4	59.67
Criterion: Conducive Culture		
Attachment	7	118.67
Autonomy	9	61.14
Culture	24	87.84
Employee Involvement	9	122.67
Motivation	8	98.0
Power Considerations	6	75.44
Awards	3	29.0
Incentives	21	130.10

An explanation of each code can be found in Appendix B.

Processes for deriving lessons learned from past projects are highlighted in many high-quality studies, emphasising the importance of this aspect. However, relatively few organisations are found to practise it. This may be due to the high opportunity cost in terms of time and effort required to review and document past experiences, especially when new tasks and projects are already lined up. A similar pattern is observed with employee involvement in strategic decisions. Furthermore, a wide range of studies, including some in prominent journals, note the value of incentives for participation in KM systems, such as contributing knowledge. However, none explicitly study the impact of such rewards or examine micro-level incentive structures in detail. Lastly and unsurprisingly, the codification of knowledge is also widely recognised by many authors as a key element of KM.

In contrast, the codes "Onboarding Measures", "Online Search Function", "Universities", and "Awards" are discussed by fewer and lesser cited studies. "Awards" refer to the giving or receiving of a prize for knowledge management. "Universities" pertains to partnerships and collaborations with universities. "Online Search Function" describes the capability of an IT solution that enables users to search for and retrieve information. These three aspects are relatively specialised characteristics, which explains their comparative insignificance. Regarding the onboarding of new employees, it appears that few organisations invest as much effort in this process as they do in offboarding. While the two are certainly interconnected, there is surprisingly little information available on onboarding in the context of KM.

The codes and criteria are well distributed across organisational location and type, underscoring their universal relevance.

4.2 Analysis of KM Criteria

4.2.1 Knowledge Identification

Knowledge identification is typically the first and fundamental component of a knowledge management system. The stock of skills, information, and experiences can be discovered and recorded through some form of knowledge audit. This approach can help prevent problems arising from knowledge gaps or the departure of staff. In public administrations, two criteria comprise knowledge identification: self-reflection and knowledge audits.

4.2.1.1 Self-Reflection

Self-reflection refers to the process of reflecting on past experiences to derive actionable insights for the future. One way this can occur is through the recording of "Lessons Learned." After the conclusion of a project, the team comes together to discuss what went well and what could have been improved. These reflections and discussions are then documented for similar projects in the future.

! Public Defender's Office in Chile (Pérez Arrau, 2016)

The Public Defender's Office in Chile (La Defensoría Penal Pública, DPP) is responsible for providing legal assistance to those accused of crimes, thereby guaranteeing the fundamental right to a lawyer. Within the DPP's internal academy, attorneys analyse and review cases of individuals who were falsely accused of a crime, deprived of their liberty, and subsequently proven innocent after some time. This process helps to identify judicial errors, thereby reducing the likelihood of unjust imprisonment in the future. The so-called Inocente Project is inspired by a similar initiative called the Innocence Project⁵ in the US. The process of identifying "Lessons Learned" and analysing them occurs at an institutional level. By integrating these reviews into the DPP's internal curriculum, it is ensured that this knowledge is also actively transferred to the workforce.

! Municipalities in Germany (Schomaker & Bauer, 2020)

The importance of recording lessons learned is also emphasised in Schomaker & Bauer's (2020) study of German municipal integration offices and health departments. They found that those administrations that stored lessons learned from the refugee wave in 2015 in an accessible manner were better equipped to handle the COVID-19 pandemic.

⁵ <https://innocenceproject.org/>.

While lessons learned typically focus on specific events and projects, public administrations also conduct more generalised reviews of existing institutional structures. By periodically assessing the organisational climate and processes, they can avoid redundancies and enhance efficiency through process optimisation.

! State University of Makassar in Indonesia (Wahda, 2017)

Wahda (2017)'s study examines the relationship between knowledge management practices, organisational learning, and performance in a university in Indonesia. One of the factors that positively impacts organisational performance is the regular review of the curriculum, particularly in the non-exact sciences. The academic content should be periodically assessed in terms of market needs and current trends.

! HR Department of Healthdesk in Belgium (Taskin & van Bunnan, 2015)

Healthdesk is a public agency in Belgium responsible for health and safety matters. Taskin & van Bunnan (2015) adopt a rather critical view of knowledge management in their study of the Healthdesk's HR Department. As part of a broader initiative to modernise public administrations, a team consisting of a project leader and 15 employees identified as experts conducted an in-depth review of various HR processes, such as payroll and hiring. These processes were subsequently recorded in a database to create transparency, ensure a certain quality standard, and aid in process optimisation. Unfortunately, the project ended after a few years due to employee resistance. Employees felt less appreciated and important, as knowledge that they once held exclusively was now simplified and reduced to short descriptions available to everyone. This underscores the need for cultural changes in order to successfully implement KM, a point reflected in the criterion "Conducive Culture."

4.2.1.2 Knowledge Audit

A knowledge audit refers to the systematic identification and recording of skills and expertise within an organisation. This process assists leadership in identifying any skill gaps, and in better planning and allocating human resources. One way to conduct a knowledge audit is to ask employees to reflect on their knowledge stock independently and document it. This approach requires minimal organisational effort while yielding a great amount of self-reflection. However, in doing so, employees are more likely to identify primarily explicit knowledge and skills, as tacit knowledge is often subconscious.

! Vienna City in Austria (Stadt Wien, 2019)

The Vienna City Council launched the knowledge management initiative "Wien mag's wissen" (Vienna likes to know) in 2013. This initiative is inspired by the "Knowledge Excellence Model" developed by Mader (2023), which provides a self-evaluation questionnaire and a KM toolbox. Specialised knowledge teams have created a survey that is compiled within the respective departments. Known as the knowledge self-check, employees complete it regularly to record developments in their knowledge and skill levels.

Instead of asking employees to assess their own expertise, a knowledge audit can also be conducted by an external expert. Through interviews or observations, external parties can identify the skills and experiences that an employee possesses. If these observers have the necessary training, they may even capture more tacit knowledge than the employees themselves. However, this approach is relatively time-consuming and is therefore particularly suitable for identifying the knowledge of key personnel.

! Mannheim City in Germany (Gebler, 2017)

An external audit is often employed in offboarding processes to document the experiences of departing personnel. Mannheim City conducts workshops in which someone interviews departing staff and their successors. Depending on the scope of the knowledge, the departing staff member reviews the resulting reports and documents to ensure that the recorded content is accurate and comprehensive. Finally, all participants evaluate the workshop and their learnings to facilitate a smooth transfer of knowledge.

The results of a knowledge audit may be captured and compiled in an expert registry or a knowledge map. This helps individuals know whom to approach with specific questions. Such tools go beyond simple phone directories or organisational charts, which are often limited to official role descriptions. For example, an organisational chart may indicate who the marketing manager is, while a knowledge map or expert locator includes information that the marketing manager knows how to use a particular piece of software and speaks Spanish.

! Dubai Water & Electricity Authority in the UAE (Dubai Water & Electricity Authority, 2024)

The Dubai Water & Electricity Authority employs a tool called the "Expert Locator," which connects knowledge seekers with knowledge providers. The tool is used to build efficient teams with complementary skill sets. Furthermore, it supports leadership in succession planning by capturing the knowledge of employees who leave the organisation. By maintaining a registry of all employees and their skills, the authority relies less on external consultants and partners, instead building its own knowledge base. For its comprehensive approach to knowledge management, the Dubai Municipality has received an award from the American Centre for Quality and Excellence⁶ (Dubai Municipality, 2021), a private consultancy.

! Ministry of Finance in Belgium (Cour des comptes, 2023)

The Ministry of Finance in Belgium has adopted an innovative approach to knowledge mapping. On their virtual knowledge management platform, employees or their superiors can list all the technical skills they possess. The software then uses artificial intelligence to suggest further training and education based on the internal registry of training opportunities. The suggested training aims to help employees enhance their existing skills or learn new ones to achieve specific goals. Thus, the virtual knowledge mapping extends beyond a static snapshot; instead, it actively encourages knowledge acquisition and updates automatically.

4.2.2 Knowledge Preservation

Knowledge preservation involves documenting and recording identified and critical knowledge. Implicit knowledge, in particular, is worth preserving, as it is always individualised and cannot be easily recaptured once the knowledge holder is gone. In many public authorities, it is already common practice to document and file workflows. Knowledge management can enhance this process by further optimising documentation. Firstly, information can be stored and organised virtually through the strategic use of technology. Secondly, documented knowledge can be taxonomised using metadata, making it easier to locate. Thirdly, a knowledge management system should consider how tacit knowledge can be preserved, which is especially relevant for many administrations during the offboarding process of key personnel.

⁶ <https://www.apqc.org/>

4.2.2.1 Information Management

Technological solutions are often much more efficient and convenient for knowledge preservation and presentation than physical files and folders. It is therefore not surprising that IT products almost always feature in discussions of knowledge management. These solutions can range from simple databases to sophisticated analytical business intelligence systems. Organisations have also found ways to store rich tacit knowledge in the form of stories, making them retrievable and accessible through technology. However, two major pitfalls for digital information management solutions appear to be data security concerns and outdated data.

! Victorian Resources Online in Australia (Imhof et al., 2019)

The State of Victoria in Australia hosts an online repository for soil and landscape information that is open to the public. Data on soil and water characteristics across the state, gathered from field assessments, workshops, and surveys, is accessible via the website. Information is organised by theme rather than by department, ensuring that the database structure remains relatively constant and the information is retrievable by external users, even as departmental structures change. The project has also taken initial steps towards business intelligence, whereby data is not merely stored but also analysed. Through the use of visualisations in the form of graphs and maps, employees, researchers, and agricultural workers can gain actionable insights.

While the Victorian Resources Online platform primarily provides explicit information in the form of data, the following two examples illustrate how technology can be used to store implicit information and experiences in a meaningful way.

! International Enterprises Singapore (Nair, 2013)

International Enterprise (IE) Singapore is an agency that supports Singaporean firms in entering new international markets. The consultants acquire their knowledge through formal training as well as first-hand experience abroad. Employees regularly participate in study trips or work at one of the many centres in other countries. It is particularly these lived experiences that should be shared with other employees and clients as they prepare for engagements with institutions abroad. Consequently, management initiated an intranet in 2003 that includes a knowledge centre, where employees can upload reports on business trips and similar activities. These documents are accessible to employees across all departments. Starting in 2010, IE Singapore also encouraged employees to use storytelling as a method to share implicit knowledge. During quarterly informal social events, individuals share and present their experiences of living or working in another country. Because managers are particularly time-constrained, a dedicated team transcribes these stories on behalf of the knowledge holders and makes them available online.

