Knowledge-Based Management in Regional Destination Management Organisation

Emrah Okic

Author
Emrah Okic

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This master degree thesis examined the current state of knowledge-based management in the Helsinki Tourism Regional Destination Management Organisation (DMO). The aim of the thesis was to study the current state of knowledge-based management in the Helsinki DMO, to find challenges and opportunities in knowledge-based management, and to produce development proposals that could make a concrete contribution to knowledge-based management in DMO.

The study was carried out as a qualitative case study. For the theoretical framework, information was gathered from literature, studies and theses, articles and material found online. The primary material was collected through semi-structured thematic interviews. A total of nine interviews were conducted, in which representatives of the City of Helsinki's experience economy were interviewed.

The results of the study are intended to provide an understanding of the current state of knowledge-based management and present identified challenges and opportunities. The challenges were identified in organisation, lack of resources and know-how, and the utilisation of information. The opportunities were identified in the use of cooperation and knowledge-based management for the development. In addition, 10 development proposals were introduced as proposals to the sponsor for the future projects.

The study revealed that the roles of the tourism ecosystem actors and the division of responsibilities from the point of view of knowledge-based management should be clarified. The terminology of knowledge-based management should be harmonised for communication purposes. The city of Helsinki's tourism developers must increase their expertise in knowledge-based management and related methods and tools.

Keywords
Knowledge-based management, fact-based decision-making, knowledge management, data, information, destination management organisation

Contents

1. Introduction

This thesis carried out as a research development task, where the contractor was the Tourism Unit of the Helsinki City Executive Office's Economic Development Division. The location of the Tourism Unit in the organisation chart of the Helsinki City Office is presented in Appendix 1. The Tourism Unit was established (during 2021) to manage and develop Helsinki more systematically as a tourist destination. The tasks of the Tourism Unit include promoting the City's tourism and developing the operating environment sustainably and intelligently in cooperation with the tourism ecosystem. The unit develops knowledge-based management related to tourism, sustainable tourism operating models, product development and new innovations in close cooperation with the entire tourism ecosystem and Helsinki tourism companies and networks. In addition, the unit cooperates with the new City's Marketing and Invest-in company and other tourism-related functions of the City of Helsinki. (City of Helsinki, 2021)

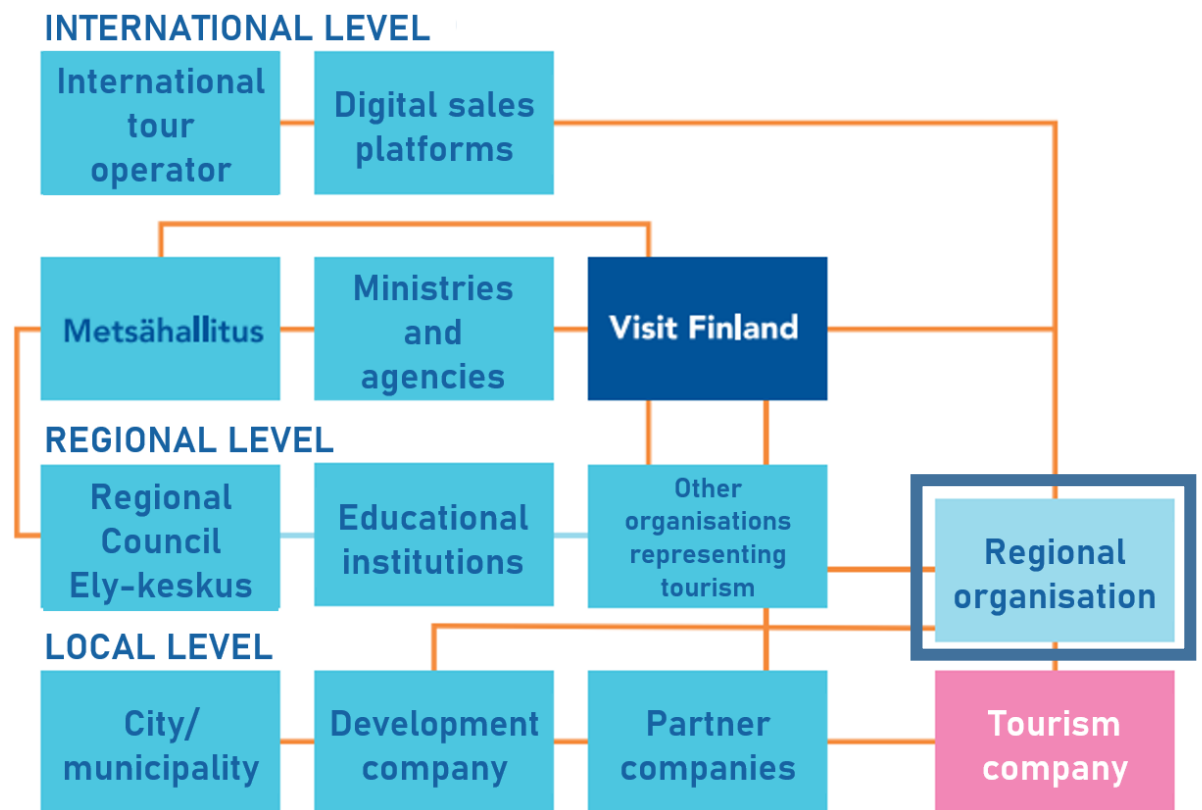Figure 1. Stakeholders related to the activities of the regional destination management organisation at different regional levels. (Business Finland 2019)

Regional destination management organisations represent a regional tourism party in Finland. Regional destination management organisations promote and develop tourism together with other stakeholders at different levels (Figure 1). The role of the regional desti-

nation management organisation is to engage tourism companies in developing and up-dating the provincial tourism strategy so that the strategy serves businesses as well as possible and supports the development of their business. Tourism Unit of the Helsinki City Executive Office's has a role of the destination management organisation and is responsi-ble of the development of tourism in Helsinki.

The thesis was carried out as part of a development collaboration between Haaga-Helia and the City of Helsinki, in which a master's student team of three produced development proposals for the client's challenges as part of their Master's thesis. The topic was se-lected according to the student's interest and willingness to learn about the development opportunities proposed by the client. From the point of view of the client, the topic is cur-rent and important, as knowledge management has become one of the most important ar-eas for developing tourism in the city. Several projects are under way and planned at both city and national level, as part of which tourism knowledge-based management is pro-moted. Knowledge-based management has also been identified as one of the key tasks of the Tourism Unit and part of the City's strategy. In addition to the City, Visit Finland has investigated the national model of tourism knowledge-based management. The topic was in line with the student's desire to learn. Researching knowledge-based management in the tourism industry, outside authors own field (ICT), was developing and interesting.

1.1 Objectives, delimitation, and research questions' setting

The aim is to produce development proposals for identified challenges which client can use to develop their operations. In this case, the aim is to study the current state of knowledge-based management in Helsinki Destination Management Organisation and produce feasible and exploitable proposals for the development of knowledge-based man-agement.

Knowledge-based management is part of a broader knowledge management framework (Figure 2) consisting of an information management and knowledge-based management area. The prerequisites for the utilisation of data are maintained and developed in the in-formation management, for example through data management. Knowledge-based man-agement, on the other hand, is an area that aims at fact-based decision-making and ena-bling it. This thesis focuses on the research and development of the knowledge-based management area, delimitation is illustrated in Figure 2. Knowledge-based management may involve other management and operating models due to the client's broad industry field. Models and concepts outside knowledge-based management are excluded from this work.
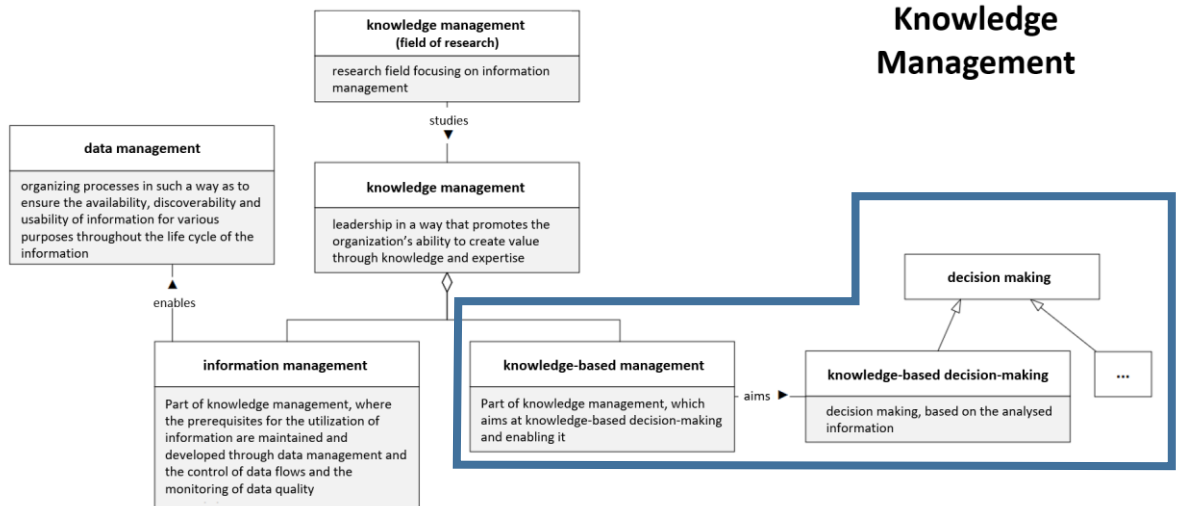
Figure 2. Knowledge-based management as part of the knowledge management (Finto 2018)

The table below shows the research questions of this thesis, research data and methods used to answer them.

Table 1. Thesis' research questions, research data and methods

Research questions	Research data	Methods
1. What is the current state of knowledge-based management in the Helsinki's Destination Management Organisation?	Material provided by sponsor	• Interviews • Support and guidance of the principal
2. What are the challenges and opportunities in current state knowledge-based management?	Literature	• Interviews • Support and guidance of the principal • Current status analysis • Challenges and opportunities analysis
3. How can knowledge-based management be concretely developed in the Tourism Unit?	Literature	• Interviews • Support and guidance of the principal • Final workshop

The theoretical framework for knowledge-based management and related concepts will be opened up in the following chapter.

