



THESIS – MASTER'S DEGREE PROGRAMME

SOCIAL SERVICES, HEALTH AND SPORTS

METHODS FOR KEEPING TRACK OF THE FAST CHANGING DEVELOPMENTS IN THE DIGITALISATION OF SOCIAL WELFARE

AUTHOR/S:

Rein Petteri Strikwerda

Field of Study Social Services, Health and Sports	
Degree Programme Master's Degree Programme in Digital Health	
Author(s) Rein Petteri Strikwerda	
Title of Thesis Methods for keeping track of the fast-changing developments in the digitalisation of social welfare	
Date 2022-07-29	Pages/Appendices 61/15
Client Organisation /Partners KVPS Tukena Oy	
<p>The digitalisation and digital transformation of social welfare is a relevant subject for many welfare organisations. Questions on the subject are related to what is happening in the digitalisation of the field and how to stay updated on the topic. Questions are also arising related to organisational and cultural changes and different organisational processes. The importance of these aspects is emphasised in plenty of literature regarding digitalisation. The Finnish Ministry of Social Affairs and Health has set up a digitalisation strategy until the year 2025 where the same issues are emphasised in order to succeed in digitalisation.</p> <p>The aim of the study is to find answers to (1) how the client organisation keeps track of the fast-changing developments of the digitalisation of social welfare, (2) what are methods for the selection and decision-making process on what is relevant regarding digitalisation, (3) how to secure the right professionals in enhancing digitalisation depending on the steps taken in digitalisation and (4) how to communicate within the organisation regarding digitalisation. The study was conducted as a qualitative research, including an integrative literature review and semi-structured interviews. The interview questions were divided into four themes based on the four thesis objectives, with a total of 19 questions. Relevant literature and interview results are presented in the thesis. Both are integrated into the conclusion.</p> <p>The study revealed a wide range of aspects to consider. It revealed the importance of different information and knowledge management practices. The importance of networks, establishing communities around digitalisation, virtual teams, collaborative structures and co-creation was emphasised, as well as (academical) partnerships. Networks can be on location, virtual, internal, national or international depending on the kind of network. Knowledge audits can be used to capture the tacit knowledge of people. There are many knowledge systems and tools to use. Digitalisation and knowledge must be part of the vision and strategy of the organisation. The digital age asks for a new organisational culture, new management styles and new leadership. Digitalisation is enhanced by implementing different projects. The interviews showed that one person isn't necessarily appointed in enhancing digitalisation. The selection and decision-making process regarding digitalisation can be improved by different frameworks to reach decision quality and by considering different specific aspects, such as supportive, technologic, patient and knowledge aspects. Different approaches were also mentioned by the interviewed participants. Analytics, knowledge audits, a business plan and a digital competency framework are needed in the HR management. Cooperation is important, as no one knows everything. Employees and customers should both be involved in the digitalisation, as they have practice-based knowledge. Change management is needed in the communication regarding digitalisation. Different communication platforms can be useful in communication. Employees should be asked how the platforms are used, as implementation is conducted from the top to the bottom. Different points of view exist whether the starting point of bringing a digital solution to the client is the client's needs or the already available solutions brought to the client. Future studies could be conducted on how digital competencies are secured by having the right professionals in furthering digitalisation. The client organisation should continue further research by utilizing existing networks and increasing collaboration.</p>	
Keywords Change Management, Collaboration, Decision Making, Digitalisation, Digital Skills, Knowledge Management, Organisational Culture, Social Welfare	

CONTENTS

1	INTRODUCTION	5
2	LITERATURE REVIEW	6
2.1	Information Management & Knowledge Management.....	6
2.1.1	Information Sources, Channels and Tools	8
2.1.2	Knowledge-Sharing Tools	9
2.1.3	Knowledge-Sharing Systems	10
2.1.4	Knowledge Audits	11
2.1.5	Networks	11
2.1.6	Different Communities	11
2.1.7	Partnerships	12
2.1.8	Academic Partnerships	13
2.1.9	Joint Ventures	13
2.1.10	Knowledge Capturing	13
2.2	Organisational Culture in the Digital Age	13
2.3	Co-creation.....	14
2.4	Crowdsourcing.....	14
2.5	Multidisciplinary, Interdisciplinay and Transdisciplinary Collaboration.....	15
2.6	Virtual Teams	15
2.7	The Decision-making Process.....	16
2.8	HR Management & Digitalisation	18
2.8.1	Employee Digital Skills	19
2.9	Change Management	21
3	RESEARCH METHODS	24
3.1	Purpose of the Research.....	24
3.2	Research Methods.....	24
3.2.1	Integrative Literature Review	24
3.2.2	Searching Methods	24
3.2.3	Semi-Structured Interviews	25
3.2.4	Constructing the Interview Questions	25
3.2.5	Analysis of the Data	26
4	LITERATURE RESULTS.....	27