! Hydro-Quebec in Canada (Dalkir, 2016)

Following a devastating ice storm in 1998, Quebec's municipal utility company, Hydro-Québec, sought to improve its preparedness for similar events in the future. Although after-action reviews were already commonplace, there were concerns about whether the organisation as a whole was truly learning from such experiences. Consequently, all documents, photos, anecdotes, and similar materials related to the event were analysed and organised into a narrative database. The focus was on storytelling, as narratives tend to have a far greater emotional impact than mere facts. Within this database, stories can now be filtered by event, team, or topic.

Stored knowledge in a database should also be easily retrievable and accessible. Standardised templates and a well-considered taxonomy can assist in structuring and categorising information and stories.

! Metadata input in a public organisation in Australia (Massingham, 2014b)

In collaboration with a large public organisation in Australia, Massingham (2014b) tested several popular KM tools in workshops. Participants' feedback on these tools varied from unnecessary to extremely helpful. One of the tools considered most impactful was the taxonomy of stored documents with standardised metadata. The organisation found it so useful that it hired external consultants to develop a metadata structure following Massingham's (2014b) research. However, for the metadata process to be successful, staff also need to be trained in how to input the metadata and which metadata to use. This was viewed as a time burden, albeit a worthwhile one.

Due to legal restrictions or an inherently more risk-averse workforce (Buurman et al., 2012), public administrations may be concerned about IT security when embarking on technological initiatives. Dalkir (2016) describes how employees of the Centre for Security Science in Canada rarely used an online knowledge repository due to security concerns. Ashok et al. (2021) found similar anxieties among employees of a public sector organisation in the education sector in the United Arab Emirates. One way to alleviate such insecurities is for the IT solution to be developed and hosted by a public organisation itself.

! Intranet Solution by the Federal Office of Administration in Germany (Bundesverwaltungsamt, 2020)

The Federal Office of Administration in Germany offers a preconfigured intranet solution called OfficeNet, which public organisations may utilise. It is an open-source software that can be customised to meet specific customer needs. All common functionalities, such as discussion forums and document management, as well as a mobile-friendly version, are available. OfficeNet distinguishes itself from other intranet solutions by guaranteeing compliance with legal security and accessibility standards. Furthermore, public agencies can contact an IT support team if they encounter difficulties with the software.

Even when security concerns are alleviated, IT information management solutions may fail due to outdated or incomplete data. Knowledge management structures become ineffective if the information they hold is not regularly reviewed and updated. The City of Dortmund (Stadt Dortmund, 2020) in Germany has rightly emphasised in a guideline paper on knowledge management that maintaining databases and similar resources requires a considerable amount of time and effort, which should not be underestimated.

4.2.2.2 On- and Offboarding Strategies

The need for a thorough offboarding strategy may prompt the implementation of a knowledge management system in public administrations with an ageing workforce (e.g., Stadt Dortmund, 2020). Faced with the retirement of many long-term employees, particularly in leadership positions, administrations seek ways to preserve and pass on the accumulated experience to newcomers. Popular methods include structured interviews and workshops where the knowledge of retiring employees is explicated and codified. Alternatively, employees can be given the time to document their knowledge themselves.

! City Karlsruhe in Germany (prognos & Behörden Spiegel, 2020)

The city of Karlsruhe in Germany has developed a structured knowledge capture process for retiring employees, which follows six steps. Firstly, relevant key personnel are identified, as the process is time- and resource-consuming and thus not implemented for every employee. In an initial conversation, the administration gauges the scope of the relevant knowledge to be captured. In cooperation with the knowledge holder, the administration then sets priorities for the knowledge transfer workshop. The knowledge transfer itself is conducted through a series of interviews, during which the retiring employee shares their technical knowledge, social networks, experiences, and procedural knowledge. This wealth of information is subsequently codified in the form of knowledge maps or process diagrams.

! Treasury Board in Canada (Dalkir, 2016)

The Canadian Treasury Board has been actively addressing how to retain the explicit and tacit knowledge of employees who are nearing retirement. To this end, pilot studies were conducted at the Ministry of Transport. The study revealed that relevant knowledge is hoarded at multiple levels: firstly, at the individual level, in the form of stories and anecdotes; secondly, at the social level, through networks and relationships; and thirdly, at the organisational level, in the form of "sagas" and structures. To ensure that this knowledge is transferred effectively, guidelines and to-do lists have been created for employees who are about to retire. A 3/3/3 rule was also introduced: Three years before retirement, the employee is given 1/3 of their working hours to capture and transfer their knowledge, in the second year 2/3 of their time, and the last year is fully dedicated to these activities.

The counterpart of an offboarding strategy is an onboarding strategy. It may sometimes appear that onboarding merely involves handing over documented knowledge to the new employee and expecting them to read and understand it on their own. However, an onboarding strategy can be much more structured and comprehensive. New employees often arrive with a high level of motivation, and the administration can strategically leverage this opportunity.

! City of Dortmund in Germany (Stadt Dortmund, 2020)

The City of Dortmund in Germany has recognised the unique and strategic opportunity that arises when new employees join the organisation. Newcomers are usually enthusiastic about their new position and eager to learn quickly. In a guideline for knowledge management, they recommend that organisations make use of the time that elapses between the decision to hire the new employee and their first day at work. During those weeks and months, employees can already be provided with information and guides to read and work through at home. On the first day of work, it is crucial to make a positive impression to increase the likelihood of the new employee remaining with the organisation. The city recommends that leadership introduces themselves in person to the new employee. Logistical matters can also be discussed and explained on the first day. The work tasks assigned to the new employee should be appropriately challenging, avoiding both boredom and intimidation. Lastly, it is important for the employee to have a mentor or partner whom they can approach for support or questions.

! Public sector in Indonesia (Prabowo et al., 2018)

The onboarding process is a very sensitive and crucial time that requires structure and oversight. Without proper guidance, employees may acquire undesirable knowledge and practices. Prabowo et al. (2018) analyse relevant reports and documents to discuss how knowledge of corruption is passed on in the Indonesian public sector and how a systematic approach to knowledge management could assist in the intentional forgetting of this tacit knowledge. The authors claim that the experience and normalisation of corrupt behaviour often begins during apprenticeships, i.e., at the start of a career.

4.2.3 Knowledge Acquisition

Knowledge acquisition refers to the learning of new information and skills, as well as the creation of new processes and products. At the individual level, this involves supporting and training people as knowledge holders. At the organisational level, the focus shifts to administrative innovation and modernisation, i.e., the development of new approaches.

In light of digital transformation and the adoption of eGovernment, many employees will need to learn new IT skills (Dunleavy et al., 2006). As technology continues to evolve rapidly, organisations should be open and willing to learn and continuously develop these skills. The shortage of skilled labour in some countries (e.g., Siegel & Proeller, 2021) also implies that employees may be required to carry out a broader range of tasks than was previously the case. Small municipalities with a high level of emigration, in particular, may have to assign more work to fewer employees.

4.2.3.1 Learning Opportunities

New skills and information may be acquired from outside the organisation through the hiring of external consultants or developed internally through training and mentoring. The former is more likely to provide genuinely new insights to the organisation. However, given that external consultants are usually employed for a limited period, the organisation faces pressure to ensure that this knowledge is transferred to its own workforce in a timely manner. Otherwise, it may become dependent on costly external expertise. In contrast, learning new skills through workforce training or mentoring arrangements can foster greater self-sufficiency and long-term learning. It is, however, important not to train for the sake of training; the content must be relevant and applicable to the employees' work. Lastly, new knowledge and skills may be directly acquired by employing individuals who possess the necessary qualifications and experience. While consultation, training and competency-based hiring emerged in the KM literature as the various ways, in which knowledge can be acquired, this new knowledge must also be effectively transferred and stored as part of an encompassing KMS. Else, such sometimes costly endeavours may not become part of the institutional knowledge stock.

! Implementation of KMS with the help of external consultants

Public administrations may choose to consult external experts for a variety of problems, and many have opted for this option to implement a KM strategy. O’Riordan (2005) describes how the Irish Office of the Attorney General collaborated with the consultancy PricewaterhouseCoopers⁷ in 2001 to develop an Information Management strategy. Müller & Kaiser (2006), who work for and with the KM consultancy sciNovis⁸, report on their collaboration with the City of Erlangen in Germany as a reference project. Additionally, the German Federal Office of Administration has its own internal consultancy that public administrations can approach for support with knowledge management (Bundesverwaltungsamt, 2024).

! Developing dependencies on external consultants

External consultants may provide a helpful knowledgeable outsider's view on an administration's problems. However, organisations should beware of becoming dependent on costly consulting services. In their qualitative study on KM in Nigerian public organisations, Pepple et al. (2022) allude to the possibility that consultants consciously hold back knowledge so that they are hired repeatedly. Aladwan et al. (2022) study ten different public institutions in Jordan and find that while four of them regularly consult external experts, the institutions lack systematic methods of determining their external knowledge needs. Thus, institutions may waste time and money on consultants they in fact do not need.

In addition to acquiring knowledge from external sources, organisations can develop it internally by learning from past experiences, collaborating with one another, and participating in seminars and other training opportunities.

⁷ <https://www.pwc.ie/>.

⁸ <https://www.scinovis.de/>.

! Public sector company in Norway (Beste, 2023)

Beste (2023) conducted an action research study to assess the effectiveness of microlearning in a Norwegian public sector company involved in construction works. Microlearning refers to short and quick digital lessons. Through this tool, employees learn about past construction projects to enhance the cost efficiency of future projects. For the pilot study, seven lessons were developed, each explaining different aspects of cost efficiency and illustrated with examples from the company's previous projects. The researcher ensured that the lessons were intuitive and engaging, with each lesson designed to be completed within five minutes. They were distributed weekly to employees on Tuesday mornings, as it was assumed that employees would be more likely to pay attention at the start of the workday. However, employees could access the lessons at any time and complete them in a non-consecutive manner. Participation was voluntary, and while the rate of completion dropped each week, nearly 50% of all sampled employees were still engaging with the lessons by the end of the course.