2 Theoretical framework

2.1 The data-information-knowledge-understanding-wisdom hierarchy

In order to open the topic of this thesis, it would be a good idea to open up key terms and describe the broader framework within which knowledge-based management is located. In a highly digitalised world, companies and public actors are under increasing pressure and competition to utilise and refine data and information into value and business benefits. The information can be viewed from the point of view of its processing level as the value chain. This information value chain is described in the so-called DIKW-value chain (data-information-knowledge-wisdom) (Figure 3). The DIKW model presented by Rowley (2007) has added an understanding level presented by Ackoff (1989) between the level of knowledge and the level of wisdom.
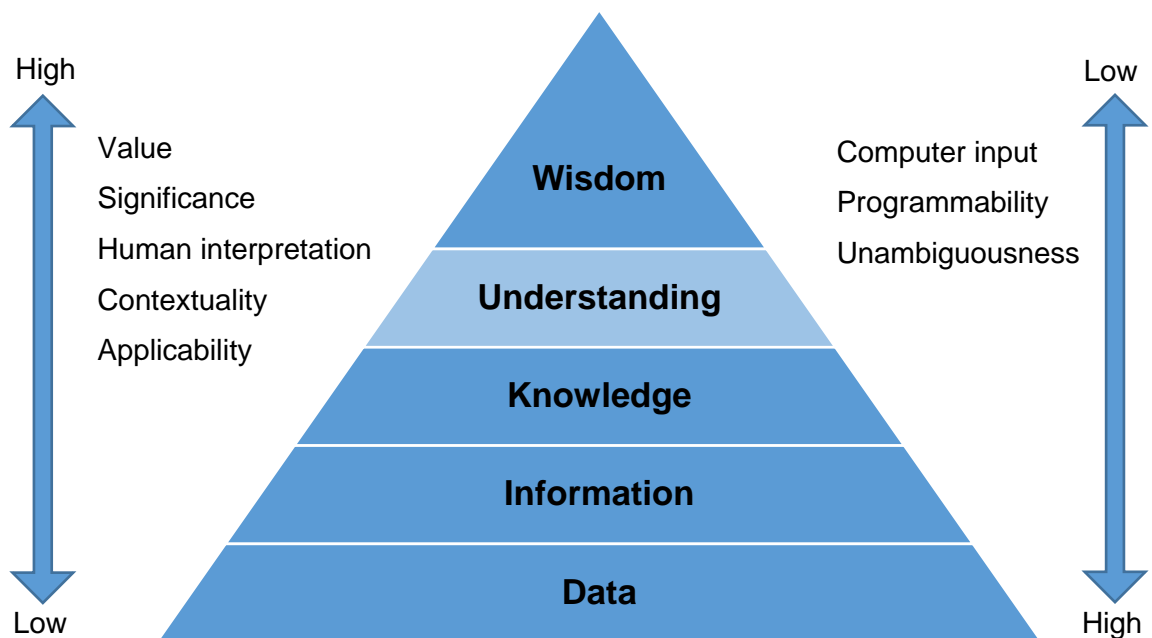
Figure 3. Information value chain model (derived from Rowley 2007 & Finto 2018)

The lowest level that may not be interpretable is the data. Data refers to potential information consisting of characters and symbols (Poikola & Kola & Hintikka 2010, 14.). Markkula and Syväniemi (2015) describe data well by analogy; data is like ore hiding in the soil: its existence and storage do not produce value, but the value is generated through processing. Data can be processed and processed for better use into information. Through information, organisations aim to explain data and interpret better factors and phenomena affecting the operating environment (Choo 1998). Markkula and Syväniemi (2015) recognize the ability of today's organisations to create value by refining data into information that serves business and decision-making. It is essential to identify and select

data that is valuable for implementing the strategy, increasing competitive advantage, or developing the business (Markkula and Syväniemi 2015).

The difference between information, knowledge and understanding can be illustrated by opening up what these levels produce and what questions they answer. Information produces descriptions of things, and answers questions that begin with who, what, when, where and how many. Knowledge provides an answer to how-to questions and knowledge is provided with guides and instructions. A level of understanding explains causes and conveys explanations and answers to why questions. (Ackoff 1989)

According to Ackoff (1989), information, knowledge and understanding increase efficiency, which can be measured by the amount of resources needed to achieve that goal. The value of a goal is not relevant for determining efficiency, but it is important for determining effectiveness. According to Ackoff, effectiveness is the estimated efficiency, in other words, effectiveness is the efficiency multiplied by the value of the end result or goal. (Ackoff 1989)

Wisdom is at the top of this value chain. Wisdom, according to Ackoff, is an estimated understanding. Wisdom deals with values and requires human interpretation and judgment, which is why it can increase effectiveness. Wisdom, which pursues ideas and value-based goals, is a characteristic that distinguishes a person from a machine. Ackoff (1989).

This hierarchical (DIKW) value chain model shows different data processing categories and value levels, from data to wisdom. In addition to this model, Zeleny (1987) proposes, the last level of enlightenment in which socially accepted, respected, and mandated knowledge of truth is achieved.

In addition to the value chain classification, information can also be viewed from the perspective of explicit information and silent information. Information that can be stored, processed, communicated, and shared uses the term explicit information. The opposite of explicit information is silent information, which is personally conscious or unconscious information accumulated through experience. (Laihonen et al. 2013, 18.)

For the synthesis of the levels and classifications of information described above, it can be concluded that knowledge is a diverse concept. Most important is to understand that the higher one goes in the pyramid the higher the value rises. The DIKW-model's concepts may be intermixed in everyday use according to the context or expertise of the user.

2.2 Knowledge-based management as part of Knowledge management

In the introduction paragraph, in Figure 3, which illustrates the delimitation of the thesis, knowledge-based management is described as part of a broader set of knowledge management. Knowledge management is a very new aspect of management that began to be discussed in Finland in the 1990s about the important role of rapid ICT development and information in the success of organisations (Laihonen et al. 2013, 6.). However, knowledge management is a well-established subject in Finnish higher education institutions, which has been taught since the early 2000s. Knowledge management is an activity in which knowledge and competence contribute to an organisation's ability to create value. Knowledge management is branched into two areas: knowledge-based management and information management.

Information management enables data management that focuses on the quality, availability, discoverability, and security of data throughout the data lifecycle. The aim of information management is to ensure the prerequisites for utilising information. Information management controls the movement of data from source to destination according to the specified data process. The term used for this movement of data is data stream. (Finto 2018)

The term "knowledge-based management" aims to describe the ambiguous concept caused by the increasing amount of information among practical users. It is quite common that, when talking about knowledge-based management, people are talking about a broader knowledge management, including the information management. According to Saarteinen et al. (2018) the knowledge-based management is the conscious management and operating model, in which information is brought in as analysed to be used in the decision-making process. According to Laihonen et al. (2013) the knowledge-based management refers to processes by which the organisation's knowledge is processed and utilised in the management and decision-making of the organisation's operations. The following paragraph opens up the process of knowledge-based decision-making.

2.2.1 Knowledge-based decision-making

It is important to understand the data-based value creation process i.e., how to create value in business processes and environments. Several process models are available to support knowledge-based decision-making. Their difference can be seen between the purpose of use and the perspective. Some models emphasize data management, while others emphasize the process of processing data. (Laihonen et al. 2013, 24.) The process presented in this paragraph (Figure 4) is applied process from two processing processes

presented by the Government's Tietokiri project and Kosonen (2019). The implementation phase proposed by the Tietokiri project was added to the end of the Kosonen process. The existence of this stage in the process is justified because the results of the decision taken cannot be assessed without the implementation of the decision. The evaluation of the results of the decision will support learning and future decision-making situations.
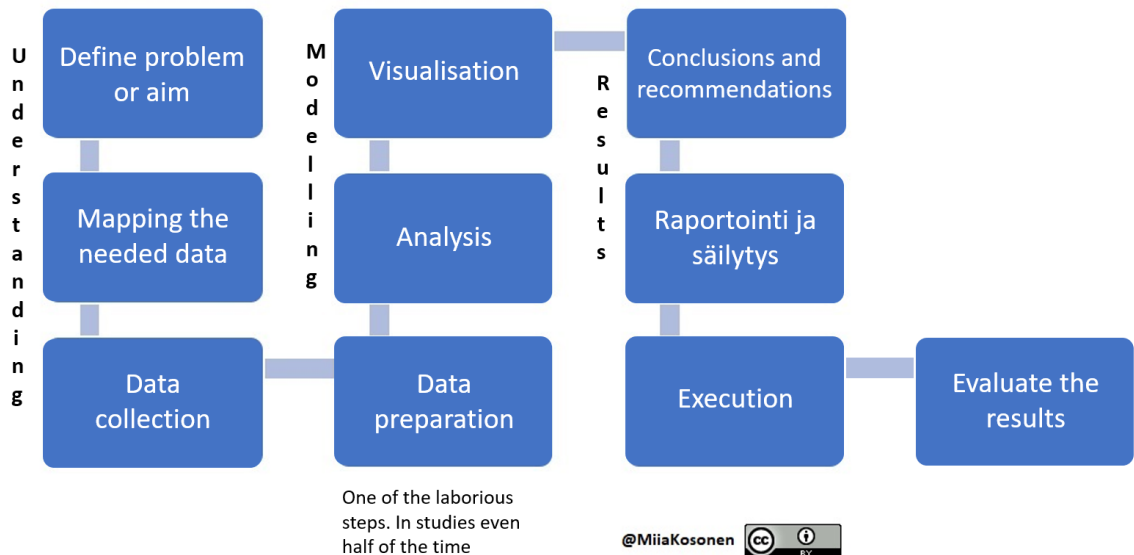
Figure 4. Applied knowledge-based management process (Kosonen 2019, Tietokiri 2021)

Using the process to illustrate knowledge-based management is a good option because it is easy to understand, and one can follow it in stages. The process is similar to the service design process, which also begins with the understanding phase. The process has highlighted the laborious nature of data preparation, which should be considered when practicing process. The process consists of three stages that begin with understanding, continues to modelling phase and ends with results. Due to the application of the process proposed by the second Tietokiri project, the final stage can be called implementation.