4.1	Keeping Track of the Fast-Changing Developments in the Digitalisation.....	27
4.2	Selection and Decision-Making Process on What is Relevant for the Organisation Regarding Digitalisation.....	31
4.3	Having the Right Professionals in Enhancing Digitalisation Depending on the Taken Steps in the Digitalisation.....	33
4.4	Communication within the Organisation Regarding Digitalisation.....	36
5	INTERVIEW RESULTS	39
5.1	Keeping Track of the Fast-Changing Developments in the Digitalisation.....	39
5.2	Selection and Decision-Making Process on What is Relevant for the Organisation Regarding Digitalisation.....	43
5.3	Having the Right Professionals in Enhancing Digitalisation Depending on the Taken Steps in the Digitalisation.....	45
5.4	Communication within the Organisation Regarding Digitalisation.....	47
6	DISCUSSION	51
6.1	Ethical Issues	51
6.2	Reliability & Validity	51
6.3	Discussion About the Results	52
7	CONCLUSION & RECOMMENDATIONS	55
7.1	About the Research Process	55
7.2	Conclusion of the Thesis.....	55
7.3	Recommendations	57
	REFERENCES	58
	APPENDIX 1: INTERVIEW QUESTIONS.....	62
	APPENDIX 2: INTERVIEW ELABORATION CITY OF TAMPERE.....	64
	APPENDIX 3: INTERVIEW ELABORATION AMERPOORT FOUNDATION	68
	APPENDIX 4: INTERVIEW ELABORATION ORGANISATION X	72
	LIST OF FIGURES	
	FIGURE 1. : The DIKW- pyramid (https://commons.wikimedia.org/wiki/File:DIKW_Pyramid.svg). Licensed under Creative Commons Attribution-Share Alike 4.0 International.	6
	FIGURE 2. The Situated Agency of Information Artefacts at the Point of Use (adapted from Byström et al 2019, 120)	9

1 INTRODUCTION

The goal of this thesis is to offer the client organisation handgrips in coping with the fast-changing developments in the digitalisation of social welfare. This is divided into the following objectives: keeping track of the fast-changing developments in digitalisation, selection and decision-making processes on what is relevant for the organization regarding digitalisation, having the right professionals in enhancing digitalisation depending on the steps taken in the digitalisation and communication within the organisation regarding digitalisation.

We are living in the 'Digital Age' (Marchegiani 2021, 5) or 'New Age' with constant disruption, change (Mathew 2019, 80) and new technological innovation. Despite living in the digital age, the 'digital transformation' isn't finished yet and continues on (Marchegiani 2021, 5). New technologies are emerging constantly. We are at the starting point of the 'Fourth Industrial Revolution' (Davis 2016).

In the literature many different terms related to the subject are often used interchangeably, but to mean something different. 'Digitisation' is *"the conversion from an analogue format into a digital format"*. 'Digitalisation' is used to describe *"the use of digital data and technology to automate data handling and optimize processes"* (Buer *et al* 2018, 1036). Both of the previous terms are part of the 'Digital Transformation' (Rijswijk *et al* 2020, 2). Digital transformation is the creation of *"new business opportunities through the use of digital data and technology"* (Buer *et al* 2018, 1036)

Digital Transformation causes the need for a radical organisational and cultural change in digitalisation (Marchegiani 2021, 5) as *"Digital is 10% tech and 90% human"* (Adams 2016).