! Peer mentoring in a public sector organisation in Australia (Massingham, 2014b)

In his review of KM tools in an Australian public sector organisation, Massingham (2014b) found that employees were deriving great utility from a mentoring system termed "peer-assist." Before embarking on a new project, employees would be paired with colleagues who had relevant experience in similar undertakings. Through a specified process of workshops and interviews, this knowledge was then transferred. Employees highlighted two aspects they particularly enjoyed: firstly, the structured procedure helped both mentor and mentee to conduct the process efficiently and gain valuable insights. Secondly, while it was already common practice to support one another, designating a mentor gave new staff greater confidence to seek assistance.

! General Authority of Customs in Qatar (Shbail, 2023)

The General Authority of Customs (GAC) in Qatar has a unit known as the Customs Training Centre, which focuses on the development of its employees' skills. A commitment to lifelong learning opportunities is also evident in the provision of a database featuring regional training opportunities and eLearning courses. Furthermore, the GAC has created a database of trainers and experts, detailing their areas of expertise, training experience, and course evaluations. To ensure that a maximum number of employees benefit from these learning opportunities, the GAC provides written reports on all workshops and conferences.

! Planning Commission in Pakistan (Amber et al., 2018)

The Planning Commission in Pakistan, an economic development institute, has an internal training institute similar to the General Authority of Customs in Qatar. It organises both in-house and external training, as well as short-term (seminars, etc.) and long-term (higher education) learning opportunities. However, Amber et al. (2018) found in their study that employees do not view the institute favourably. They lament that learning opportunities are allocated based on favouritism, as these may involve enjoyable trips. Consequently, training is not always provided to those who may actually need it. This underscores the necessity of ensuring that learning opportunities are both relevant and reach the appropriate employees.

Rather than learning from external consultants or internal training, organisations may also acquire new knowledge by hiring employees who possess the required skills, qualifications, and experience. This is an avenue picked up by a few papers on knowledge management, but it may be explored in more detail in specialised literature on competency and hiring management strategies.

! Hospitals in the United Kingdom (Burgess et al., 2015)

Burgess et al. (2015) studied hospitals in the United Kingdom to explore how and when ward managers facilitate ambidextrous innovation when faced with patient safety incidents. They found that ward managers were more likely to facilitate innovation and reform if they had a holistic professional background that encouraged them to look beyond a narrow specialisation.

4.2.3.2 Fostering Innovation

Innovation refers to the creation of new processes and products. Fostering creativity and innovation can help to reduce the risk of becoming stuck in old ways and clinging onto outdated information. This may be particularly important in the context of a KMS which

emphasises the preservation of knowledge above all else. In contrast to knowledge acquisition through learning, innovation cannot be easily managed. Rather, it often occurs due to fortunate coincidences. However, organisations can strive to create an environment in which employees can express the necessary creativity and willingness to take risks to develop something new. Unfortunately, public administrations rarely embark on becoming more innovative and instead value continuity and stability. An alternative could be to collaborate with more innovative institutions, such as universities and think tanks.

! Municipality in Sweden (Durst et al., 2020)

Durst et al. (2020) investigated knowledge risks in a Swedish municipality. Among the significant risks the municipality faces are knowledge attrition, competency and knowledge gaps, as well as the presence of incorrect or obsolete knowledge. Another emerging risk is the reluctance to innovate, as seasoned employees are often unwilling to capitalise on the knowledge of younger and newer staff. The workforce as a whole also prefers to stick to tried-and-tested tools and methods. The authors highlight that this attitude exposes the municipality to cybercrime and hacking attacks.

! Hospitals in Portugal (Dias & Escoval, 2012)

Dias & Escoval (2012) directly examine the factors that drive innovation in Portuguese public hospitals. They find that collaboration with universities and private sector companies is common among innovative hospitals. This may indicate an "outsourcing" of innovation to institutions with a more open culture and could represent a potential avenue for other public organisations as well.

! Police Force in Hong Kong (Hong Kong Police Force, 2022)

The Police Force in Hong Kong engages in numerous partnerships with local universities to train their employees and exchange experiences. In August 2020, they collaborated with the University of Hong Kong to offer "Psychology in Policing" as part of various apprenticeship and diploma programmes. In April 2021, they renewed their cooperation with the Education University of Hong Kong to exchange teaching experiences. In the same year, they also renewed a partnership with a research and development centre to share IT knowledge. Additionally, the Police Force is working with the City University of Hong Kong and the Hong Kong Metropolitan University. These efforts have proven successful, as the Hong Kong Police Force regularly receives awards for its innovation performance.

4.2.4 Knowledge Application

Knowledge application refers to the strategic inclusion of knowledge management within an organisation's established structures. It constitutes the actual "management" of knowledge within public administration. Knowledge application is one of the most critical elements, as it transforms a variety of tools and methods into a cohesive knowledge management system. A solely tool-driven approach to knowledge management often leads to its failure (Mader, 2023). However, knowledge application is also the most challenging aspect to define and illustrate through specific criteria. Based on the case studies review, knowledge application involves the institutionalisation of knowledge management, which includes the existence of a concrete strategy, assigned responsibilities, and management support. Furthermore, the KM strategy must become tangible by integrating KM into the everyday workflows of employees. Lastly, management can enhance awareness of KM by providing training in KM competencies.

4.2.4.1 Institutionalisation of KM

Knowledge management should be embedded within the overall organisational structure. This entails that administrations develop a knowledge management strategy aligned with the organisation's broader objectives. Such strategies could be tested through pilot projects, allowing for refinement and evaluation as necessary. Moreover, knowledge management should not remain abstract but be translated into clearly defined and systematic tasks.

! Ministry of Finance in Belgium (Cour des comptes, 2023)

The management committee of the Ministry of Finance in Belgium met regularly in 2022, at intervals of three to six months, to discuss the implementation and development of their knowledge management strategy. Those directly responsible for knowledge management were also involved in the meetings, ensuring that the KM strategy remains relevant, practicable, and enjoys the necessary leadership support. In a review of the ministry's knowledge management system in 2023, the Belgian audit institution Cour des comptes stated that the ministry plans to introduce numerical performance indicators for knowledge management, such as staff turnover and training days per employee. This initiative can enhance the regular evaluation of the knowledge management strategy.

Responsibility for knowledge management should be assigned to a specific individual or team, who is known to the workforce. Some organisations may delegate this responsibility to particular departments, such as human resources or IT. However, organisational leadership should ideally be involved to ensure alignment with general management and to guarantee that the necessary resources are allocated to this initiative.

! Public Organisations in South Africa (DPSA, 2019; DPSA, 2022; Barbier & Tengeh, 2022)

Because the South African government is mandated to implement knowledge management in its departments (Barbier & Tengeh, 2022), the Department for Public Administration (DPSA) published a guideline in 2019 to assist agencies with this task. The guideline conceptualises the various forms of knowledge and the building blocks of knowledge management. It recommends that offices create job positions dedicated solely to knowledge management. Furthermore, it suggests regularly evaluating knowledge management by examining indicators such as the frequency of knowledge-sharing events. The implementation of the guideline was evaluated by the DPSA in 2022. They concluded that knowledge management often fails because leadership does not adequately prioritise it. Additionally, many organisations do not define knowledge management in an understandable manner. Barbier & Tengeh (2022) reached the same conclusion in their study of 221 knowledge management officials. They found that leadership assigns the role of knowledge manager to someone who has sufficient spare time to comply with the legal mandate, without considering qualifications or skills. Most employees do not fully understand what knowledge management is meant to achieve and do not see its relevance. This underscores the importance of both leadership support and a comprehensive knowledge management strategy.

! Australian Signals Directorate in Australia (Commonwealth of Australia 1997, 2024)

The Australian Signals Directorate (ASD) is a subordinate agency of the Department of Defence responsible for information security and intelligence. The ASD offers careers in information and knowledge management, with dedicated career paths and job titles. These career paths are divided into four streams: information and records management, registry and filing, knowledge management, and business intelligence. Within these four streams, individuals work at various management levels, whether as directors or officers. While not all public administrations will need to assign knowledge management roles as specifically as the Australian intelligence organisation, the range of job positions available demonstrates how varied and comprehensive a knowledge management role can be.

In order to introduce and embed KM in employees' workflow, an organisation can raise awareness of its significance through marketing initiatives.

! London Department for Education in the United Kingdom (Castillo-Soto & Baker, 2011)

The Department for Education in London introduced a collaborative working platform called the Information Workplace Platform (IWP) in 2008. Through this platform, staff can share and work collaboratively on documents. To increase adoption of the platform, the department launched a large-scale communications campaign. They avoided framing the IWP as a technological solution to mitigate any fear or disinterest people may have regarding IT. Instead, they promoted the IWP brand through merchandise such as coffee mugs and headphones. Additionally, they launched a persona-driven marketing campaign, featuring staff members on posters and banners with both positive and negative quotes about the IWP. These measures helped to encourage usage of the IWP and enabled employees to gain experience with the technology.

4.2.4.2 Integration in Organisational Structures

A potential difficulty when implementing knowledge management is that it adds to the existing workload of employees. They may lack the time or motivation to document knowledge and share their experiences in addition to their regular work tasks. To alleviate such concerns, KM should be integrated into existing work processes as much as possible, rather than being treated as an add-on process. Consequently, a knowledge management

system should consider any legal and bureaucratic restrictions or mandates that an administration faces and work within those parameters.

! Isaacus project in Finland (Laihonen & Kokko, 2023)

Isaacus is an online platform that serves as a centralised hub for the collection, coordination, and distribution of Finnish well-being data. The platform aims to enhance decision-making and policy formulation in the health sector. It was implemented and managed by Sitra, an independent fund that reports to the Finnish Parliament. On the administrative side, Isaacus helps to break down silos by pooling data from various authorities. Data input is facilitated through metadata editors, while end users benefit from intuitive user interfaces, data visualisation tools, and real-time large datasets. The latter is particularly useful for hospitals that need to make quick decisions. Researchers can utilise a one-stop permitting service to request access to data. A project of this scale received immense support through political mandates. Laihonen and Kokko (2023) analyse four documents, including two prime ministerial programmes and two strategy papers, which advanced Isaacus by demonstrating strong political commitment to the project. With government backing, concerns regarding data security and anonymity were addressed by amending relevant legislation, enabling the integration of social and health data. This serves as an example where the political and legislative environment is highly supportive of KM initiatives, rather than restricting it through bureaucratic regulations.

Furthermore, employees are more likely to use a KMS if it is user-friendly and reliable, and if the knowledge shared and stored within it is relevant to their work. This means that any KM tools should be interoperable with existing systems and working structures, and that instructions and information regarding KM should be specific and easily understandable.