2.2.2 Knowledge-based management maturity model

The aim of the maturity model is to help the organisation develop its practices systematically and to assist in describing and assessing the state of the organisation (Aho 2011, 64). As with the process, different alternative proposals have been put forward on the maturity model of knowledge-based management from different perspectives. Maturity models have been described, for example, from the perspective of the utilisation of knowledge and analytics (Nylander 2017), or from the perspective of how knowledge-based management has been strategically identified and implemented in the organisation (Schultz 2020).

The third perspective takes a position on the development of knowledge-based management in the organisation (traditional vs. modern) (Paajanen 2019). The same categories appear in the maturity models of knowledge-based management, but slightly vary depending on the maturity model. The categories presented in the maturity tables are: people and organisational culture, process, data, technology, and architecture. During this thesis, the maturity model used to evaluate Advian's knowledge-based management has been utilised (Appendix 2) (Paajanen 2019). The choice was made on the basis of one's own interpretation. The model was also clear and easy to understand because it contained understandable terminology as well as concrete examples by category at each maturity stage. The maturity model includes four levels; 1. basics achieved, 2. medium level, 3. advanced level and 4. visionary level. The selected maturity model has three main categories:

1. People, organization, processes
2. Data
3. Tools and technology

The main categories have been opened in the 15 most concrete points, which are: analytics to support decision-making, processes, scope of utilization, decision-making, level of analytics, data ownership, data strategy maturity, data freshness, data scope, location data, data accuracy, data sensitivity, data maturity, data utilization, technological solutions. The maturity model of knowledge-based management is used in the thesis to assess the maturity level.

2.3   Analytics

It is important to understand that analytics are a set of methods and tools for data analysis. Analytics plays a key role in creating the prerequisites for knowledge-based management. It is also used in making forecasts for implementing and improving business decisions. Analytics' methods provide information, understanding, correlations, forecasts for decision-making and support measures from data. Analytics is not just mathematical models and statistics, but data enrichment and analysis for business-oriented goals. When the quality of the data is verified, the data is then processed into data capital by enriching the data. Enrichment refers to combining different data or data sources and using analytics methods in order to obtain new essential information for the business to guide and develop it. (Markkula & Syväniemi 2015, 73.)

When using analytics, it is important to identify which type and methods of analysis should be used. This requires professional understanding, which is the starting point for the process presented in Figure 5. Once the definition of a business problem or goal and data

have been prepared, the actual utilisation of analytics can be started (Markkula & Syvä-
niemi 2015, 89.).

Gartner (2014) describes analysis types of analytics in four categories (Figure 5). Accord-
ing to Gartner, organisations should move from traditional analytics toward advanced ana-
lytics that answers the questions of "why", "what is going to happen" and "what action
should be taken". Traditional descriptive analytics answers the question "what hap-
pened?". Traditional descriptive analytics are also referred to as BI (Business Intelli-
gence).
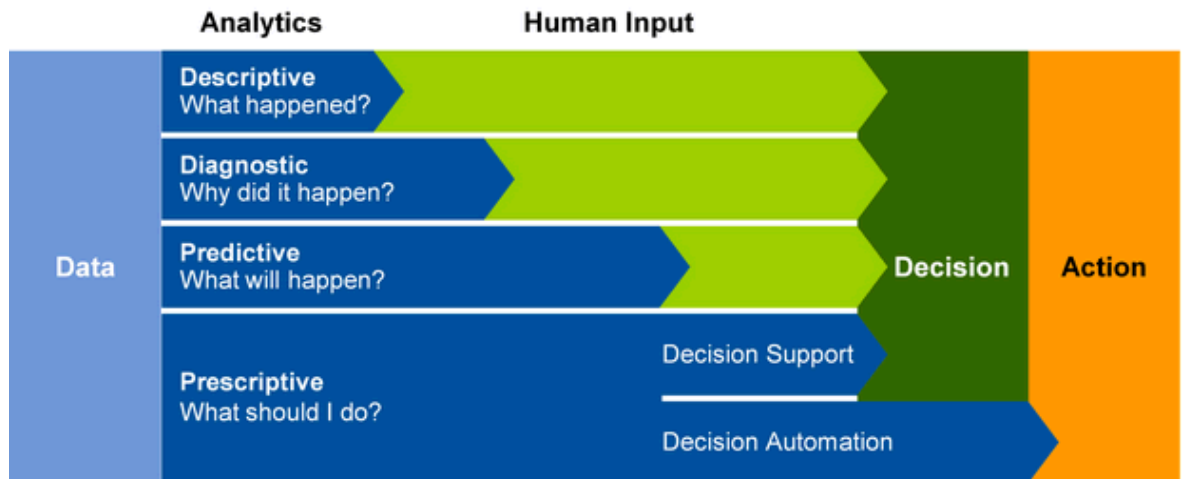
Figure 5. Four types of analysis (Gartner 2014)

2.4 Business Intelligence

The objective of Business Intelligence (BI) is to ensure that the organisation has a good
situational picture and sufficient internal and external business information to support deci-
sion-making (Laihonen et al. 2013, 33-34). Business Intelligence (BI) is an umbrella term
that covers processes, methods, and systems used to view, analyse, and understand in-
formation related to organizational history and current performance (McCabe 2010). Busi-
ness Analytics and Business Intelligence, BI partially overlap, but the difference is that
business analytics is statistically oriented, where data experts use quantitative tools to
predict and develop prospects for the future (Harvard Business Analytics Program 2021).
Depending on the era, the above terms have been used with different weightings. In litera-
ture, terms are used on top of each other, and they complement each other. This also in-
cludes knowledge-based management, which is often intermixed with business intelli-
gence (BI) or business analytics.

Figure 6 illustrates differences between traditional BI and analytics. When traditional re-
porting looks to history, advanced analytics tools provide support for predicting future
events.

BUSINESS INTELLIGENCE
METRICS AND VIEWS
ON PAST EVENTS

DATA

ANALYTICS
FORECASTS OF FUTURE,
CLASSIFICATIONS AND
CONTEXT

HISTORY

PROGNOSIS

REPORTING

DATABASE

ANALYSING

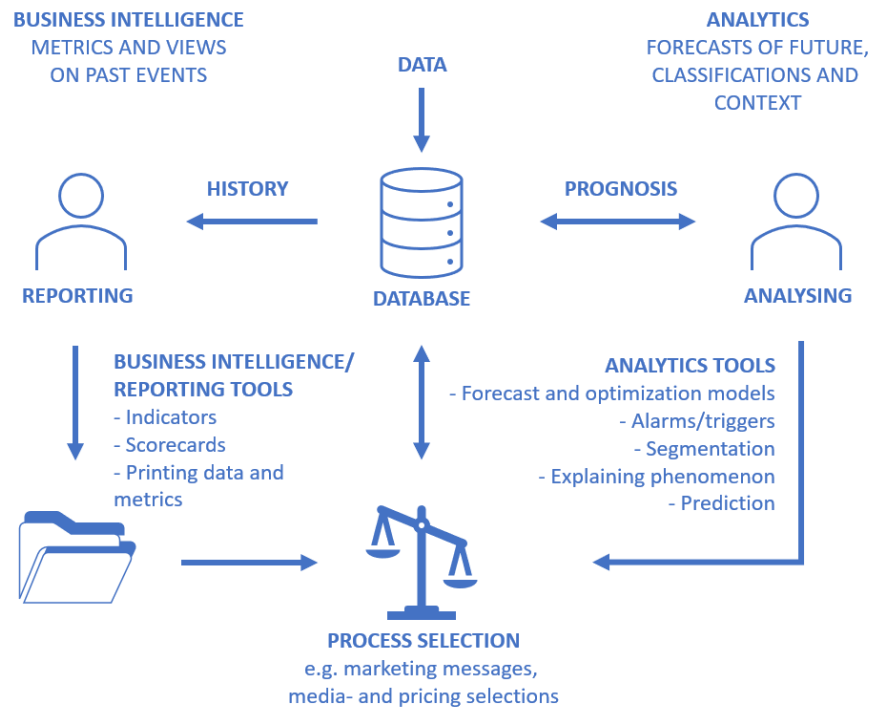BUSINESS INTELLIGENCE/
REPORTING TOOLS
- Indicators
- Scorecards
- Printing data and
metrics

ANALYTICS TOOLS
- Forecast and optimization models
- Alarms/triggers
- Segmentation
- Explaining phenomenon
- Prediction

PROCESS SELECTION
e.g. marketing messages,
media- and pricing selections

Figure 6. Difference between analytics and business intelligence (Markkula & Syväniemi 2015, 90)

2.5 Service Design

As previously stated in the knowledge-based management process, understanding of a business objective or problem is a prerequisite for knowledge management. Customer understanding becomes important when an organisation provides services to its customers. It is important to identify who is the customer or user of the service in the designing, developing, and providing services and products. In this case, the benefits of the service can be directed to the right party and ensure the best possible customer experience.

Service design methods and processes enable customers to develop usable and desirable services. Knowledge management can be approached in a people-centred way, using different methods of service design.

Service design is both a framework for action, a way of thinking and a goal-oriented way of solving problems, using different methods and tools. Service design is based on customer understanding, data collection and refinement, and finding solutions through development, experimentation, and prototypes. (Kauma 2020) The prerequisite for design thinking is analytical and intuitive thinking. Design thinking is forward-looking and focuses

on how things could be in the future. Design thinking helps with knowledge-based management in data collection, processing, and decision-making. (Kauma 2020)

Customer observation and listening to customer reports can help you better understand what things your organization should do better. Customer understanding can be created to familiarise yourself with the customer's service paths and processes in order to find unsatisfactory needs. In this study, the customer of the regional organisation is a travel company or end user i.e., a tourist or a traveller.

2.6 Data visualisation

When the data has been processed into information through analysis, the next step in the knowledge-based management process is the visualisation of information. Visualization compresses information into a more comprehensible form to raise the recipient's awareness and gain insights and understanding. Visualization serves as a method of teaching and learning.