This is a principle that is found in much literature about digitalisation and is apparent in this thesis. The Finnish Ministry of Social Affairs and Health has set up a digitalisation policy until the year 2025. The requirements needed to succeed in digitalisation are mentioned in this report. These include: strategic leadership and a vision of what developments are needed in digitalisation. The development of leadership behaviour and skills includes transparency and flexibility. Employees should be included in an early state of the decision-making process. Change management skills are needed in digitalisation. To succeed in digitalisation, changes in the working culture, organisational structures and know-how is needed in the organisation's administration. There should be a culture of constant development and a positive attitude to change, listening to people's opinions and reacting quickly to change. A testing culture which allows the possibility of failure is important. Cooperation and networking between different layers and organisations is needed. To make this cooperation and networking possible, common operational models should be created, and breaking down existing hierarchical structures must be considered. Virtual teams should be taken advantage of. The know-how of employees regarding digitalisation should be developed and their motivation should be uplifted by concrete outcomes which digitalisation will bring to the work place. Employees should also have the possibility to be involved and they should be able to influence the process of digitalisation (STM 2016, 24-25). This organisational aspect of digitalisation is the main scope of my thesis.

2 LITERATURE RESEARCH

2.1 Information management & knowledge management

How to keep track of the newest information is critical to many organisations. This includes separating new data from old data. The latest findings are traditionally found in journals, conferences and academic work for instance (Byström *et al* 2019, 135). It is important to know which sources to read and how to select the important information out of these sources. The professionals with the best connections know where to find the best research before it becomes official literature and where to get the latest information (Byström *et al* 2019, 136).

"Knowledge and information management is a range of systematic approaches taken to enable organizations to achieve success through making the best use of the knowledge and expertise available to them" (Schopflin *et al* 2019,3).

'The DIKW- pyramid' shows the different layers of knowledge:

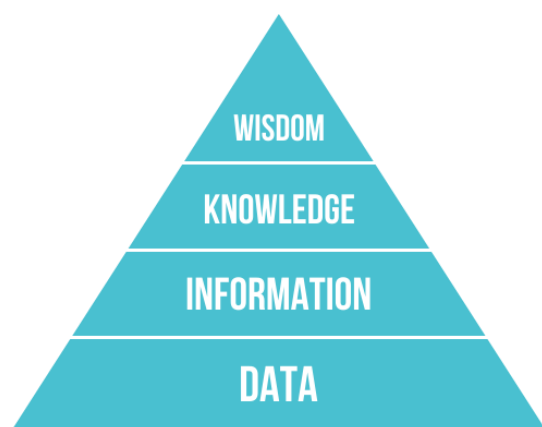


FIGURE 1: The DIKW- pyramid (https://commons.wikimedia.org/wiki/File:DIKW_Pyramid.svg). Licensed under Creative Commons Attribution-Share Alike 4.0 International.

The DIKW- Pyramid is made up of four layers: Data, information, knowledge and wisdom:

Data contains *"numbers, letters, facts and images referring to an event"*. Data on its own is not relevant, but data turns into information after it is interpreted, structured and given context (Marchegiani 2021, 29).

Information gives data a meaning, among other things, by putting it into a context. Information makes a new point of view visible by interpreting the data from a certain event (Marchegiani 2021, 29).

Knowledge *"can be considered the product of the process of learning, derived from the interpretation of information on cause-effect relationships and from application of that information. It is information that has been authenticated and is thought to be true. Knowledge is made of interpretation, beliefs, perspectives and expectations"* (Marchegiani 2021, 30). "Knowledge is what is acquired through study or practice" (Chouikha 2016, 14).

Wisdom is the capability of increasing effectiveness. It requires judgement and adds value to knowledge. These can be ethical values and they can differ from person to person (Marchegiani 2021, 30).