! Secondary School in Hong Kong (Chu, 2016)

As part of an action research study, Chu (2016) supported a public secondary school in Hong Kong in implementing a knowledge management system. A digital archive was acquired as part of the KMS, designed to store relevant documents such as minutes of meetings, departmental plans, examination papers, and more. These documents should be easily retrievable through the use of metadata input. However, the middle management of the school expressed concerns that overhauling the current system could confuse teachers or diminish their motivation to learn how to use new software. Consequently, the leadership found a way to integrate the digital archive module into the existing electronic system, ensuring that the archive was interoperable with the current IT infrastructure.

! United Nations Population Fund (Butler et al., 2008)

Butler et al. (2008) developed an IT knowledge management solution in collaboration with the United Nations Population Fund (UNFPA) that focuses on usability and interoperability. The application stores and distributes the technical knowledge and experiences of employees. It is a web-based application that employs open-source technology, making it interoperable with the existing intranet and common database structures such as SQL or Oracle 10g. The application supports all common file formats and can be run on any operating system platform, including Windows, macOS, or Linux. On the front end, users are provided with an instant messaging function, knowledge organised into intuitive topics, and visualisations such as knowledge maps. Participants in the study confirmed that the system was logical and easy to understand, contributing to its success.

4.2.4.3 Developing KM Competencies

Employees should possess the necessary skills for successful knowledge management. They should, for instance, be able to critically evaluate information and understand trustworthy sources. Additionally, employees need to know how to document their knowledge in a manner appropriate for their target audience. It can be quite challenging to simplify a process to the extent that an outsider could carry it out based solely on the documentation. IT skills are also essential as part of knowledge management competence, including the ability to use wikis, databases, or online archives. Finally, the ability to work effectively in a team is equally important.

! Comaea skills platform in the United Kingdom (gov.uk, 2022)

The UK government has defined a relevant set of skills that knowledge and information management professionals should develop. These skills encompass areas such as information architecture, information management, information rights, knowledge management, library management, records management, and various generic skills. To aid in the development of these skills, professionals have access to a platform called Comaea, where they can take online courses and track their progress in real time. Some examples of the competencies listed in Comaea include categorisation and taxonomy, information security, presentation skills, automation in information architecture, user-centred content design, working with freedom of information legislation, licensing, and digital preservation. The skill framework is notable for the breadth of KM competencies identified.

Crucial competencies can also be developed by identifying best practices and following the lead of other organisations. By analysing the experiences of other institutions, organisations can learn from empirical second-hand insights on the requirements and failures of a KMS.

! Natural Resource Center in Canada (Dalkir, 2016)

The Natural Resources Centre, responsible for environmental resources in Canada, conducted a benchmarking exercise as part of the development of its knowledge management strategy. It researched KM practices in comparable US and Canadian authorities. The resulting list of best practices was reviewed and, where necessary, adjusted to be applicable to the Natural Resources Centre. Consequently, the Centre defined four key areas. Firstly, knowledge codification, to be achieved through storytelling, lessons learned, wikis, and exit interviews. Secondly, knowledge distribution, to be accomplished through working groups, internal knowledge fairs, wikis, and collaborative software. The third key area is knowledge preservation, which always requires some form of system, often digital. Lastly, the Natural Resources Centre examined incentives for employees and how to foster a KM culture. The Centre learned from best practices in other public institutions and enhanced its KM competencies by following real-world examples in their KM implementation.

4.2.5 Knowledge Distribution

The process of knowledge distribution, or knowledge sharing, has received particular attention in the academic literature (e.g., Fischer, 2018). It is an important factor in transforming an organisation from isolated knowledge silos into an integrated learning organisation. If employees do not share their knowledge, there is little to store and little for others to learn. This is especially true for tacit knowledge, which is often conveyed through informal conversations among colleagues who know and trust one another. Consequently, organisations wishing to support knowledge sharing strive to foster collaboration by creating more opportunities for social exchanges. However, it is not only the relationships among employees that affect knowledge sharing, but also the relationship between employees and the organisation itself. This relationship is shaped by the organisational culture, which is one of the most challenging KM criteria to manage and influence, yet some might argue it is the most important.

4.2.5.1 Fostering Collaboration

In order for staff members to share knowledge and information, they require, firstly, opportunities to socialise, and secondly, the necessary trust that encourages open communication. Opportunities for socialising are relatively straightforward to provide, whereas strong social ties among employees take longer to develop. However, such ties seem to be crucial in order for tacit knowledge to be exchanged readily, as employees are more likely to share their experiences and help others when they personally know the knowledge recipient (Fischer, 2018).

! State Secretary for Economic Affairs in Switzerland (Staatssekretariat für Wirtschaft, 2024)

The State Secretariat for Economic Affairs (SECO) in Switzerland operates a web portal called *regiosuisse*⁹, which collects and distributes knowledge on the topic of regional development. Decision-makers can explore financial and project databases and find inspiration for their own initiatives. The platform also provides access to training related to regional development. Most importantly, it serves as a networking platform through which agencies can identify external cooperation partners. To this end, *regiosuisse* hosts economic forums and conferences. Networking is also the aim of the knowledge communities initiated by *regiosuisse*, which bring together stakeholders from different sectors to exchange ideas on selected topics. Examples of these knowledge communities include one focused on the circular economy and another centred on digitalisation.

! United States Intelligence Community in the United States (Desouza, 2009)

Desouza (2009) demonstrates in his study that participation in a community of practice does not guarantee successful inter-organisational collaboration. The United States Intelligence Community (USIC) is a network of executive agencies responsible for the security of the United States. However, a lack of trust and a history of working in isolation significantly undermine USIC's effectiveness. Desouza (2009) finds through interviews that agencies and their staff are reluctant to share their knowledge, as this may diminish their own relevance. Each agency seeks to defend its existence and area of expertise. Moreover, staff members advance in their careers by developing information sources and therefore have little incentive to share these with others. Agencies are suspicious of each other's informants, as they all regard their own sources as the most reliable. This situation is further exacerbated by a lack of standardised methods and definitions regarding what constitutes a good information source. While public administrations can certainly benefit from inter- or intra-organisational communities of practice, a baseline of trust and shared interests may be necessary for such initiatives to be effective.

⁹ <https://regiosuisse.ch/>.

! Public sector workers in the United States (Fischer & Döring, 2022)

The imperative role of trust and a harmonious social structure is further emphasised in Fischer & Döring's (2022) quantitative study using the U.S. Federal Employee Viewpoint Survey. They find that knowledge sharing has a positive impact on job satisfaction, particularly when job-relevant information is scarce, and thus underscore the need for frequent meetings, coffee chats, and workshops. They also highlight that teams working digitally should seek ways to socialise informally, whether through video conferences, chats, forums, or wikis.

4.2.5.2 Conducive Culture

Opportunities for socialising can help create an open and harmonious culture that is conducive to knowledge management and knowledge sharing. Such a culture is characterised by a motivated workforce that feels a sense of attachment to the organisation. Employees are involved in decision-making and have a degree of autonomy in their work tasks. This contributes to a culture where employees can be creative and are not afraid to make mistakes, thereby fostering innovation.

! National Health Public Administration in Europe (Vaast, 2007)

Vaast (2007) analyses the case of a community of practice for environmental health workers known as the Environmental Health Network within a public administration in Europe. The administration is geographically distributed, with numerous local offices. This dispersion prompted the creation of a community that transcends geographical boundaries. The initiative originated from a local manager, who, along with a small IT team, oversaw the development of an online knowledge management system for environmental health staff. He received financial support from central leadership, as they hoped to modernise and digitise the administration. However, it was the grassroots nature of the operation that the local manager considered a key factor for success. He and his team encouraged staff to share their knowledge and experiences on the KMS, framing it as a friendly exchange among peers rather than a mandate from central management. Some staff members volunteered to actively contribute to the KMS until a tipping point was reached, whereby sufficient knowledge was stored in the system, making it useful for others and encouraging further contributions. The operation felt like a tool created by staff members for staff members. According to Vaast (2007), the involvement of employees in the development of the KMS from the outset was one of the critical success factors. However, this should not imply that leadership should refrain from such endeavours; as illustrated in this example, leadership support in the form of financial resources and technology is essential.

The incentives to which employees are exposed should also be considered. These may be material in nature, such as financial rewards for knowledge sharing, or psychological, such

as the satisfaction derived from altruistic behaviour. When evaluating incentives, it is important to also consider the costs employees incur. Knowledge sharing requires time and effort and may even involve relinquishing a significant competitive advantage. Such negative considerations should be outweighed by the potential benefits that employees experience when they choose to share their expertise.

! Public administration in Singapore (Kankanhalli et al., 2005)

The authors Kankanhalli et al. (2005) examine the determining factors for knowledge contribution to a digital knowledge repository, taking cultural factors into account. Their study examines several public administrations in Singapore that had implemented knowledge management initiatives. Participation in the knowledge repository was voluntary, which likely alleviated employees' concerns about losing power through knowledge sharing, as they retained control over how much they contributed. Additionally, employees were motivated by a range of material and immaterial rewards. Firstly, in organisations where knowledge sharing is uncommon, the prospect of reciprocity motivated employees to contribute; they would share their experiences in the hope that others would provide them with information when needed. Some employees are motivated simply by the desire to help others, that is, for altruistic reasons. Lastly, material incentives, such as promotions and salary bonuses, played a role in encouraging contributions. However, these rewards, even financial ones, were most effective when employees felt a sense of attachment to the organisation and its objectives. Ultimately, while incentives can certainly be impactful, they do have their limitations.

! Public university in Anhui province in China (Weng et al., 2020)

Providing material incentives to encourage participation in a knowledge management system may not be feasible for many administrations due to legal or financial constraints. Weng et al. (2020) explore an alternative form of incentive in their study of PhD scholars at a public sector university. They examine how career goal interdependence affects knowledge sharing and teamwork. When employees perceive that a supervisor favours a colleague, they may engage in knowledge-hiding behaviour driven by feelings of envy. However, this behaviour is moderated when colleagues depend on one another to achieve a shared work goal cooperatively. Conversely, if colleagues are in a competitive relationship, knowledge hiding becomes more prevalent. Therefore, by structuring teams in a way that fosters cooperative goal interdependence, organisations can create an incentive structure that does not rely on monetary or other material rewards.