In the visualisation of data, methods are used to present existing phenomena so that people have the opportunity to quickly expand their understanding through their observational abilities. (Lehto 2015) Figure 7 shows the position of the visualisation in the value or processing chain of the data.
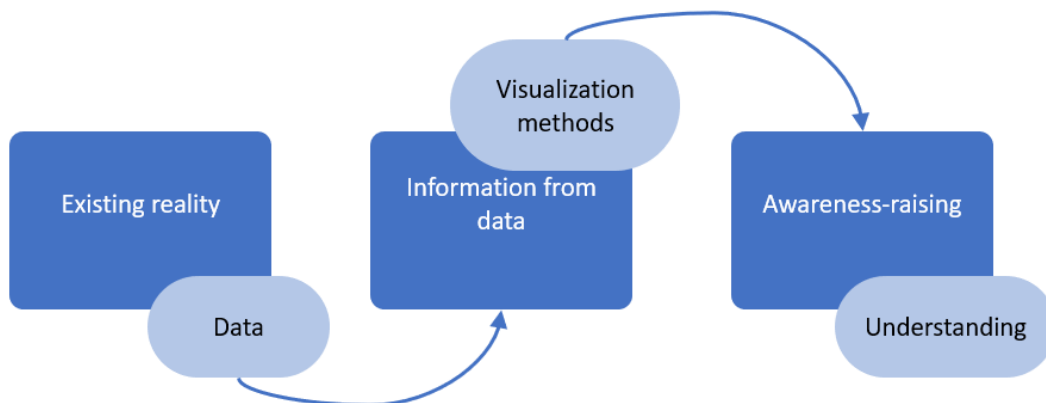
Figure 7. Data visualisation as a process

Knowledge-based management aims at knowledge-based decision-making aimed at solving a problem or achieving an objective. The knowledge-based management process generates understanding for the user or target group. Understanding, insights, and conclusions make it easier to make informed decisions and actions that deliver value. Referring to the data value chain model (Figure 3), as information refines from data towards understanding and wisdom, the benefits and value of it increase. Different methods, as set out in the theoretical background, can be used to complete the process. The means of service

design to initiate the process and provide an understanding of the problems and goals, especially if the matter under process requires customer understanding. Analytics methods are utilised by refining and modelling data into information and knowledge. Visualization methods are used to summarize data into a more comprehensible format and transfer knowledge and understanding to the target audience. When information has been refined into knowledge, understanding and even wisdom, and it has been based on reliable real-world data, uncertainties are reduced in decision-making and decision-makers can make decisions more easily. Data-based or knowledge-based decision-making can also be automated if it does not require human processing. However, emphasis must be placed on the dependence of knowledge-based management on information management and data management. As set out in Chapter 2.2, knowledge management is a broad field that requires both knowledge-based management and information management. Getting these things right in practice is challenging, especially in an existing organization with already entrenched policies and existing processes, architectures and technologies that should be developed from the current state to the desired target state. Knowledge management can be approached from a practical point of view and use cases and experiments can be carried out through the process set out in Chapter 2.2.1. By practicing knowledge-based management process, organisation can find development in its own environments and operating procedures.

3   Methodology

This thesis was carried out as a qualitative case study. It is well suited as an approach when the aim is to have a deep understanding of the area of development and produce development proposals. As a final product of the research, development proposals were produced for the thesis client, which was the City of Helsinki's Tourism Unit. The thesis author has not previously played a role in the client 's organisation. In addition, the author has not had previous experience and knowledge of the client's organisation or its field of activity.

The aim of the study was to study the situation of knowledge-based management, analyse challenges and opportunities, and finally offer the client development proposals for the development of knowledge-based management. The research questions and the knowledge base and methods used to answer them are presented in the table below.

Table 2. Thesis' research questions, research data and methods

Research questions	Research data	Methods
1. What is the current state of knowledge-based management in the Helsinki's Destination Management Organisation?	Material provided by sponsor	• Interviews • Support and guidance of the principal
2. What are the challenges and opportunities in current state knowledge-based management?	Literature	• Interviews • Support and guidance of the principal • Current status analysis • Challenges and opportunities analysis
3. How can knowledge-based management be concretely developed in the Tourism Unit?	Literature	• Interviews • Support and guidance of the principal • Final workshop

3.1   Sponsor's material

The sponsor's material was used for the orientation in subject and context. The material gave a good picture of what had been done around the knowledge-based management. The sponsor's materials were identified as useful, such as Visit Finland's manual of digital customer experience, the data sources available to the sponsor and the results of a light

survey of knowledge-based management conducted for regional destination management organisations. The digital customer experience handbook has been created for Finnish regional destination management organisations. One of the main topics is the customer journey (Business Finland 2020). The handbook contains a guide for describing the customer journey and utilising it. The data sources collected by the Tourism Unit give a good idea of what kind of data has been collected and how many data sources already exist. The survey conducted for regional organisations was secondary material that served well in understanding context and understanding the current state of knowledge-based management at the time.

3.2 Interviews

Data collection method used in the thesis was a thematic interview i.e., a semi-structured interview. The themes of the thematic interview are like wide-ranging discussion topics, with the aim of getting a dialogue and a comprehensive response. The thematic interview proceeds by conversation and asking further questions, so that the interviewer can obtain both an understanding of the phenomenon and context through the answers of the interviewee. This is suitable for situations where the interviewer is not familiar with the organisation, industry, or phenomenon to be investigated. The interview was chosen as a method instead of a survey and workshop because the study was a qualitative case study for which the author needed more in-depth knowledge and understanding of both the topic and the context.

The interview themes were chosen in such a way as to support answering research questions. Each theme was turned into help questions that could be used in the interview. The interviews were arranged in advance, and the interview questions were sent to the interviewees in advance (Appendix 3). The interviewees were members of the project group of the City of Helsinki's Experience Economy project. More precise roles and responsibilities of interviewees are described in appendix 4. Interviews were conducted as individual interviews via video meeting. Nine interviews were conducted and lasted about 30 minutes.

In addition to interviews, during the thesis, representatives of the client organisation provided guidance and support for structing research and clarifying the target.

3.3 Analysis method

The analysis of collected research data was conducted as presented in Figure 8 below. Analysis steps are reflecting on the stages of analysing the data in the study. The processing of the interview material began by transcribing the recorded interviews. In the transcription, the interviewer's and the interviewees' conversations were written down. Intertext words used in conversational language were omitted. After all of the interviews were transliterated into text format, the material was carefully read through and the content of the interviews was examined. After the orientation, themes and recurring issues were sought in the material, which were observed from the interviews. The interview was structured and themed according to research questions, so the interviewees' answers were reviewed by theme and the findings were recorded in the table. Notes were also taken on eye-catching issues and points. The tables were made in the fields of the Challenges and Opportunities analysis, from which they were easier to combine and analyse. When studying the data, a unanimous picture of the state of management was perceived when comparing the answers with the maturity model of knowledge management (Appendix 2). Finally, the feedback and advice submitted by all interviewees related to the development of knowledge-based management were noticed in the material. Once the above steps had been completed and the results of the analysis of the data were available, it was easier to brainstorm development proposals.

- 9 interviews
- Transcription of interviews
- Introduction to the transcript
- Outlining themes
- Tabulation according to themes
- Current state analysis
- Challenges and opportunities analysis
- Noticing feedback and tips
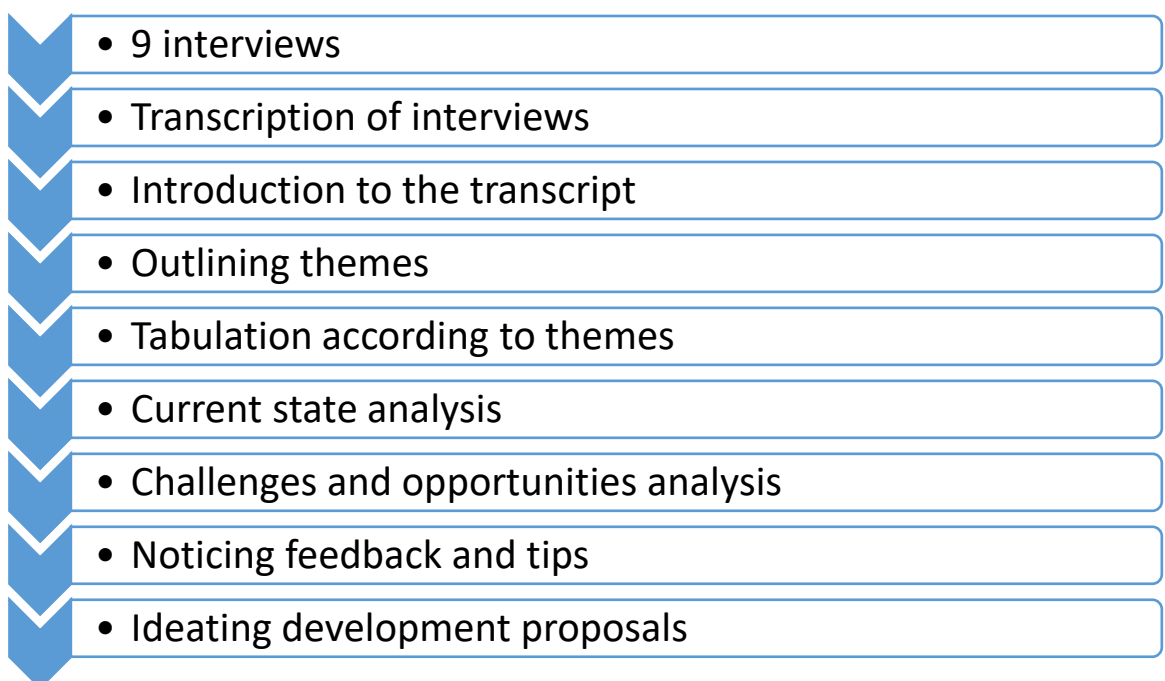- Ideating development proposals

Figure 8. Analysis steps

3.4   Method of verification of results

After studying the interview material and outlining the themes, the results and themes were presented to the two sponsor's contact persons. This was done to ensure the validity of the results and methods before the study entered a more detailed analysis phase. The representatives of the principal welcomed the proposal, which strengthened the compliance with the objective of the study. The study was then continued with a more detailed step-by-step in Figure 8 and the results were modelled for the final workshop in visual form.