A distinction is made between knowledge management and information management. When organisations facilitate the opportunities for knowledge sharing and expression, it becomes information that is managed. (Schopflin *et al*/2019, 2)

Information is data which is interpreted. Data is all kinds of numbers or codes and information is, among other things, anything in text, audio or video. Knowledge is explained as an "*understanding that people have*" after absorbing information and integrating and processing it together with the already existing information and knowledge that the person has (Byström *et al*/2019, 35). Knowledge can be tacit or codified. People's tacit knowledge about the same information, event or object can differ. This is knowledge inside people's minds which is difficult to codify and thus hard to share with others. This is the type of knowledge that an employee takes with them when leaving the organisation. Knowledge is a "*combination of information, skills and experiences that is intrinsic to the individual (and/or team)*". This is the reason why people with the same codified knowledge can have different tacit knowledge (Byström *et al*/2019, 36). Codified knowledge could be for instance books, manuals, databases (Chouikha 2016, 15) and recordings of an event (Byström *et al* 2019, 36). Codified knowledge can be delivered by educational institutions and can be both analogue or digital. (Chouikha 2016, 15). Knowledge should be used as an organisational resource (Marchegiani 2021, 34).

Knowledge and information management should among other things cover the following aspects: it should identify knowledge needs within the organisation, identify the knowledge within the minds of the employees, maintain and secure this knowledge, transform this knowledge into information, enhance the exchange of knowledge, provide systems, technical support and organisational learning. There are three approaches to doing so: looking at the entire organisation through knowledge audits, the creation of a knowledge infrastructure, such as structured databases, and enhancing the collaboration, learning and training within the organisation. (Schopflin *et al*/2019, 7) Knowledge is of strategic importance and should be included in the vision and strategy of the organisation. This must be understood by the leaders. Next to collaboration, knowledge-sharing and the creation of a supportive and positive working environment should be promoted. Concretely, this means that leaders should motivate and acknowledge the employees working in the organisation. When knowledge-sharing is not seen as a power tool, trust within the organisation will be increased. Knowledge should be accessible for everyone in the organisation, for example by sharing personal experiences with peers. When realizing that knowledge-sharing practices are already utilized, observe how the processes of these practices are benefitting the organisation and use these good practices for the organisation's knowledge sharing strategy (Janus 2016, 12). There should be shared goals, but roles must be divided. However, this means that working in silos should be avoided (Janus 2016, 3). Knowledge should flow effectively between peers and external stakeholders. There should be thought in how the approaches fit each level: internal, national and international (Janus 2016, 6). People from different organisational levels should be regularly in contact with each other, so that different expertise can reach all parts of the organisation from the professional expert advisors to the front-line workers who have contact with the users of services and products. This should be the task of the information or knowledge manager (Schopflin *et al*/2019, 14).

Knowledge sharing is a subtitle of knowledge management that includes knowledge exchange (*"information, skills, experiences, or expertise"*) within the organisation and between organisations. Shared knowledge can flow in one direction, but a more common type is *"two-way or multilateral exchange"*, where cross-organisational learning or learning between different departments is the aim (Janus 2016, 4).

What is good information management? Support should be received from the senior management level. They must lead by example. Everyone should have access to repositories and communication channels, and internal social media channels should be utilized and new channels piloted by user groups. A network of 'champions' should be built around the organisation "to set examples and support cultural change" (Schopflin *et al*/2019, 41). This network of champions, also known as the 'champion model', is a community concentrated on one specific subject or activity. Members of that community use their knowledge of a certain subject and their influence within their own unit (Schopflin *et al* 2019, 67).

2.1.1 Information sources, channels and tools

Information sources and information channels from the point of view of the employees are called *'information artefacts'*. Information sources are *'carriers of information and knowledge'* and the channels connect these sources. Thirdly, there are information tools, which can be separated into three categories: *"tools for storage, for collaboration and for retrieval and searching, and for conducting a closer examination of the concepts of information systems, social media and enterprise information search"* The information artefacts have three central information-related activities: *"information seeking, information searching and information needs"* (Byström *et al* 2019, 103). There are several kinds of information sources. For instance, literature and colleagues, but also project documentation and different kinds of events. Peers and networks of people have also been seen as an important information source (Byström *et al* 2019, 107). Information sources can be, among others, printed, oral or digital (Byström *et al* 2019, 108). Examples of information channels are *"librarians, information search engines and peers who know whom to turn to, whereas using a mobile phone to get hold of a colleague or to access a database"* (Byström *et al* 2019, 109). Information sources and information channels are used interchangeably as different functions can be both (Byström *et al* 2019, 110). An information channel can be a communication channel, which is *"an umbrella concept of an information tool"*. 'Enterprise Social Media' increase employees' awareness on the specific knowledge someone in the organisation has. It shows the connections between employees (Byström *et al* 2019, 113). The organisation's 'intranet' can be an information channel, information source and an information-sharing tool (Byström *et al* 2019, 114). Through intranet *"information, information sources and additional information channels are accessible"* (Byström *et al* 2019, 115).