5. Adjusting KM to the Institutional and Cultural Context

The criteria outlined above illustrate what aspects define knowledge management in public administration. All are important as they apply across different institutions, countries, and administrative levels. However, these criteria do not form a rigid, unchanging framework. On the contrary, public organisations can and should adapt them to suit their current challenges and opportunities. As these evolve, so should the focus of the knowledge management strategy. To illustrate this, this section highlights three criteria to show how various organisations are addressing them within their specific constraints.

5.1 Conducive culture with the use of incentives

Changing workplace culture is challenging and often takes time. If employees lack trust or motivation, establishing a sustainable knowledge management system based on knowledge sharing can take considerable time. A solution may be to offer rewards to encourage participation in a KMS, as this may yield short- to medium-term results and support cultural change. However, public administrations vary greatly in their ability to offer such incentives. On the one end are administrations which are legally allowed to pay performance bonuses and other financial rewards to employees sharing their knowledge. This is possible, for example, in Singapore, as suggested by Kankanhalli et al. (2005), or in Australia, where Massingham (2014b) explains that, following his study, staff received a cash bonus if they could demonstrate significant knowledge-sharing. However, in many other countries or institutions, providing financial incentives may be impossible due to budgetary constraints or legal restrictions. Therefore, the city of Dortmund (Stadt Dortmund, 2020) in Germany considers a reputational incentive by featuring interviews on the intranet with employees who actively share their expertise. Alternatively, as Weng et al. (2020) have shown, employees can be organised into teams in such a way, that they depend on each other's knowledge in order to advance in their careers, creating a cooperative goal interdependence. Thus, administrations can find creative ways to encourage contributions to a KMS, even when financial rewards are not an option.

5.2 Information management with the help of IT solutions

Countries vary significantly in their progress with the digital transformation of public administrations. This process may be hindered by regulations, employee training, and financial resources. As a result, although there are numerous digital systems and solutions for knowledge management, not all administrations have the capacity to implement them. Adobor et al. (2019) suggest that public organisations in Ghana might benefit more from optimising their physical file and folder storage systems rather than investing in expensive electronic data management systems, given their financial limitations. However, economically more advanced countries also face challenges in digitisation. Germany, for example, struggles to keep pace with technological development (Mergel, 2021). Thus, in some cases, the introduction of knowledge management systems coincides with the digital transformation of public administration, as seen in the city of Dortmund (Stadt Dortmund, 2020). The IT solutions recommended in German examples are fairly standard, such as databases, wikis, and intranets. They assist in the modernisation of an administration that still often relies on paper. At the same time these technologies are simple enough that it is feasible to train the workforce to use them. The United Kingdom, ranked as one of the

leading countries in digital government (OECD, 2024), has adopted more advanced KM tools, such as the Comaea KM skills tracker described in the preceding chapter. Information and document management does not necessarily require advanced IT solutions but should align with the available skills and resources within the organisation.

5.3 Institutionalisation of KM through leadership support

A knowledge management system is more likely to succeed with strong leadership support. However, employee involvement in its implementation is also crucial. The balance between leadership direction and employee participation varies between institutions. Localised and smaller organisations may benefit more from decisive leadership in introducing KMS. Chu (2016) highlights the critical role of a school principal in Hong Kong, who persistently advanced KMS despite initial skepticism and resistance from teachers and staff. Similarly, Burgess et al. (2015) emphasise the importance of ward managers in UK hospitals for fostering organisational learning and innovation. In contrast, larger, decentralised organisations, especially in cultures that value autonomy, may resist top-down decisions regarding knowledge management. For instance, the introduction of process management at the Healthdesk in Belgium failed because employees felt controlled and deprived of their knowledge (Taskin & van Bunnan, 2015). They resented the top-down implementation, responding with absenteeism, falsifying information, or overloading the knowledge repository with data and comments. Conversely, Vaast (2007) describes a successful bottom-up KM initiative in a geographically dispersed organisation. Central management provided resources, while a local manager drove the initiative forward. This illustrates how both employee involvement and leadership support can contribute to the success of a KMS.

6. Conclusion

This discussion paper deduces and discusses the criteria that characterise a knowledge management strategy in public administrations worldwide. These criteria were derived from a large sample of case studies, which are also discussed and described in the paper. The methodology involved a systematic, multi-step thematic analysis of all documents. The sample consisted of both scientific papers discussing knowledge management in the public sector, as well as self-descriptions and other non-scientific accounts collected through online research. A total of 98 scientific articles and 37 non-scientific sources, collected between January and January 2025, comprise the sample.

The paper finds that public administrations tend to practise knowledge identification through methods such as knowledge audits and self-evaluations. They store their knowledge using information and document management systems, particularly digital solutions, as well as through offboarding strategies. New knowledge is acquired through internal learning opportunities, such as training, and external learning opportunities, such as collaboration with external partners. Additionally, some institutions strive to become more innovative, although this remains relatively uncommon. All this knowledge is applied through the institutionalisation of knowledge management, which involves integrating KM into daily workflows, while considering any legal and bureaucratic restrictions or

mandates, and developing KM competencies. Knowledge distribution is achieved by fostering collaboration both internally and with external partners, and by promoting an open and motivated organisational culture.

Given the geographical and institutional scope of the reviewed case examples, the derived criteria possess a high degree of universal relevance. For practitioners, they offer a checklist of items that could be implemented as part of a knowledge management strategy, providing more specific guidance than some other common conceptual KM models. For researchers, the criteria can aid in assessing KM maturity and in defining what a comprehensive KMS should entail. As these criteria are based on real case examples in the public sector. They are tried and tested, making them more tangible than purely theoretical models.

While these criteria can describe what a knowledge management system looks like in practice, they do not indicate which criteria are the most effective and impactful. In fact, as the discussion of the case examples has shown, the implementation of these criteria can sometimes have unintended consequences. Therefore, further research is needed to explore which aspects contribute to a successful KMS. Ideally, such studies would employ experimental methods and large sample sizes, as many papers, including this one, are affected by some degree of omitted variable bias or small sample sizes. Unfortunately, obtaining data that would allow for an econometric evaluation of KMS in the public sector is very challenging.

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Appendix A: List of all Sample Sources

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Appendix B: Description of all Codes

! Self-Reflection

- » Lessons Learned: A process of reviewing past projects and endeavours, evaluating them, and recording any insights and advice for similar projects in the future. Particularly the codification and sharing of the lessons is important, and differentiates the code "Lessons Learned" from after action reviews, which do not specify a codification or knowledge sharing-strategy.
 - » Example quotes:

For example, lessons learned from exercises and workshops are reformulated into protocols for future exercises or events. (Girard & McIntyre, 2010)

Insbesondere im Projektumfeld sollen Projektreviews zwingend durchgeführt werden. Das so dokumentierte Wissen kann dann vor Projektbeginn in Projektreviews genutzt werden. Erfahrungen aus vergangenen Projekten sollen so in neue Projekte einfließen; aus den Erfahrungen abgeschlossener Projekte soll systematisch gelernt werden. Aktuell werden hierzu auch erste Erfahrungen mit Wiki-Systemen gesammelt. (Kaiser & Müller, 2007)
- » Review: Analysing and evaluating established procedures and structures, as well as past projects (after action reviews). Such a review may be triggered by failure or shortcomings.
 - » Example quotes:

Under the supervision of their project leader, each of these employees first had to conduct an in-depth review of the procedures related to a specific HR process that they mastered (recruitment, payroll, career mobility, etc.). (Taskin & van Bunnan, 2015)

[...] monitor the implementation of the Strategy, review achievements and assess results,[...] (Shbail, 2023)

! Knowledge Audit

- » Expert Locator: A tool or strategy used to query and identify colleagues or external stakeholders who have knowledge on a particular topic.

- » Example quotes:

In the context of sharing of interpretations, the critical issue was knowing who to talk to in other agencies (Desouza, 2009)

In it [the INAP social network] you will find people like-minded in professional interests and experiences. (INSTITUTO NACIONAL DE ADMINISTRACIÓN PÚBLICA, 2024)

- » Knowledge Audit: The identification of knowledge and skill assets in an organisation, and/or the identification of knowledge and skill needs using techniques such as interviews, surveys, internal reflections, etc.

- » Example quotes:

[...] the process to develop a water action plan included interviews with representatives of water basin organizations, their partners, and relevant government officials. (Roy et al., 2014)

Au SPF Finances, une analyse Swot des connaissances a identifié les forces, faiblesses, opportunités et menaces dans ses administrations générales. (Cour des comptes, 2023)

- » Knowledge Mapping: A popular tool for a knowledge audit, which involves graphically displaying the locus of particular knowledge assets.

- » Example quotes:

A general picture of the Knowledge Map was generated (Chu, 2016a)

Das Wissen der Mitarbeiterinnen und Mitarbeiter wird im Anschluss systematisch aufbereitet und mittels einer Mindmapping-Software in eine Wissenslandkarte überführt. (prognos & Behörden Spiegel, 2020)

! Information Management

- » Business Intelligence: Tools to collect, analyse and store (big) data.

- » Example quotes:

Additionally, there were tools for analysing and visualising data in the researcher's workspace. (Laihonen & Kokko, 2023)

The Business Analysis function is responsible for complex business intelligence work including providing detailed business intelligence, and undertaking specialist research and analysis. (Commonwealth of Australia 1997, 2024)

- » Codification: The explicating of information and knowledge in text or numbers, stored as analogue or virtual documents and files.

- » Example quotes:

Finally, management can reduce codification effort by deploying KM systems (including EKR) that facilitate entry of knowledge and thereby reduce the time and effort needed to codify knowledge. (Kankanhalli et al., 2005a)

Mission and study trips were organized to gain a better understanding of the market, and build market and industry knowledge. This resulted in the generation of key reports such as mission reports, study trip reports, and, market and industry information reports, trade, and economic briefs. (Nair, 2013)

- » Database: A collection of data that is stored on a computer, which can be extracted and queried.

- » Example quotes:

Digital Archive (Figure 7) was purchased from an outside developer and customized for the School's specific needs to store and retain all the important documents, including minutes of departments and committees, examination papers, development plans, annual programme plans, etc (Chu, 2016b).

In fact, the initial phase of Force KM efforts has been centred around building Force level databases containing critical knowledge as important as policies and procedural manuals. (Hong Kong Police Force, 2024)

- » Document Management: A system to organise documents and files, usually electronically.