Another verification method was the final workshop of the cooperation project between the City of Helsinki and Haaga-Helia. The purpose of the final workshop was to present the results of the research and development proposals to the sponsor and collect the feedback. The results were modelled in visual form and presented to the principal in the final workshop via video link. The results were presented with the results of the current analysis, the challenges and opportunities of knowledge management and development proposals. The principal did not provide any significant need for change in the results presented. More detailed questions about the results were asked, such as the content of knowledge-based of management in the organisation and open data, for which the results of the interviews did not give further details. The development proposals were revised verbally with the help of more specific questions by the audience. The development proposals were then assessed by the sponsor according to the feasibility, rationality, and benefit of the development proposals. The feedback was collected verbally and in the Mural platform.

3.5   Validity of methods

Qualitative case study was a good approach to this thesis, as the aim of the study was to produce development proposals. Understanding both the subject and the context of development was a prerequisite for producing development proposals. Qualitative case study using interactive semi-structured thematic interviews was the right choice to increase the author's understanding. When comparing a semi-structured thematic interview used as a research method in this thesis with previously conducted survey by a third party, it can be concluded that the results of the interviews were more in-depth and left less room for interpretation than the survey responses. The analytical methods were appropriate as they were used to find answers to the research questions in the 18-page transliterated interview data. Theming and tabling the material made it easier to process vast data mass.

The reliability of the study can be said to have been realised, as the responses from the interviews showed similarities and the same findings between the different interviews. A semi-structured interview was the right choice because the questions and direction used in the interviews could be adapted according to the interviewee. The group interviewed, consisting of nine interviewees, were suitable for the study, as all of them had expertise, experience, and views on the subject (Appendix 4). Nine interviews produced enough material for the analysis. The same interview body and question radiator can be used again if the study was repeated.

4   Implementation and outcomes

This chapter presents the results of the data collection. The purpose of this chapter is that the results of the research should be presented objectively based on the responses of the challenging ones without the author's own interpretation. The author's own interpretations and conclusions are presented in separate paragraphs at the end of the chapters. The material was collected through a thematic interview by interviewing nine people related to the tourism unit who had been identified by the sponsor's representative. The interview results were themed to make the results easier to observe and analyse. The results and related comments are imported from the material by theme in the form of quotes in their own sub-chapters. The author's own conclusions and analysis are presented at the end of each sub-chapter.

4.1   Knowledge-based management as a concept

When asked about what interviewees understand with knowledge-based management, answers were given at different levels of accuracy, with an emphasis on different aspects of information management. One of the interviewees used the word information management throughout the interview and talked about a broader information management larger picture. Several respondents talked about data management and information management i.e., how information should be collected, stored, and channelled in order to be utilised. Three of the respondents identified that knowledge management is a management tool, a method of decision-making, goal setting and monitoring. In their reply, several respondents demonstrated that knowledge-based management can not only develop their own activities, but also provide tourism companies and stakeholders better services and information for development. The following quotations were identified in the answers, indicating that the use and understanding of the term is not clear.

"This may vary how people understand knowledge-based management, it's not clear to everyone what they're talking about."

"It is unclear what the concreteness of knowledge-based management is, what the benefits are and what it could be."

The concept of knowledge-based management was understood differently between interviewees. The general understanding of knowledge-based management was using the information consciously for some activities. The use of information and knowledge for decision-making was identified by only three respondents. With a relatively small interview presentation, the interviews showed that the concept of knowledge-based management

and the benefits it brings need to be presented and familiar with those working in tourism development. Clear communication must also be ensured, i.e., what the difference is between knowledge-based management, information management and data management. The knowledge management level described in Chapter 2.2 can be used to address this need.

4.2   Current state of knowledge-based management

Several interviewees have answered the question about the maturity level of management and the assessment of the current situation. The answers clearly show that knowledge management is still in its early stages. The tourism unit has monitored external tourism statistics and some indicators, without any agreed measures, as would result from the results of the indicators. Studies and analyses are carried out on a case-by-case basis and are based on historical data. According to one respondent, there is a complete lack of predictive information and predictive analytics. The overall picture is subconsciously constructed with data from a variety of sources. Interviews have requested that data should be imported into one place or platform. One interviewee stated that many decisions are made with a gut feeling. The interviews also stated that there is a huge amount of information but analysing the data and utilising it is a challenge.

"The tourism unit currently has a stage of organisation in which the current state is mapped, and the current analysis is carried out, where systems, information processes, shortcomings, repairs, procurement, from the point of view of the tourism unit are reviewed."

"In the current state, knowledge-based management is developed in different units to support its decision-making. In target mode, it must be possible to utilise data more efficiently to get a better overview to support city-level decision-making."

When comparing the results of interviews and the measurable points of the knowledge-based maturity model (Appendix 2), the results correspond to the descriptions of the lowest maturity level in many points. The interviewees themselves recognized that they are in the early stage of knowledge management. The data is analysed manually and, on a case-by-case basis. The reports are based on historical data and tell what has happened, rather than explaining why something has happened. Data architecture and technical solutions are still in the mapping phase. It can therefore be concluded that knowledge management is at the first level of maturity in the Helsinki Tourism Regional Organisation. However, the interviews showed that knowledge management and its development have

been identified as important and are known to everyone at some level. This result answers the first research question, which asks about the situation of knowledge management in the City of Helsinki Tourism Unit.

4.3   Challenges

The following sub-paragraphs describe the challenges raised from the analysis of the data.

4.3.1   Unclear roles, responsibilities, and organisation

The interviews revealed that the roles and responsibilities are not clear in knowledge management. Several respondents expressed that they do not know who is responsible for managing the data and developing it. The reason was suggested to be an organisational change in the background. One respondent also stressed that some people feel that they have a certain responsibility, even though that responsibility is not appointed for them. In addition, one respondent highlighted a report on the casting at national level for tourism, which defines the role of each organisation on a national scale in managing tourism knowledge.

"Our organisation lacks a clear role/manager from the point of view of knowledge management."

"There is no clear role in the management/development of knowledge management as a whole."

The actors in the travel ecosystem were presented in Figure 1. The tourism ecosystem consists of the local level, the regional level, the national level, and the international level. Tourism involves stakeholders at different regional levels, and the responsibilities and roles of these stakeholders are unclear from the point of view of knowledge management. Visit Finland's role in particular is ambiguous. As the interviews showed, Visit Finland, under Business Finland, has carried out a study in 2021 on the national knowledge management operating model, which hopefully answers this challenge.

4.3.2   Lack of resources

Knowledge management resourcing was considered insufficient. Some respondents meant low human resources through insufficient resourcing and some respondents meant financial resources. One respondent stressed that when Finland is a small country, any

overlapping is counterproductive. However, knowledge management was seen as a means of better resource planning and allocation.

"Insufficient resourcing. Not only additional resources from outside, as a purchasing service or through recruitment, but resourcing in the inner-city organization."

In 2021, a few respondents highlighted an organisational change in tourism, which affects the fact that the targets are not yet clear to everyone. The large organizational size and the organisation's interdisciplinary activities were found challenging, but it also saw benefits from cooperation between industries and the utilisation of expertise.

"Cooperation between industries within the city is a challenge and organisational changes when people move on the other hand, so we don't know where to do what."

Tourism management has been reorganized in the City of Helsinki. As a result, the Tourism Unit was established during 2021. A new urban strategy has also been developed during 2021, which will provide guidelines and objectives for the unit's operations. If knowledge-based management is identified as a priority of the strategy, it is assumed that its development will be resourced financially, and the necessary human resources allocated to achieve the objectives. At international level, global tourism operators invest in knowledge management. If Helsinki as a tourist area wanted to stay in the competition, it is necessary to invest in developing knowledge-based management in order to get all out of the data and information available.

4.3.3 Utilisation of information

Several interviewees highlighted the uncertainty of data management and data processing. It's not clear and everyone doesn't not know who's in charge of what. In addition, it was identified that a platform would be needed for the data to be managed and utilised. There was consensus on the amount of data. There is a huge amount of it. The challenge was how to choose the right relevant sources or data to utilise. One respondent pointed out that some people do not have access to data sources and data. The interviews revealed that data is obtained from national actors such as Statistics Finland, the Police and Finnish Forest Centre. Open data was seen as an opportunity to take advantage of. The quality and accuracy of the data were raised to the concern. Role-based information needs, which differ from each other based on role or task, were highlighted as a consideration. It was also recognised that there has been long and accurate traffic calculation and

modelling in other unit within the city, for example in traffic and street design, on the basis of which we know more about congestion and road loads.

"There is technology and data, but the challenge is to utilise and resource these."

A prerequisite for the utilisation of data is successful data management to ensure the availability, discoverability, and usability of data. If data management is incomplete, it will become more difficult to utilise the data at the same time. As highlighted in the data management process (Figure 4), preparing data for analysis is the most laborious step in the process. The better data management is implemented, the easier it will be to utilise the data in the process. Due to the delimitation of this thesis, data management is not described in more detail.

4.3.4 Lack of know-how

The interviews identified that the expertise already exists and could be better utilised. However, it was also felt that not everyone has the understanding or know-how to manage knowledge. The interviews did not map the competence of the interviewees of the organisation's knowledge-based management at a more precise level. The interviews also highlighted the rapid development of technologies and methods and stressed the regular review of the timeliness of competence. One interviewee thought it would be a good idea to set up a knowledge-based management cooperation group in different industries, which would make better use of broader know-how.

"There is a lot of expertise in existing human resources that is not being utilised at the moment. In a large urban organisation, cooperation between industries and the utilisation of know-how can be utilised."