Tools for data storage have evolved into collaboration tools. Cloud computing has made it possible to store data on centrally organized servers. This has made it possible that data is accessible anywhere, anytime and collaboration is possible through 'real-time co-writing' (Byström *et al* 2019, 115).

The figure (2) below illustrates the different information artefacts in the context of work.

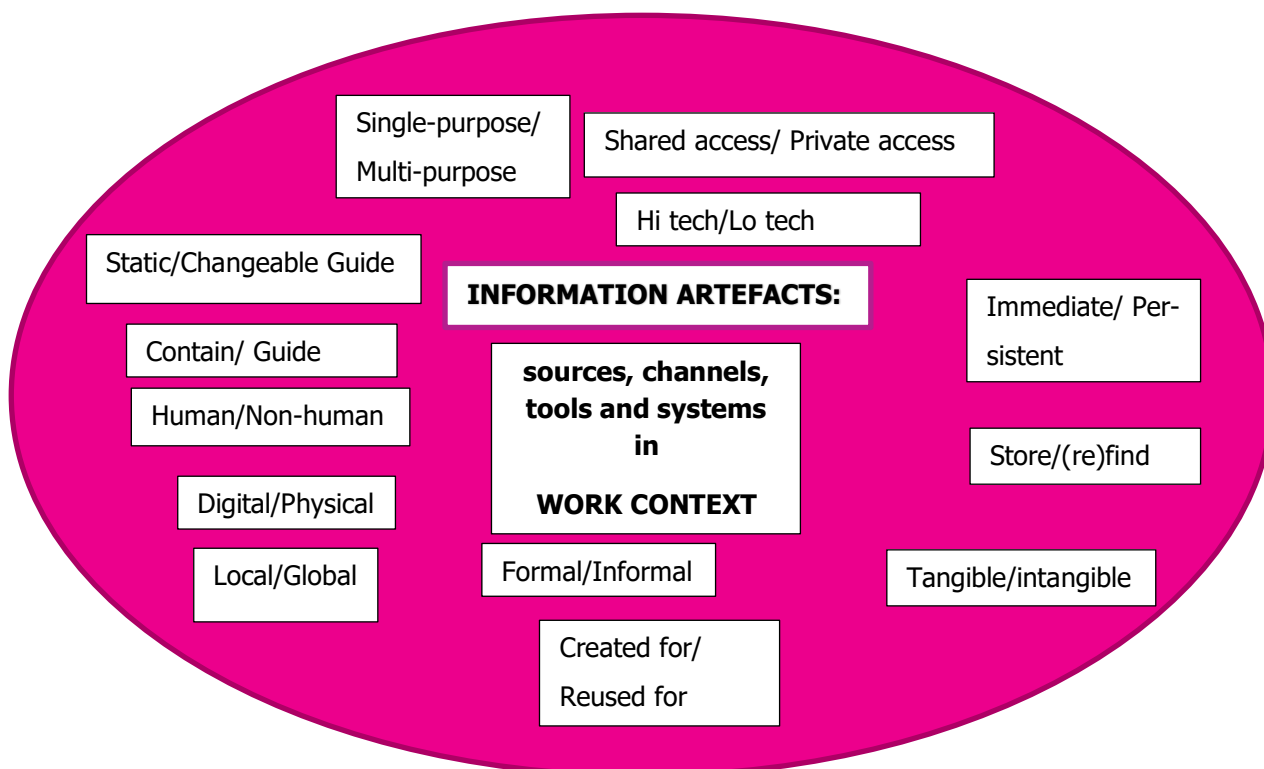


FIGURE 2: The Situated Agency of Information Artefacts at the Point of Use (adapted from Byström *et al* 2019, 120)

2.1.2 Knowledge-sharing tools

Next to email as a knowledge-sharing tool, there are cloud-based collaboration tools. Documents are centralized and every worker can make changes. The other workers receive a notification when changes are made (Schopflin *et al* 2019, 37).