- » Example quotes:

Documents are mostly prepared or edited in groups rather than edited individually, so version is necessary to track changes in the process of editing. All versions of documents can be traced, searched and retrieved. (Chu, 2016b)

Dokumentenmanagement optimieren Dazu gehören u.a. die weitere Reduktion der Suchzeiten, die Optimierung der Verschlagwortung und die Einführung einer vereinheitlichten Ablagesystematik (z.B. Standardaktenplan). (Kaiser & Müller, 2007)

- » Information Management: An umbrella term to describe the collection, storage, organization and retrieval of codified information and data.

- » Example quotes:

In addition to the "InfoPort," there has been initiative from the clusters to develop a Laboratory Information Management System to collect and exchange data during CBRN events (Girard & McIntyre, 2010)

OfficeNet verfügt über ein ausgeprägtes Meldungs- und Nachrichtenmanagement, inklusive einer möglichen Quittierungsfunktion. (Bundesverwaltungsamt, 2020)

- » Online Search Function: A function to query and retrieve data and information online or electronically.

- » Example quotes:

About 33% used search tools for searching text. The following specific tools were mentioned in this category iSpace; Enfish; 7sDoc; Copernic, Google Desktop. (Chaudhry, 2013)

The platform provides "search" service known as "E-Consultant", which helps the members browse the website and find the required information quickly and easily (Federal Authority for Government Human Resources, 2017)

- » Open Information: Making information and data accessible to external stakeholders, such as citizens.

- » Example quotes:

The purpose of the Isaacus project was to make this data accessible and available for different uses. (Laihonen & Kokko, 2023)

Sponsored by MOH, managed by CHI and supported by all public healthcare clusters and community institutions, CHILD is open to anyone (e.g. local and international healthcare institutions, industry players, academia and the public) keen to share, learn and collaborate. (CHI Learning & Development System (CHILD), 2024)

- » Updating: The updating of data and information in databases and other electronic information systems.

- » Example quotes:

In regular intervals, for example once a year, new good examples of cost-efficiency measures are continuously included into the existing lessons, and new lessons can be created as new topics emerge (Beste, 2023)

Um die Pflege und Fortschreibung der Prozesse systematisch sicherzustellen, sollten zunächst passende Zyklen festgelegt werden, in denen die Prozesse erneut betrachtet werden. (Bundesverwaltungsamt, 2023)

- » IT Security: Strategies to ensure that information systems, in particular databases, are secure to hacking attacks and data theft, and ensure confidentiality.

- » Example quotes:

To provide security guarantees to its employees: explicit confidentiality protection and implementation of measures to make visible the collective security involved. (Feijoo et al., 2015)

The survey showed that the knowledge portal was hardly used at all and the interviews showed that most people felt the content was not up-to-date and they had concerns over the security of the environment. (Dalkir, 2016)

- » IT Solution: An umbrella term for any software used in the context of knowledge management.

- » Example quotes:

[...] enhance the use of information technology to increase the efficiency of information processing and coordination (Mayr & Boenigk, 2019)

To encourage expertise building and knowledge sharing, IE Singapore has developed an in-house intranet, IEX (Integrated Employee Exchange) in 2003 with a dedicated portal (Knowledge Center) to capture market and industry intelligence (Nair, 2013)

- » IT Support/Help: An institutionalised support unit or person to assist employees having technological difficulties.

- » Example quotes:

When users encounter problems regarding system usage, they can post such problems on an e-discussion, and technical professionals or other users will provide their opinions or suggestions to help users solve the problems. (Huang, 2020)

Die Nutzung des Portals ist für Beschäftigte des Geschäftsbereiches BMI ohne Schulung möglich und wird durch die BIC-Administration der jeweiligen Behörden bzw. das CC PM im BVA betreut. Fragen können jederzeit an prozessmanagement@bva.bund.de gerichtet werden. (Bundesverwaltungsamt, 2023)

- » Metadata: The categorisation of information and documents using tags for easy retrieval.

- » Example quotes:

The contents of the EKR were in the form of documents (Word or pdf format) and presentations (PowerPoint format). Keywords and other metadata were used to index and retrieve the content. Therefore, the contents were fairly structured. (Kankanhalli et al., 2005a)

- » Storytelling: Capturing knowledge, in particular tacit knowledge, by recording narratives and stories.

- » Example quotes:

As illustrated below, innovative methods to capture knowledge can be developed from staff's initiative and creativity: we have the scrapbooks so every individual in the house will have a very nice scrapbook with their story . . (Soo et al., 2018)

recognizing the importance of such tacit knowledge, KMD implemented storytelling in 2010 as a way to capture and codify these experiences overseas when they return to Singapore. To date, KMD has documented more than twenty stories (Nair, 2013)

! On- and Offboarding Strategy

- » Onboarding Measures: Processes to introduce new employees to their new job and integrate them into the workforce.

- » Example quotes:

Unlike skills commonly depicted in the conventional literature of knowledge management, the knowledge of corruption is generally developed in a secretive manner such as by apprenticeship as part of the normalization process. (Prabowo et al., 2018)

Der Tag der Stellenbesetzung - demnach der erste Arbeitstag - sollte mit einer Begrüßung durch die Führungskraft und einer Vorstellungsrunde beginnen. Weiterhin sollten organisatorische Einzelheiten wie z.B. die Besonderheiten des Gebäudes, die Einrichtung des Arbeitsplatzes und der Anwendungssoftware geklärt werden. Insbesondere die ersten Informationen zu der Tätigkeit und die erste Aufgabe sollten sinnvoll ggf. durch Paten*innen

vermittelt werden und mit einem adäquaten Schwierigkeitsgrad beginnen. (Stadt Dortmund, 2020)

- » Offboarding Measures: Processes to organize the departure of an employee to ensure a smooth transition.

- » Example quotes:

The exit interview tool was used on multiple occasions over the course of the project. Exit Interviews were held with members of the project executive committee, as well as with staff within each of the work sections. The interviews were conducted, transcribed, organised into key themes, and presented to the individuals involved in the relevant job, i.e. the incumbent and successor. (Massingham, 2015)

Since 2013, Customs has been implementing a knowledge management program that seeks, in the first instance, to capture and transfer the expertise of older Customs employees nearing retirement. [...] (Pérez Arrau, 2016)

1 Learning Opportunities

- » External Expertise: The acquisition of knowledge from external stakeholders, usually by hiring consultants or inviting speakers.

- » Example quotes:

To acquire knowledge, the organizations need to invite experienced experts. This means that in order to assess the knowledge acquirement, the most dominant aspect to be observed is inviting experienced experts. (Wahda, 2017)

In July 2001, consultants PricewaterhouseCoopers were commissioned to develop an Information Technology Strategy (O’Riordan, 2005)

- » Knowledge Sources: Tools and methods, be it human or technical, that organisations employ to gather information.

- » Example quotes:

The Internet was also believed to be either “very important” or “most important” in developing and gaining knowledge in the Ministry, (Syed-Ikhsan & Rowland, 2004)

The feature of "Government Expertise" provides a variety of strategic studies prepared by the federal entities in collaboration with leading consulting firms, which have been broken down and classified by sector. (Federal Authority for Government Human Resources, 2017)

- » Learning by Doing: A process where job-related knowledge is acquired through direct experience and observation at work.

- » Example quotes:

According to most, the employees learned their job-related tasks on their own through learning by doing, observation, and/or from discussion with colleagues. (Amber et al., 2018)

- » Mentoring: A process where experienced colleagues guide and advice less experienced ones, either through a formal arrangement or informally.

- » Example quotes:

they felt the tool's formal process, particularly the emphasis on recording the discussion and making this available to others, was helpful. The tool's main benefit was it gave seekers, particularly new staff, the confidence to approach more experienced staff for help, as conducting peer assists became a cultural norm, and something that was considered a nice thing to do. (Massingham, 2014)

[...] Shadowing someone in your own or an external organisation can also be a good way to learn. [...] (gov.uk, 2024)

- » Qualified Employees: Employees with the relevant competencies for the task at hand, which benefit the organisation's knowledge management by introducing new skills and sharing their expertise with others.

- » Example quotes:

We further found that managers whose professional specialization required them to transcend the narrow boundaries of clinical specialisms were particularly likely to facilitate OA [organizational ambidexterity]. However, pressures towards a compliance culture may drive out exploration at an individual level. (Burgess et al., 2015)

State-of-art facilities, top-notch collaboration partners along with proactive and dedicated facilitators are the primary features that attract world class researchers and research institutions from all over the world. (Ogiwara, 2013)

- » Training: Educational initiatives that enhance employees' knowledge and skills to meet evolving organisational needs and encourage open-mindedness and lifelong learning. These may come in the form of seminars, workshops, courses, on-the-job training, etc.

- » Example quotes:

it happens through public authorities who provide statutory education via the web, the attendance of seminars, courses, training, talks with consultants who are more up-to-date, the sharing of new knowledge at workplace meetings, own studies or studies in groups (Durst et al., 2020)

regiosuisse bietet auch Weiterbildungsveranstaltungen an. Das Angebot umfasst die regiosuisse-Konferenz, die alle zwei Jahre stattfindet, regelmässige Einstiegskurse und Vertiefungskurse zu Fach- und Methodenwissen. (Staatssekretariat für Wirtschaft SECO, 2024)

! Fostering Innovation

- » Openness to Innovation: An organisational and individual attitude to accept and develop new ideas, practices and technologies, thereby fostering creativity and flexibility.

- » Example quotes:

... managers were asked on different occasions to spread the culture of innovation and involving their employees in driving innovation forward, by using knowledge and technology ... (Ashok et al., 2021)

- » R&D: Explorative knowledge acquisition through research undertaken, often in collaboration with external stakeholders.

- » Example quotes:

A particular way of transferring knowledge to industry is through R&D joint projects with firms (Berbegal-Mirabent et al., 2012)

- » Universities: Universities often feature as R&D partners for organisations to enhance innovation therein.

- » Example quotes:

The general characteristics of the innovation system in the health sector include the close cooperation between hospitals and universities, the increasing role of outsourcing to private sector and the participation of the user as co-producer of innovations (Dias & Escoval, 2012)

The Force also seeks sustainable partnership with local universities and research institutes. Since August 2020, the HKPC has collaborated with the University of Hong Kong in delivering the subject of “Psychology in Policing” in the Professional Diploma Programme in Leadership and Management in Policing for Probationary Inspector and the Professional Diploma Programme in Policing for Recruit Police Constable. (Hong Kong Police Force, 2022)

! Institutionalisation of KM

- » Evaluation: Assessing the effectiveness and efficiency of knowledge management processes through key performance indicators (KPIs), surveys, self-assessment tools etc., and adjusting the KMS accordingly if needed.