Interviews can be interpreted as meaning that understanding and competence in knowledge-based management varies from person to person. General training on knowledge management should be organised and staff should be ensured to have sufficient general competence. Awareness of knowledge management should also be raised at regional level so that the company and other actors understand its purpose and benefits. Within the city there is expertise in other units and departments that can be utilised in developing knowledge-based management. The interviews did not carry out a competence survey, but based on the interviews, it would be justified to do so in the client's organisation. Analytics expertise should be increased to support the development of tourism and the level of analytics should be raised from descriptive analytics towards predictive

analytics if the level of maturity of knowledge-based management is wanted to be raised to the next level.

4.4 Opportunities

The following sub-paragraphs describe the opportunities raised from the analysis of the data.

4.4.1 Utilising cooperation

Cooperation was identified as a clear opportunity in many interviews. The possibility of co-operation was identified from three different perspectives. Cooperation with companies and other actors includes organisations, entrepreneurial organisations, and other advo-cacy organisations, including international actors. Cooperation can be used for better un-derstanding of the operating environment and business life. For example, the know-how and capabilities of tourism and business enterprises and their utilisation were raised. It was also considered important that it would be very important for the networks and part-ners of the Tourism Unit to be able to communicate the relevance and opportunities of knowledge management.

Another aspect of cooperation within the city is cooperation between industries. The inter-views stressed that the whole city would be needed to develop knowledge-based man-agement with a commitment, in particular culture and leisure and the urban environment industry to support tourism. It was recognised that the development concerns a large number of people in the organisation and that the expertise could be utilised between in-dustries.

The third aspect of cooperation is cooperation at national level, with other tourist areas and Visit Finland, as well as with other government organisations, neighbouring countries, and the EU. According to the respondents, the benefits of cooperation would be common standards, utilisation of data sets, utilisation of expertise on a broader scale for several re-gional organisations and strengthening the Finnish brand. The interviews identified that international cooperation could be developed. Cooperation with different tourist areas and with Visit Finland was identified as developing and growing. This can be seen, for exam-ple, in the form of shared projects. The feedback for the cooperation has been unanimous, more cooperation needs to be done in the future.

"In a country of our size, we should be able to cooperate more effectively compared to other large countries with larger resources."

"There are many benefits to co-development and cooperation. The city will be able to work more closely together to get out of the crisis. I look forward to passionate work across organisational boundaries even after the pandemic."

Cooperation is a clear opportunity, which is worth promoting. Cooperation has already been done consciously at all levels. The interviews showed that cooperation has also taken place internationally, but it could be increased even further. It would be good to record the lessons learned from cooperation and useful information in your own systems, from where it can be utilised in the future.

4.4.2 Utilising knowledge-based management for development

Knowledge-based management and knowledge-based decision-making were seen as an opportunity to develop the operating environment and the tourism chain so that the business becomes more profitable, and customers receive customer-friendly and high-quality services. One interviewee raised the timing of the development: "Companies have time to make development during the pandemic, but after that there is no interest, time or opportunity." Several respondents were of the opinion that providing information and tools to traders is an opportunity that knowledge management can achieve. It was also recognised that, based on knowledge, activities could be planned, and resources better directed.

5 Development proposals

The purpose of this thesis was to produce development proposals that the client can use to develop their own operations. The aim was to examine the current state of knowledge management and to produce feasible and exploitable development proposals for the development of knowledge-based management in Helsinki's destination management office. The interviews uncovered the current state, challenges, and opportunities of knowledge management, as well as recommendations and suggestions for what kind of development proposals would be useful and feasible for the client to implement.

Development proposals were approached from a practical point of view. The development proposals were conceived with the idea that they would be those that were easy to implement and would bring benefits to knowledge management and contribute to the next level of the maturity model. The development proposals below and their descriptions were presented in the final workshop. The aim of the workshop was to select the most suitable development proposals.
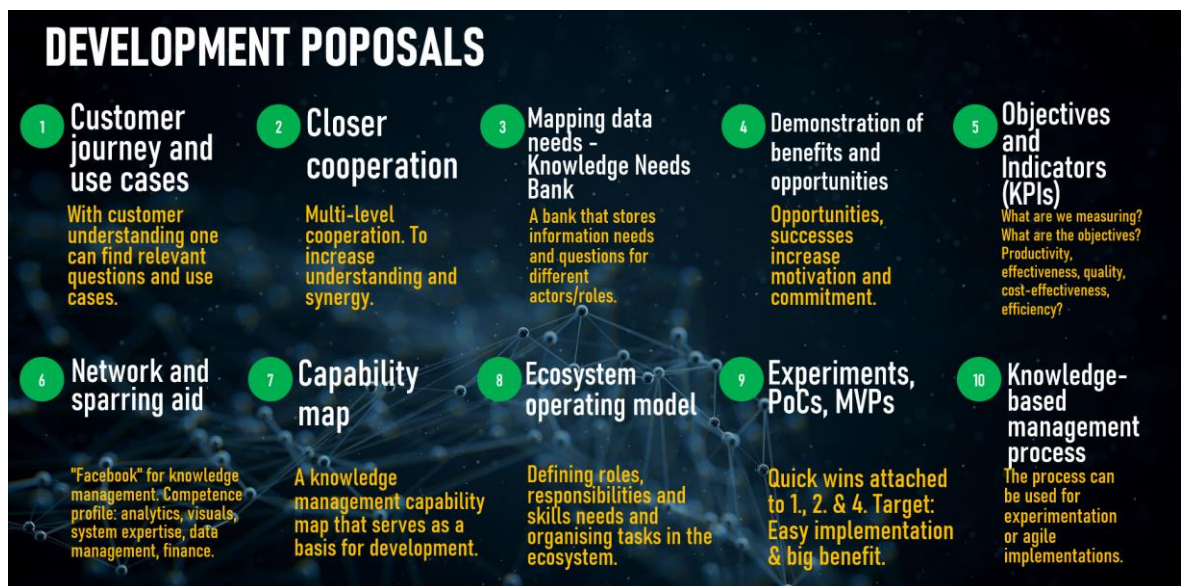

Figure 10. Development suggestions 1-10

Development proposal 1: Customer journey and use cases

In order for the tourism unit as a regional organisation to develop and provide its customers with better and desirable services, customer understanding is needed. One tool for understanding customers' information needs and use cases is the customer journey mapping. It is used to find meeting and interaction points and to see the path of customers and

their phases when dealing with, for example, the city or other actors. This way, understanding is created that can be used to define data needs, use cases or data sources.

Development proposal 2: Increasing cooperation

In the analysis of interviews, closer cooperation clearly became the biggest opportunity to develop knowledge-based management. Cooperation can take the form of information exchange and data at different levels, and synergies between industries can be achieved within the city. Based on interviews, cooperation with traders and companies has produced very good results, and in the tourism ecosystem, cooperation benefits everyone. At national level, regional organisations and tourism developers in different regions can support each other in the form of common projects and agree on common practices. Cooperation avoids duplication of work and social benefits are achieved. International cooperation provides visibility into the situation in other countries and provides lessons on how things have been done elsewhere and, if possible, adapt them to Finland.

Development proposal 3: Identifying data needs – "Knowledge Needs Bank"

A knowledge needs bank would be a place where both internal tourism stakeholders could store their own information needs, questions and use cases derived from real problems or goals. In the process set out in Chapter 2.2.1, the starting point of the process is a problem or a definition of a goal. The knowledge needs bank would provide concrete and practical information for the understanding phase. It would make it easier to approach data management and understand what kind of data is needed for the process.

Development proposal 4: Demonstration of benefits and opportunities

Demonstrating the benefits and opportunities of knowledge management would bring understanding and commitment. Benefits and opportunities can be communicated both internally and externally by various stakeholders involved in knowledge management. As understanding of knowledge management and its benefits grows, people can contribute to its development and move to the next level of the maturity model.

Development proposal 5: Objectives and indicators (performance indicators)

The design of objectives and indicators provides a goal and guidelines for what information management aims to achieve. The most important objectives of strategy form an important starting point for the more detailed annual planning of activities and objectives

for tourism. Knowing strategic choices, effort points and goals, it is possible to define qualitative and numerical metrics. The indicators can be used to measure reliability, effectiveness, quality, cost-effectiveness, and efficiency. Once these things are clear, we will find out that we have the first phase of the knowledge-based management process. The data needed to complete the process can then be mapped.

Development proposal 6: Network and sparring aid

A knowledge-based management network would be a kind of expert forum where volunteers could join to help others and gain support and sparring from others. Those in the network would refine their own competence profile according to their competences, from which others could receive support and assistance from them. At the same time, those in the network could ask others for help and support, where necessary.

Development proposal 7: Capability map

The capability map makes it easier to understand what capabilities an organisation needs to develop with knowledge to develop knowledge-based management. This can be assisted by the points in the maturity model, which are seen as logical entities. Capability refers to an organisation's ability to act appropriately by utilising its expertise and resources to achieve its objectives (JHS recommendations). Examples of skills involved in knowledge-based management, organisational culture, know-how, tools and technologies, data.

Development proposal 8: Ecosystem operating model

Defining the roles of actors in the tourism ecosystem in relation to each other and their role in developing tourism knowledge management. The interviews highlighted Visit Finland's ongoing report on the operating model for tourism information management. The approach should reflect the responsibilities and tasks of actors at different levels of tourism (Figure 1) from the point of view of knowledge-based management. This is an important prerequisite for initiating the development of knowledge-based management.

Development proposal 9: Experiments, PoC, MVP

The idea behind experiments, proof of concepts and minimum viable products is to implement an output in a short time to achieve a specific goal, problem or use case. As result in addition to the output one gets feedback and visibility for what works and what is worth

further developing. In this way, the benefits of a concept or plan can be assigned to those who decide on resources before it is scaled to a larger group of users. These agile projects can utilise service design methods such as development proposal 1's customer journey and involve stakeholders in providing feedback and developing a solution.

Development proposal 10: Knowledge management process

The knowledge management process described in Chapter 2.2.1 would be a practical tool for supporting knowledge management. The process makes it easier to understand and track progress from one task to another. The process can also be used in agile projects mentioned in previous proposal 9. However, the knowledge-based management process requires that the organisation has identified and implemented the prerequisites that enable the process to be carried out.