Among other popular tools is 'Jive'. Jive is a platform "for posting questions among groups" (Schopflin *et al* 2019, 59). Participation is rewarded through badges and points, also called 'gamification'. Every user has a profile and can get notifications about relevant discussion threads. 'Yammer' is another enterprise social media network. Users can build and join networks and social feeds and share content. 'Slack' is a discussion application that enables users to gather to discuss different topics and collaborate on documents. 'Microsoft Teams', including their Office 365 platform, makes collaboration and document sharing possible. Platforms such as 'Docebo', 'Moodle' and 'Blackboard' are examples of virtual learning platforms where people can have conversations, collaborate on documents and share information. (Schopflin *et al* 2019, 60)

Different information technology tools are nowadays easy to access and low-cost, and can support knowledge sharing on a large scale which can "enable peers to build results-oriented collaborations and long-term partnerships." It is important to realize that knowledge management is not about

technology and does not make knowledge-sharing happen, but only facilitates knowledge sharing (Janus 2016,32).

2.1.3 Knowledge-sharing Systems

Intranet and extranet: An internet-based information network within the organisation. The information an employee has access to can be customized depending on the employee's job description. Extranet is an extension of intranet which also includes access for external partners, suppliers and customers (Janus 2016, 34).

Knowledge base: An electronic database on the computer, which makes the storage, administration and the access of information systematically possible (Janus 2016, 34).

Expertise locator: Identifies and locates experts based on the area of expertise. Each expert has a profile page and can be located through a search engine. The profile page shows each person's experience and expertise. It is a tool in connecting people who have the ability to help each other (Janus 2016, 34).

Wiki: An 'online knowledge base' in which a specific subject can be discussed and where each subject has an editing page. It also includes a revision history log. Through a wiki page employees can systematically share insights, knowledge and learned lessons (Janus 2016, 35).

Learning Management Systems (LMS): Software application platforms for online courses and collaboration (Janus 2016, 36).

Social media networks: Knowledge-sharing tools, which give its members access to important knowledge and advice, and enhances networking (Janus 2016, 36).

Blogs: Also known as 'web logs', are internet-based diaries or journals. One or more people are responsible for updating the blog, which is done frequently. It is a great knowledge-sharing tool which can include specific themes and thoughts among others. Readers can comment on and share interesting postings (Janus 2016, 36).

Webinars: Real-time online meetings mainly focused on a presentation about a specific subject and making interactive discussion possible. During the meeting, the participants have direct view of the presenter, the presentation slides and the audio stream through their personal computers. Webinars reach many people and are cost-effective. Nowadays most software can record webinars which can be used later (Janus 2016, 36).

Information Technology (IT) platforms as mentioned earlier (intranet, wikis, etc.) can give guidance and improve the know-how of employees, but as these platforms transfer information based on a top-down approach it is important to evaluate the knowledge-sharing capabilities of the organisation's IT systems by asking staff members if they use the offered platforms, what they are missing and what should be improved (Janus 2016, 107).

2.1.4 Knowledge audits

Knowledge audits can be used to discover the flow of tacit knowledge and where to find it. Through interviews, discussions and questionnaires, tacit knowledge can be captured. Possible gaps, for instance because of employee turnover, can be found by having regular knowledge audits and the recruitment strategy of an organisation can be adjusted (Schopflin *et al* 2019, 101). This so-called 'gap analysis' is focused on what is missing in the organisation. This analysis puts current organisational competencies against what is required. The skill gap is the difference between the two and should be addressed. The gap analysis helps to identify the knowledge in a specific area and can help to disseminate the knowledge more effectively. The analysis can identify and help in the development of new skills for emerging functions (Janus 2016, 56). The organisation could also identify the skills and knowledge which are needed to succeed in a specific area. A 'knowledge map' could be created which supports the identification of who shares knowledge with whom and where this stops (Schopflin *et al* 2019, 101), but also where it is located and who owns the knowledge (Janus 2016, 56). Knowledge profiles can be set up for every employee, so that it is known what knowledge is lost when an employee leaves the organisation (Schopflin *et al* 2019, 101). This will help to identify colleagues when they search for particular knowledge or expertise to fulfil a task (Janus 2016, 56). Questions an organisation can ask themselves are (Schopflin *et al* 2019, 101): "*What knowledge exists in the organisation, what knowledge can we not do without, what knowledge do all staff need, what type of expertise do our most successful competitors employ, who shares knowledge the most and what are their areas of expertise and what is the career profile of the key knowledge-holder in the organisation?*" (Schopflin *et al* 2019, 102).