- » Example quotes:

Also, despite there being key performance indicators (KPIs) for the measurement within the plan or strategy for KM within the majority of organisations (60%, 6 from 10), those organisations had not been measuring those indicators and taking the preventive or corrective actions in the case or even of deviation. (Aladwan et al., 2022)

The Knowledge Management Maturity Assessment was performed through a self-assessment tool [...] (DPSA, 2022)

- » Feedback: Collecting employees' opinions and experiences with aspects of the KMS and using it to refine the knowledge management system.

- » Example quotes:

Survey initiated by KM directorate to determine whether staff believe: (1) the KM task force structure is appropriate; and (2) the KM task force has the necessary skills to implement KM (Rasmussen & Hall, 2016)

Lister les tâches précises à effectuer pour intégrer les nouveaux agents, notamment concernant l'acquisition des connaissances spécifiques à la fonction, et donner ensuite du feedback pour recueillir l'expérience vécue par le nouvel agent et par ceux qui l'auront accueilli, afin d'améliorer au besoin la procédure d'intégration (Cour des comptes, 2023)

- » Financial Resources: The monetary assets allocated to support knowledge management processes and initiatives.

- » Example quotes:

Moreover, even after being authorized, the EH KMS initiative lacked critical resources for it was decentralized while resources were centrally distributed in the Public Administration. (Vaast, 2007)

[...] allocate the financial and human resources needed for the delivery of programmes and projects. (Shbail, 2023)

- » Responsibility for KM: Employing or designating specialized KM professionals, such as a KM steering committee, a KM team or a Chief Knowledge Manager, who oversee the implementation and governance of the KMS.

- » Example quotes:

Under these initiatives, it inaugurated knowledge management unit (KMU) which was given the three main tasks: to provide evidence-based knowledge on vital health issues to all knowledge workers; to analyze a sort of Big Data from all the information systems of the departments for discovering and extracting knowledge for improving operational efficiency; and, finally, to drive the strategy formulation, strategy implementation, and strategy evaluation of the Health Department. (Razzaq et al., 2019)

GKIM professionals work in a range of disciplines, including information rights (Data Protection, Freedom of Information, Environmental Information Regulations), records management, information management, librarianship, knowledge management, information architecture and governance. (gov.uk, 2024)

- » KM Strategy: A formalized roadmap to implementing and governing knowledge management, specifying any tools or processes used, that ideally is communicated and agreed upon among all stakeholders.

- » Example quotes:

Regarding knowledge management within the entrepreneurial universities and industrial collaborations (Table 2), ex-ante, all partnerships defined the mechanisms (patents and licences) to protect knowledge and intellectual outcomes in initial agreement (Guerrero et al., 2019)

Mit Wien mags wissen hat die Stadt auf Basis des Knowledge Excellence Models Instrumente entwickelt, die uns dabei helfen, mit der Ressource Wissen ganz gezielt umzugehen (Stadt Wien, 2019)

- » Marketing: The process of promoting awareness, engagement, and adoption of KM practices through targeted communication, branding, and outreach efforts. It ensures the discoverability and accessibility of KM initiatives.

» Example quotes:

First, management can raise the perceptions of knowledge edge self-efficacy among valued knowledge contributors by indicating to them that their knowledge contribution makes a significant difference to the organization. (Kankanhalli et al., 2005a)

Poster zur täglichen Präsenz (internes Marketing): Zur Bewusstseinsbildung für Wissensmanagement und für das interne Marketing bezüglich der Aktivitäten zur Wissensbewahrung werden die Wissenslandkarten auf ein großes Format (z.B. DIN A0) geplottet und an exponierten Orten als Poster aufgehängt. (Müller & Kaiser, 2006)

- » Leadership Support: the active involvement of senior management in fostering a KM culture and knowledge-sharing, providing necessary resources, and spotlighting the importance of the KMS.

» Example quotes:

This tool was not implemented during the project because middle management would not support it. (Massingham, 2014)

The active participation of senior management in KM strategy development entails participation at meetings to ensure KM initiatives will result in concrete and measurable results and provide the “big picture” guidance throughout the strategy development process. (Dalkir, 2016)

- » Pilot Studies: small-scale experimental initiatives designed to test the implementation of KMS so as to assess feasibility, refine the system, and foster buy-in from stakeholders.

» Example quotes:

[...] Funding was available for pilot projects testing new kinds of technological approaches and workshops were arranged to build trust and commitment among actors. (Laihonen & Kokko, 2023)

Eine der anfänglichen Aufgaben, neben der Einführung und der regelmäßigen Aktualisierung der Software, wäre es ein Pilotprojekt zu initialisieren. Es sollte zunächst mit einzelnen Fachbereichen begonnen werden, in welche eine starke Notwendigkeit für eine Wissenssicherung herrscht (Stadt Dortmund, 2020)

- » Strategic Alignment: deliberate integration of KM initiatives with an organisation's overarching strategic goals to ensure that KM efforts are not standalone activities but are embedded within broader institutional policies.

- » Example quotes:

The NHS Information Strategy has provided a framework for the development of a KM infrastructure to support these strategies (Bate & Robert, 2002)

Using international best practice as a guide, DEWA developed a KM Policy, KM Strategy and KM Approach that are aligned with the Dubai Government Strategic initiatives, the DEWA Corporate Strategic Plan and DEWA policies. The ultimate goal is for DEWA to be a sustainable learning organisation. (Dubai Water & Electricity Authority, 2024)

- » Systematic KM: a *deliberate and conscious* approach to capturing, organizing, sharing, and applying knowledge within an organisation, involving guidelines, roles and tasks, goals, tools etc.

- » Example quotes:

With regard to knowledge generation and sharing, most respondents believed that the current workflow, desk file, job manual procedure and ISO 9002 that the Ministry is implementing have a great potential. (Syed-Ikhsan & Rowland, 2004)

Since 2001, the Force has been implementing KM, first as a project started by the Service Quality Wing, then from 2006 onwards as a perpetual capacity building endeavour of Police College (HKPC) seeking to embed KM as part of the organisational learning culture. (Hong Kong Police Force, 2024)

! Integration in Organisational Structures

- » Bureaucratic Restrictions: the formal rules, regulations, and hierarchical structures that limit the flexibility and efficiency of knowledge management within an organisation

- » Example quotes:

Participants saw the constraints presented by the many rules and regulations surrounding the Organization's core business as potential barriers to innovation. (Ferguson & Blackman, 2019)

Staff are required to have knowledge of and compliance to relevant legislative frameworks, government decision-making and Australian Signals Directorate's mission and policy requirements. (Commonwealth of Australia 1997, 2024)

- » Government Mandate: the formal directives and strategic initiatives set by national governments to enforce or encourage knowledge management practices in public sector organisations. These mandates often align with broader national development strategies.

- » Example quotes:

The mandate from government informs and strengthens the Organization's approach to innovative practice and supports a strong managerial, interventionist approach. (Ferguson & Blackman, 2019)

The overall purpose of this document is to ensure that the SA government meets its objectives as outlined in the NDP Vision 2030 to use its "knowledge" to compete internationally. (DPSA, 2020)

- » Integration in Working Routine: incorporation of knowledge management practices into daily workflows, ensuring they are not perceived as disruptive or burdensome.

- » Example quotes:

30 respondents said that FOI had become well embedded in their organisation's culture or that staff understand their responsibilities. So much so in fact that it had become 'part of everyday working life' (Deverell & Burnett, 2012)

- » System Interoperability: ability of different information systems and infrastructures to exchange, integrate, and utilize data across organisations.

- » Example quotes:

Difficulties were experienced in implementing KM in an environment where local practice differed in the subsidiaries. (Rasmussen & Hall, 2016)

Um die beschriebenen Prozesse auch später möglichst umfassend und gewinnbringend nutzen zu können, entwickelten die Stadt Dresden und Picture gemeinsam Schnittstellen für das städtische Redaktionssystem – zum einen für die Übertragung von strukturierten Prozessinformationen auf die Web-Seiten der Stadt und zum anderen zur einheitlichen Behördenrufnummer 115. (Kommune21, 2018)

- » KMS Relevance: the extent to which a Knowledge Management System is perceived as useful, adaptable, and valuable to its users, providing clear benefits.

- » Example quotes:

A higher degree of perceived usefulness leads to a higher degree of KMS use. (Ali et al., 2024)

One of the key features of this template was the analytical process needed to identify first of all, whether the best practice could simply be applied "as is" without any modification. If not, then the specific changes needed to ensure its successful adoption within the Canadian government were identified (Dalkir, 2016)

- » KMS Reliability: the trustworthiness, accuracy, and consistency of a Knowledge Management System

- » Example quotes:

To do this well, data consistency is crucial for the benchmarking exercise. (Edwards & Taborda, 2016)

[...] Hier erfolgt die Eingabe der Informationen in eine Datenbank überwiegend durch Fachkoordinatoren*innen. Die fachliche Richtigkeit ist demnach gegeben. Allerdings ist die Schwierigkeit bekannt, die bereits eingestellten Informationen regelmäßig auf Ihre Aktualität hin zu überprüfen (Stadt Dortmund, 2020)

- » KMS User-friendliness: the ease with which employees can navigate, access, and utilise a Knowledge Management System. A user-friendly KMS should be intuitive, efficient, and accessible across different devices while ensuring seamless integration into daily workflows.

- » Example quotes:

Easy accessibility was assured by providing the microlearning on a flexible platform without extra log-in, allowing access from both PC and mobile devices. Short lessons and intuitive layout also contributed to smartphone-friendliness. (Beste, 2023)

[...] Es kann bei Bedarf individuell angepasst und erweitert werden, so dass ein Einsatz in unterschiedlichsten Einrichtungen mit verschiedenen organisatorischen sowie arbeitskulturellen Entwicklungsständen möglich ist. (Bundesverwaltungsamt, 2020)

- » Specific Instructions: clear, actionable guidelines within knowledge management efforts

- » Example quotes:

one of the first things that pinned my interest when I arrived at the organisation is there seemed to be very lax protocols about what gets written in an incident, what constitutes an incident; how we speak about clients and things like that (Soo et al., 2018)

A lack of clear definition of KM within the context of the organisations has resulted in the function not having effective governance guidelines (DPSA, 2022)

- » Multimedia: the use of various digital formats, such as videos, animations, and interactive visualisations, to enhance user engagement with KMS

- » Example quotes:

From 2010, a series of online visualizations, including animations, video and interactive landscape panoramas, was developed on VRO. (Imhof et al., 2019)

Working with the technical divisions to create short films that document common technical processes. These films can be used with new joiners, existing employees and non-technical staff as an effective way to learn new skills. (Dubai Water & Electricity Authority, 2024)

! Developing KM Competencies

- » Best practices: benchmarking, collaboration with experienced institutions, and structured knowledge sharing to learn from others' KM successes.