5.1 Prioritisation of development proposals

Ten development proposals were submitted in the final workshop. Based on the feedback from the sponsor, it was intended to select the most suitable and feasible development proposals from ten proposals. During the presentation of the proposals, development proposals were explained further according to their context. After the presentation, it was specified what is meant by the customer in the tourist unit. The customer is a business representative i.e., tourism company, as well as users of their services, the tourists, and travellers. The sponsor continued that by finding the right questions and use cases e.g. with customer journey can be used to find answers to goals and metrics.

It was asked in the workshop which use cases should not be promoted or invested in. The sponsor indicated that development proposal 8; the ecosystem's operating model and its organisation is a very large and challenging task, which should not be promoted as part of the thesis. This was justified feedback, as Visit Finland has carried out a study on the operating model of Finnish tourism organisations in 2019, where recommendations have been made on the ecosystem operating model (Business Finland 2019). Development proposal 7; the capability map was also something that the sponsor did not think was worth promoting, as an internal project has already been launched to promote the issue. Development proposal 6; the network and sparring assistance was an innovative idea based on the feedback from the client, but due to the rigidity of the organisation, it was not necessarily easily feasible. Development proposal 5; according to the client, the targets and indicators were on a later work list, so it was not topical. Consequently, 5, 6, 7 and 8 of the development proposals were eliminated.

As written feedback, feedback was given to the Mural collaboration platform:

"In my view, all development proposals are feasible where applicable, and in fact these steps complement each other, especially if we start to refine or build a consistent model for managing the organisation's knowledge. But of course, you don't have to go very deep on every point. So, in a way, a good model to apply is to go through, which is a point, but then evaluate at every point how much you have to invest in it."

Next it was asked which development proposals should be deepened into. In response, development proposals 1, 3 and 10 were submitted. These were customer journey and use cases, mapping data needs – a knowledge needs bank and a process of knowledge management. These three development proposals were, in the opinion of the sponsor, potential, would bring benefits and should be further developed. The knowledge-based management process was already presented in Chapter 2.2.1. Customer journey and customer use cases are tools used in service design. The customer journey tool is available with instructions on the handbook of Visit Finland's digital customer experience, which is intended for use by the destination management organisations. Mapping data needs and a knowledge needs bank can be implemented with a minimum shared Excel, where data needs are listed as a statements or questions, which describe the context for the needed data. Knowledge needs help in understanding phase in planning goals and indicators, and they give feed into the knowledge-based management process.
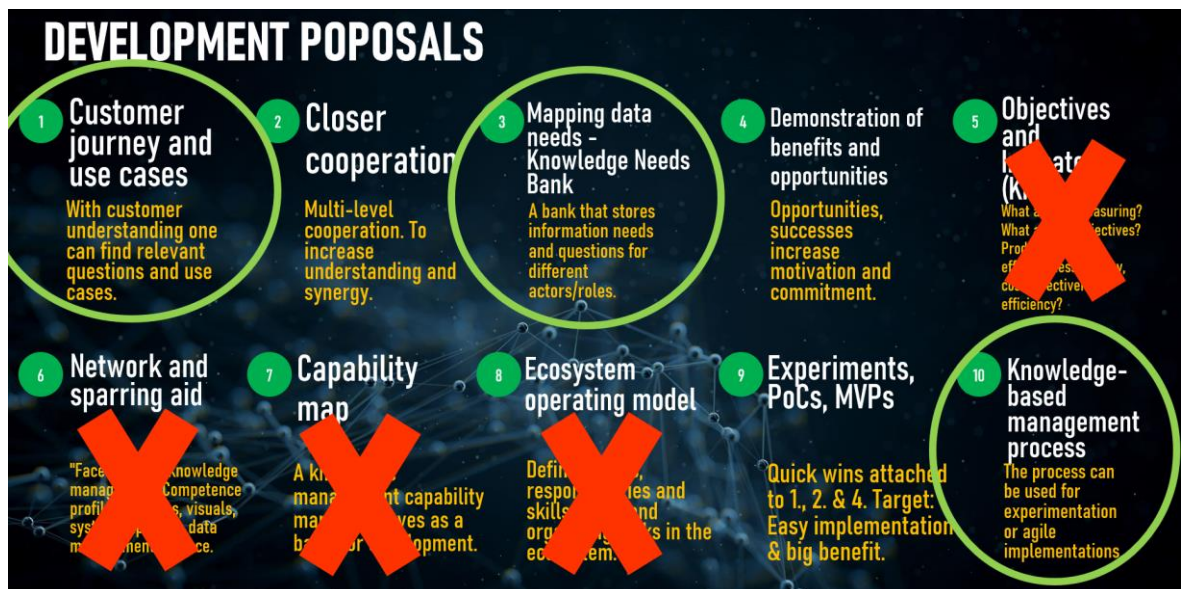

Figure 11. Summary of development proposal selections

The sponsor did not give any feedback on development proposals 2, 4 and 9 in the final workshop. However, these development proposals can be used in the future developments. These proposals are derived from analysis of interviews and the feedback of the interviewees and the sponsor.

5.2 Reliability of results

The reliability of the results is verified by the sponsor's involvement in the research throughout the study. In addition, the results of the previously conducted mini survey confirm the results of this thesis. Due to lack of time in the workshop, the development proposals could not be reviewed in depth.

In this thesis, the author assesses the reliability of the sources in relation to the research and the phenomenon in the topic throughout the study. The interviews surveyed the context and the phenomenon to be studied based on the experiences and views of the interviewees. The result of the interviews was created by the interaction between the interviewer and the interviewees. Assessing reliability in qualitative research relics on the researcher's assessment and evidence, so achieving completely objective reliability is questionable (Kananen 2017, 175.).

6 Conclusions

The City of Helsinki's organisation has clearly identified the need to develop knowledge management and related capabilities. The organisation, roles, and responsibilities of the tourism ecosystem from the point of view of knowledge management should be clarified. The terminology of knowledge management should be harmonised for communication purposes. The city of Helsinki's tourism developers must increase their expertise in knowledge-based management and related methods and tools, in order to maximise the efficient use and benefit of knowledge-based management. Utilising multi-level cooperation is a good way to ensure that knowledge-based management is developed efficiently on a national scale in the right direction. All the research questions set out in the thesis were answered.

Research question 1. What is the current state of knowledge-based management in the Helsinki's Destination Management Organisation?

The maturity model for knowledge management (Appendix 2) was used to assess the current state, which determined the level of maturity of knowledge management. The analysis of the current situation looked at how knowledge management is understood or what it means. The purpose of knowledge management was mainly understood, but the use of terminology between knowledge management, knowledge-based management and information management was not always appropriate. Knowledge of the topic and expertise in knowledge-based management varied between interviewees. The result of the current analysis showed that the management of the tourism unit's knowledge is still in its infantry. Knowledge-based management and timely information were identified as important competitive factors and ways to recover tourism after the Covid-19 pandemic.

Research question 2. What are the challenges and opportunities in current state knowledge-based management?

The biggest challenges were unclear roles and insufficient resourcing and competence. At the national level, Visit Finland's role in promoting knowledge-based management was unclear. Another clear challenge was concern about insufficient resources and competence in developing knowledge-based management. Two of the possibilities emerged, the clearest of which was cooperation. There are opportunities for cooperation at many different levels: cooperation within the city between industries, cooperation with local companies and actors, cooperation with other regional organisations and Visit Finland, and international cooperation. The benefits of cooperation would include more efficient use of know-

how and resources, common procurement, common data sets and agreed standards. Another possibility was to utilise knowledge management for the development of internal operations and services.

Research question 3. How can knowledge-based management be concretely developed in the Tourism Unit?

A total of 10 development proposals were produced, of which the most feasible were selected in the final workshop. The development proposals selected the process of knowledge-based management, the knowledge needs bank and the utilisation of customer journey and use cases.

The results of this thesis will be utilised for the sponsor's future preparation of the knowledge-based management development project. In connection with the thesis, several development proposals were brainstormed, which can be used and further developed in the sponsor's organisation and possibly also in other regional organisations. Some of the proposed development proposals have already been planned or their implementation has already started in the sponsor's organisation. The open comments, wishes and feedback given in the interviews were considered in the planning of the final results of the development work.

This thesis was limited to knowledge-based management. As a proposal for further research, it is proposed to extend the topic of research to include a broader set of knowledge management, which includes not only knowledge-based management, but also information management and the data-management.

6.1 Self-reflection

Tourism as an industry and the tourism ecosystem of public administration were a challenging context for the thesis author due to a lack of previous experience and knowledge. However, getting to know the new industry and studying the phenomenon in its context was interesting, inspiring, and motivating. The theory in the extent required by the master's thesis was new, interesting, and educational. The City of Helsinki's organisation and tourism industry became familiar during the thesis. The client's guidance and active support helped to achieve the goal. Doing the thesis alongside the work required good planning and time management. However, time was saved due to the reduction in meetings and travel caused by the pandemic. Knowledge-based management is currently a topical and talked about topic, so I am glad that I chose this topic and learned a lot about it through a case example. I look forward to taking advantage of the lessons learned in

working life. I want to thank thesis sponsor, thesis instructors and all involved in coopera-
tion project for this kind of opportunity and provided aid.