Exit interviews and knowledge-sharing events should be considered: when an employee changes career or retires, it can be necessary for the organisation's 'institutional memory' to document their knowledge through an exit interview (Janus 2016, 95).

2.1.5 Networks

Networks are important in knowledge sharing. They are a way to distribute knowledge resources across multiple organisations. Networks can among other things increase "*innovation and adaptation of promising solutions*" between national and international members (Janus 2016, 50).

Digital platforms make it possible to expand the organisation's and the employees' social networks and manage knowledge from external sources. These networks create value in knowledge by receiving, storing, processing and/or transmitting information (Marchegiani 2021, 37). It is important to have direct ties with other organisations as this creates a better knowledge flow and better communication and sharing, which results in more relevant and detailed information. This not only refers to organisations but also to individuals between different organisations (Marchegiani 2021, 39).

2.1.6 Different communities

Community of practice: Communities which are formed around a particular working area or field. When they already exist within the organisation, value can be added by providing online tools, organ-

izing events and help in bringing the newly gained knowledge in the community back to the organisation. It is a cheap way to share information and learn from each other (Schopflin *et al* 2019, 53). Communities of practice must create output, such as "*discussion and analysis of common issues*" and "*solutions found to common problems*". A supportive community helps in problem-solving by giving information and advice. (Schopflin *et al* 2019, 55). In a large and heterogeneous community of practice the language, topics and engagements are less specific, which might cause the community to assign less value to the members (Schopflin *et al* 2019, 64).

Communities of interest: Communities of interest are formed at work around any possible topic, not necessarily work related. Such communities are made up of people from different areas and are mostly formed spontaneously. Communities of interest aim to achieve goals and get clear results, and differ from communities of practice which are often 'talking shops.' Managers with less experience can use this type of community to connect and share experiences with peers (Schopflin *et al* 2019, 65).

Communities of purpose: A community of purpose sets up goal(s) which are specific and time limited. The goals aren't necessarily part of an official project, but the community gathers to achieve a specific outcome by using located and online spaces (Schopflin *et al* 2019, 66).

Virtual communities (see also: Chapter 2.6 Virtual Teams): Virtual or online communities bring professionals with similar concerns together into discussion and they work as tools for collaboration, sharing knowledge and learning from each other at a single location with a shared history. These online communities are cross organisational, informal or formal, structured, and can use private networks such as MS Teams (Schopflin *et al* 2019, 61), Sharepoint (Schopflin *et al* 2019, 62) or social media channels among others. Online communities of practice have an inbuilt structure with retrievable activity which makes them "*useful repositories for knowledge about a particular subject*" (Schopflin *et al* 2019, 61). Peers in an online community might work in other offices within the organisation, or in different organisations in other cities and countries. (Schopflin *et al* 2019, 63) Organisations become more 'lean' and smaller (Schopflin *et al* 2019, 64).

As mentioned, there is a large variety of different communities and teams. These can be permanent communities (Chouihka 2016, 36) or temporary communities (Chouihka 2016, 37).

The Champions Model: This is a community concentrated on one specific subject or activity. Members of that community use their knowledge of a certain subject and their influence within their own unit "*with a set of values or practices developed outside*". This task is often an extra responsibility which is not part of the employee's job description, and because of that the employee is not rewarded for this undertaking. Nevertheless, this model can give its members job satisfaction, identity and a sense of ownership (Schopflin *et al* 2019, 67).

2.1.7 Partnerships

Partnerships are important for every organisation "*in increasingly complex environments*". When focusing on international partnerships, they can increase the "*exposure to good practice*" in the working field. When focusing on national partnerships, they can enhance learning among other things. Other forms of partnerships can focus on financing and "*help with research and development, peer reviews,*

and knowledge capturing." (Janus 2016, 45). Partnerships add more *"variety and depth of expertise"* to participants and give them fresh ideas. *"Partnerships enable organizations to adapt in a more agile way to rapidly evolving environments"* (Janus 2016, 46).