- » Example quotes:

Collaboratives seek to facilitate through discussion of locally designated 'best' practice and the subjective experiences of participants, and using these to inform shared guidelines and protocols. (Bate & Robert, 2002)

Both internal and external benchmarking was carried out in order to help the corporate KM group at Natural Resources Canada (NRCan) develop and implement a KM strategy. (Dalkir, 2016)

- » KM Competencies: the need for structured training and skill development in knowledge management practices, both initially during implementation, as well as continuously.

- » Example quotes:

[...] the training activities for understanding the functioning of system and the benefits it provides will improve the perception of the ease of use and its usefulness in general. (Feijoo et al., 2015)

Darüber hinaus, sollte das Wissensmanagement-Team auch Schulungen – unabhängig ob Präsenzveranstaltung oder Webinare bzw. E-Learning-Module- zur Verfügung stellen, um Beschäftigte mit der Nutzung der Software vertraut zu machen. (Kaiser & Müller, 2007)

! Fostering Collaboration

- » Communities of Practice: institutionalised networks to facilitate knowledge sharing among individuals with common interests.

- » Example quotes:

[...] the theme of the CoP ought to be sustainable development (Harvey et al., 2013)

Wissensgemeinschaften, von regionsuisse initiiert und geleitet, ermöglichen den Akteu-rlInnen der Regionalpolitik praktisches Know-how, Erfahrungen und Strategien auszutau-schen und neues Wissen zu schaffen. (Staatssekretariat für Wirtschaft SECO, 2024)

- » External Cooperation: cross-organisational collaboration to enhance innovation and improve knowledge exchange, formally or informally.

- » Example quotes:

[...] administrations that were prepared and that displayed a high quality in their network cooperation with other administrations and with civil society, on average, performed sig-nificantly better in their respective crises. (Schomaker & Bauer, 2020)

At Biopolis and Fusionopolis, the co-location of public and corporate organizations offers unprecedented opportunities for the integration of scientific capabilities. Not only does it foster close linkages by stimulating interdisciplinary research, it also acts as a catalyst in forging international links 56 with renowned scientific institutions through research and graduate training partnerships (Ogiwara, 2013)

- » Horizontal Working Structures: organisational frameworks that facilitate knowledge sharing and collaboration across departments, teams, and hierarchical levels.

- » Example quotes:

Most of the networks the MRCT works with (it is part of its missions to start interdiscipli-nary networks, i.e. cross-departmental ones, enable them to develop, give them the in-formation and communication tools such virtual ‘gatherings’ of people require, help them acquire the needed methodologies, etc.) will adopt a collective decision making body, generally called the ‘steering committee’. (Lelièvre & Souillot, 2004)

In agilen Arbeitsformen bestehen Gelegenheiten wie der Daily- bei welchen morgens rei-hum gegebenenfalls bei einer Tasse Kaffee, Fragen wie - was hast du gestern gemacht?

was hast du heute vor? und welche Dinge hindern dich? was kann ich zur Lösung beitragen? beantwortet werden, können zu einer neuen Kommunikation beitragen. In dieser Atmosphäre wird auch Wissen „ganz nebenbei“ vermittelt und neue Lösungsansätze und Hilfestellungen durch die Kolleg*innen gegeben (Stadt Dortmund, 2020)

» Informal Socialising: unstructured interactions that facilitate knowledge exchange and trust outside formal work settings

» Example quotes:

individuals acquired information about the organization and the knowledge of their colleagues through informal networks such as lunch hours and after-work gatherings (Yao et al., 2007)

many federal agencies established reading clubs to encourage their employees to have access and benefit from the experience of others (Federal Authority for Government Human Resources, 2017)

» Knowledge Sharing: the exchange of explicit and tacit knowledge are exchanged among individuals, teams, and organisations

» Example quotes:

Interessanterweise sind alle angegebenen Modi der Wissensteilung kommunikative oder kodifizierende Weitergabeformate. Es wurde nicht genannt, dass Wissen durch das gemeinsame Durchführen eines Arbeitsschrittes oder durch Vorführen einer Tätigkeit weitergegeben wurde (Wissensteilung durch Sozialisierung). (Fischer, 2018)

» Social Platform: digital environments that facilitate knowledge sharing, collaboration, and interaction among employees

» Example quotes:

Some of the most popular of these activities are discussion forums where each member (medical and nonmedical) presents their experiences, so that knowledge can be passed on to all members of the organization. (Najmi et al., 2018)

Connect, contribute and share - The Social Professional Network of Public Administration (INSTITUTO NACIONAL DE ADMINISTRACIÓN PÚBLICA, 2024)

» Social Structure: relationships, networks, and norms that shape knowledge-sharing behaviors within an organization. Strong social ties and trust may encourage individuals to share experiences and expertise, while hierarchical or rigid structures may create barriers

» Example quotes:

His decision of not to put barriers between him and his people gives him the opportunity to gain tacit knowledge directly from his people by means of informal discussions and direct interactions. He then turned the tacit knowledge into explicit knowledge such as a development plan for his regency (Prabowo et al., 2018)

In order to increase the adoption of the lessons to be learned, the content of the database was also deployed in employee training sessions which involved role playing: managers and operational agents were asked to switch roles in order to gain an appreciation of the challenges faced by them (Dalkir, 2016)

- » Socialising Events: structured gatherings designed to facilitate knowledge exchange, relationship-building, and trust among employees

- » Example quotes:

if the work is characterized by complex and non-routine tasks, leaders should consider to actively encourage the development of a TMS. One approach to directly achieve these benefits is to establish frequent and regular face-to-face experiences among team members, such as weekly team meetings or collective further education (Mayr & Boenigk, 2019)

Zum einen wird darauf geachtet, dass Wissensmonopole vermieden werden. Im Rahmen von Besprechungen, Protokollierungen sowie flächendeckenden Vertretungsregelungen wird versucht, das Wissen auf möglichst viele Köpfe zu verteilen. In Bereichen, in denen viele Beschäftigte die gleichen Tätigkeitsfelder haben, ist dieses größtenteils unproblematisch. (Stadt Dortmund, 2020)

- » Trust: influences willingness of employees to share and exchange knowledge

- » Example quotes:

when generalized trust is strong, codification effort may not be a deterrent for EKR usage by knowledge contributors. (Kankanhalli et al., 2005a)

- » Email: a fundamental tool for knowledge sharing and management

- » Example quotes:

the participants listed email management tools as the most commonly used tools. (Chaudhry, 2013)

Generell E-Mail-Verkehr optimieren: Das neue Medium bietet weitreichende Möglichkeiten, führt aber auch schnell zu Überlastungen oder Missbrauch. Praxisnahe Richtlinien können hier Abhilfe schaffen, z.B. zur Formulierung des Betreffs, Auswahl der Empfänger oder Beschränkung auf 1 Thema pro E-Mail. (Kaiser & Müller, 2007)

! Conducive Culture

- » Attachment: employees' emotional and professional connection to their organisation, which may influence their willingness to participate in a KMS

- » Example quotes:

It appears that if knowledge contributors do not share the interests of the organization, even organizational reward may not motivate them to contribute their knowledge to EKRs (Kankanhalli et al., 2005a)

- » Autonomy: granting employees participation in decision-making, and control over their learning and professional growth
 - » Example quotes:
 - it was not mandatory to complete all lessons in sequence, and the overview gave the participants an idea of their progress and made it possible to complete previous lessons at a later stage. (Beste, 2023)
 - Die Abteilungen entscheidet aber selbst, wo sie am liebsten ansetzen will. (Stadt Wien, 2019)
- » Employee Involvement: actively engaging employees in decision-making, tool development, and process improvement as relates to knowledge management, so as to enhance adoption and effectiveness
 - » Example quotes:
 - Senior executives should work towards employee participation in decisions related to knowledge initiatives to ensure higher levels of adoption. (Ashok et al., 2021)
 - Staff were also encouraged to explain what knowledge management meant to them, through a competition. (Shbail, 2023)
- » Motivation: employees' willingness to share, create, and apply knowledge, which may be affected by internal and external drivers
 - » Example quotes:
 - Alternatively, the lack of knowledge sharing might, in many cases, be characterised as disengagement rather than hoarding. (Henttonen et al., 2016)
- » Power Considerations: how hierarchical structures, authority dynamics, and individual agency shape knowledge sharing and withholding.
 - » Example quotes:
 - First, employees feel they are being dispossessed of their knowledge, especially of the autonomy and capacity for initiative they used to have regarding the way they disseminated and enriched this knowledge. (Taskin & van Bunnan, 2015)
- » Awards: formal recognition of excellence and commitment to knowledge management practices
 - » Example quotes:
 - Launched in April 2008, the IWP [Information Workplace Platform] is the only example across UK government of large scale implementation of a SharePoint platform to support collaborative working, and has been recognised with an award for "e-Government Excellence" for innovation and excellence in the public sector. (Castillo-Soto & Baker, 2011)
 - Dubai Municipality has achieved a global victory in the field of knowledge management, by obtaining the Excellence in Knowledge Management Award from the American Center for Quality and Excellence (APQC). (Dubai Municipality, 2021)

- » Incentives: financial (such as bonuses, promotions, or salary increases) or non-financial (such as recognition, improved work assignments, or personal appreciation) rewards to encourage employees to participate in a KMS

- » Example quotes:

When attractive rewards and adequate technical support are provided, individuals may be willing to expend extra effort to transcend barriers imposed by a restrictive organizational structure to participate in KM (Pee & Kankanhalli, 2016)

Furthermore, the strategy refers to the importance of providing incentives to staff to share their knowledge. In this regard, it is recommended that knowledge management be considered an additional core competency in PMDS and that staff be specifically rewarded for their contribution to knowledge management initiatives through the Merit Awards Scheme. (O’Riordan, 2005)

Bibliografische Information der Deutschen Bibliothek

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