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Appendices

Appendix 1. Organizational chart of the Helsinki City Executive Office's
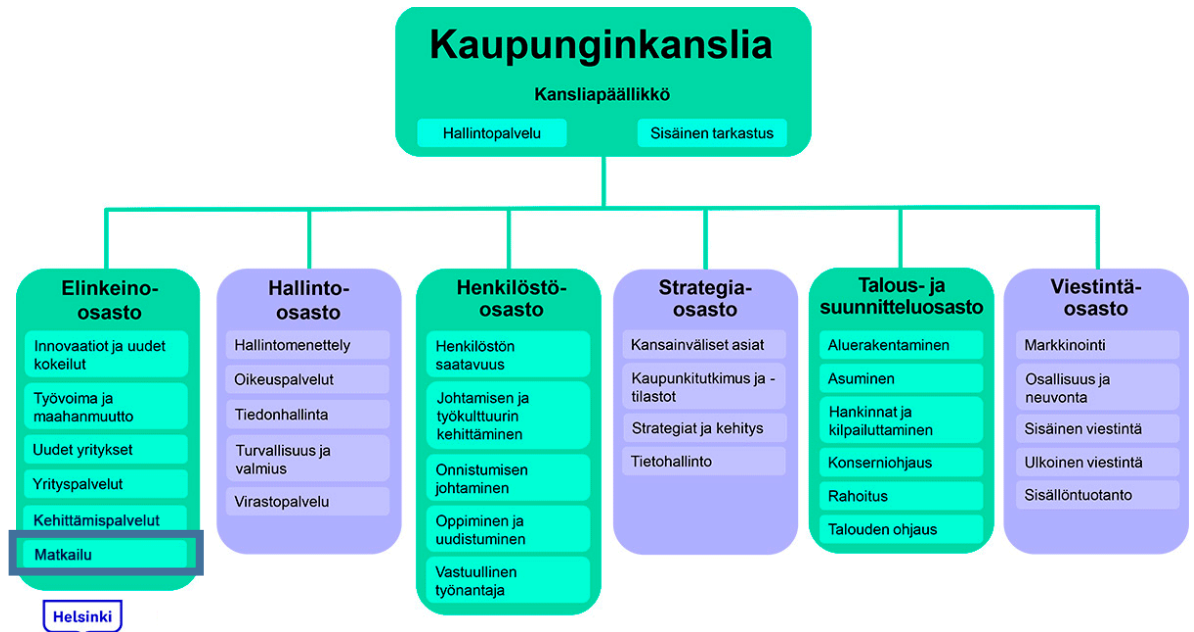
Location of the tourism unit in organizational chart of the Helsinki City Executive Office's.

(City of Helsinki 2021)

Appendix 2. Knowledge-based management maturity model

PERINTEINEN TIEDOLLA JOHTAMINEN ▸ MODERNI TIEDOLLA JOHTAMINEN

advian

		PERUSTEET HALLUSSA	KESKITASO SAAVUTETTU	KEHITTYNYT	VISIONÄÄRI
IHMISET, ORGANISAATIO JA PROSESSIT	ANALYTIIKKA PÄÄTÖKSENTEON TUKENA	Liiketoiminta-asiantuntijat analysoivat dataa manuaalisesti	Data-analyytikoiden ja -tieteilijöiden todellinen tarve on kasvanut	Käyttötapauksia on kehitetty edelleen ja analytiikka on sidottu prosesseihin ja päätöksentekoon	Älykästä automaatiota ja koneoppimista käytetään esimerkiksi älyverkkotiedoissa ja asiakasanalytiikassa
	PROSESSIT	Valikoiduissa prosesseissa hyödynnetään analytiikkaa	Nopeita voittoja on saavutettu parantamalla prosesseja	Yrityksen toimintamalli ja prosessit on mukautettu analyysitulosten perusteella.	Analytiikka on kiinteästi mukana prosesseissa
	HYÖDYNTÄMISEN LAAJUUS	Dataa analysoidaan manuaalisesti tilannekohtaisesti	Analytiikka on osa useiden liiketoiminta-yksiköiden päivittäistä työtä	Analytiikkaa hyödynnetään laajasti osana päivittäistä toimintaa	Analytiikka antaa yritykselle selkeää kilpailuetua
	PÄÄTÖKSENTEKO	Päätöksenteossa hyödynnetään raportteja	Päätöksenteko perustuu ajantasaiseen tietoon	Kone tekee yksinkertaiset päätökset	Ihmisen tärkein tehtävä on opettaa konetta. Ihminen valvoo koneen päätöksiä
	ANALYTIIKAN TASO	Raportit kertovat, mitä on tapahtunut	Raportit kertovat, miksi jokin asia on tapahtunut	Analytiikalla pystytään ennakoimaan tulevaa	Analytiikka kertoo, miten voimme vaikuttaa tulevin tapahtumiin
DATA	DATASTRATEGIAN KYPSYYS	Analytiikka tunnistettu strategisesti tärkeäksi kehityskohteeksi	Analytiikan strateginen suunnitelma olemassa	Analytiikan strategia on hyvin linjassa koko organisaation strategisten linjausten kanssa	Analytiikka tukee tehokkaasti organisaation strategian toteutumista. Kehityksen focus "hienosäädössä".
	DATAN OMISTAJUUS	Datalla ei ole omistajaa	Dataelementeillä on nimetty omistaja.	Dataelementtien omistajat tiedossa ja ajantasainen omistajatieto löydettävissä.	Datan omistaja tukee analytiikkaa ja tarvittaessa auttaa datalähteiden hyödyntämisessä datan sensitiivisyyden asettamisa rajoissa.
	DATAN TUOREUS	Raportit pohjautuvat historiatietoon	Ajantasaista tietoa hyödynnetään useissa prosesseissa	Hyödynnettävä tieto on kauttaaltaan ajantasaista ja paikoitellen reaaliaikaista	Hyödynnetään kauttaaltaan reaaliaikaista dataa
	DATAN LAAJUUS	Dataa on, mutta se on siiloissa	Tiedonkeruumenetelmä kehitetään parhaillaan	Data on kartoitettu ja sitä kerätään kaikista mahdollisista tietolähteistä	Ulkoista dataa hyödynnetään täysimittaisesti
	SIJAINTITIEDOT	Sijaintitiedoille ei ole tunnistettu hyödyntämiskohteita	Omaisuus on mallinnettu ja viety kartalle	Analytiikassa huomioidaan sijaintiulottu-vuus	Sijaintitiedot ovat kiinteä osa analytiikkaa
	DATAN OIKEELLISUUS	Datan laatu ei tiedossa	Datan laatua kartoitetaan ja suurimmat kipupisteet kartoitettu	Tärkeimpien analytiikan datalähteiden datan laatu on riittävän hyvää. Sisäisten datalähteiden laatutaso ja ongelmakohdat tiedossa ymmärretään.	Datan laatua varmistetaan jatkuvasti ja ulkoisten lähteiden datan laatutaso ymmärretään
	DATAN SENSITIIVISYYS	Datalähteiden luottamuksellisuus ja datan jakeluluokiteltu eivät tiedossa.	Datan sensitiivisyys on ymmärretty, mutta esim. GDPR-vaatimuksia ei täysin ymmärretä. Monesti käyttö kielletään varmuuden vuoksi.	Datan luottamuksellisuus ymmärretään ja dataa käytetään laajasti analytiikkaan sensitiivisyyden sallimissa rajoissa.	Prosessit sensitiivisen datan pseudonymisointiin olemassa.
TEKNOLOGIA JA ARKKITEHTUURI	DATA-ARKKITEHTUURIN KYPSYYS	Mikä se on?	Data-arkkitehtuuria on alettu kehittää.	Data-arkkitehtuuri tukee analytiikan kehitystä ja käyttöä.	Data-arkkitehtuuria kehitetään jatkuvasti ja se ottaa huomioon tulevaisuuden tarpeet, esim. skaalautumisen suurempiin datamassoihin.
	DATAN HYÖDYNTÄMINEN	Analytiikkaratkaisut ovat pistemäisiä	Keskitetty analytiikkatietokanta on olemassa	Integraatiot mahdollistavat datan hyödyntämisen reaaliajassa	Datasta on rakentunut ekosysteemi
	TEKNOLOGISET RATKAISUT	Ohjelmistoja hankittu ad hoc -tyyliin. "Kuka nyt mitäkin kiikuinta käyttää."	Ratkaisujen päällekkäisyyksiä on karsittu. Ymmärretään missä käyttötarkoituksessa eri ratkaisut ovat parhaimmillaan.	Järjestelmiä käytetään optimoidusti ja mm. lisenssikustannukset on pitkälti optimoitu.	Järjestelmien valinnassa katsotaan tulevaisuuteen. Pystytään tehokkaasti hyödyntämään sovelluksia ja uusia ratkaisuja evaluoidaan.

Appendix 3. Interview questions

- What does knowledge management mean in tourism from the point of view of your activity/unit?

    o What other actors do you identify in knowledge management in addition to yourself, guidance or decision-making?

    o Is it clear to the City of Helsinki what its role and role is in tourism from the point of view of knowledge management?

    o At what level of maturity is knowledge management in your operations, how is the information utilised / how many informed decisions are made?

    o Are there any objectives for the development of tourism, are they clear and known?

    o Is the development of tourism strategically managed?

- What kind of picture do you have of the present?

    o Do you have predetermined indicators, reports on what is regularly monitored, and decisions made based on them?

    o You have data, reports, what could you use?

    o Decision-making, processes, ownership and roles, technology and data, data strategy.

    o Do we need tools to determine the wider current situation? Can you do it alone, or do we need outside help?

- Challenges or risks of the current state of knowledge management from a different perspective:

    o Solutions to these:

    o Are there things that exist and exist ready or things that work well.

- Strengths and opportunities of the current state of knowledge management from a different perspective:

    o What are the things ready?

    o What is the target mode and what are the things you want to achieve?

    o What conditions are needed or what should be done to achieve the target status?

    o Are there solutions or tools to make it easier to get into target mode?

- Free comments

- Expectations of final output and what would bring the most benefits as final output?

Appendix 4. Interviewees

Interviewee 1. Responsible for the development of tourism in the City of Helsinki

Interviewee 2. Leads a tourism safety project funded by the Ministry of Economic Affairs and in the City of Helsinki

Interviewee 3. Responsible for developing restaurant services in the City of Helsinki

Interviewee 4. Responsible for developing the sea services in the City of Helsinki

Interviewee 5. Works at The Lions of Helsinki. The City of Helsinki Development Company is responsible for the biggest events in the City of Helsinki, for example. Tuomaan Market at Christmas

Interviewee 6. Helsinki Marketing and responsible for tourism marketing in Helsinki (role in marketing on the data side).

Interviewee 7. Representative from Helsinki Marketing, Tourist Information

Interviewee 8. At work in the City of Helsinki's Economic Development Division (which will also include the Tourism Unit in the future), it is responsible for developing knowledge-based management.

Interviewee 9. Head of Tourism Unit