2.1.8 Academic partnerships

When creating partnerships with academic institutions such as universities, expertise and knowledge can get brought into the organisation, for example methodologies for research and partnerships in skilled course development. Academic partners get the possibility to test theories and do research. Student teams are beneficial in developing new relevant work force skills (Janus 2016, 51).

2.1.9 Joint ventures

Joint ventures are two organisations working collaboratively or having a joint specific task toward a common goal. Despite having the same goal the organisations keep their own identity. The task's length can vary and it ends when the goals are reached. In joint ventures a formal agreement is set up, including shared responsibilities and goals (Janus 2016, 51).

2.1.10 Knowledge capturing

After knowledge is collected, it must be captured and preserved so that it is searchable, retrievable and available all the time, without being dependent on experts. Benefits among others are the prevention of loss of knowledge, the increase of decision-making speed and quality and building resources for staff education and external knowledge sharing (Janus 2016, 53).

When having the right knowledge, decision-making can be improved. Therefore not only explicit knowledge such as literature and case studies should be captured, but also the experiences of employees in the organisation. Capturing knowledge should be done selectively and choices should be evaluated to avoid unproductivity (Janus 2016, 54). The criteria for knowledge worth capturing are the following: the knowledge resource should be relevant, so that it shows a clear need. The focus of the knowledge resource should be narrow, as otherwise it is hard to find the necessary information. Lastly, the resource should be easy to capture and to validate, and the resource might be in risk of being easily lost (Janus 2016, 55).

2.2 Organisational culture in the digital age

Nowadays (in the the digital age) non-human sources of knowledge have been brought up next to networks of humans, which brings out great opportunities for knowledge creation for organisations. However, this change asks for a new organisational culture, new management styles and new leadership. This is where the Peoples Management comes into the picture. Organisations should be able to leverage their most important assets such as as networking and knowledge. This is the human capital which can not yet be replaced by robotics and artificial intelligence. In this new situation, an organisation must transform itself and its culture in a fully collaborative organisation. This includes continuous innovation and the appreciation of new ideas from all over the organisation. To make this all happen employees should feel motivated to participate. This means that employees should be

satisfied in their work. The management should understand their motivation and move towards individual expectations. (Marchegiani 2021, 44).

2.3 Co-creation

Leaders should consider from where to get resources and opportunities, but also how access to competence is developed. In this matter, everyone can be a partner/stakeholder as '*a resource and opportunity base, from consumers to employees at all levels*' (Ramaswamy *et al* 2014, 15). Historically, it has been the customers who have not been involved in the process of value creation. Their perspectives can be important in value creation (Ramaswamy *et al* 2014, 28). All the partners or stakeholders are individual co-creators, who make their own contributions to experience-based value creation, and they should be equal (Ramaswamy *et al* 2014, 248). No organisation can nowadays act alone and achieve success. Everyone is linked together interdependently through networks. Customers, employees and stakeholders in general can come up with innovative ideas which are valuable for the organisation as they can give insights that would have otherwise remained unnoticed (Ramaswamy *et al* 2014, 280).

In enhancing digital transformation, 'employee participation in co-creation' is important. It promotes innovation and effectiveness in work. Employee participation can be enhanced further by using 'enterprise social media'. Involving employees is important in improving the digital transformation because of the knowledge employees possess (Garmann-Johnsen *et al* 2018, 1). Employees have knowledge about the organisation and about new technologies among other things. They can influence their colleagues in accepting new technologies and influence their behaviour, including changes in work processes. Employees who are in direct contact with customers and have knowledge and experiences about practises can be involved in digitalizing these same practises or come up with new ideas. Employees can therefore be involved in implementing new services, giving feedback when failures appear in the service design, from the viewpoint of caregiver-customer. Employees might have important contacts and education necessary for innovation, and have a vision of how this innovation could be implemented as they know the organisation (Garmann-Johnsen *et al* 2018, 2). To make employee co-creation run smoothly, 'Enterprise Social Media' (ESM) could be implemented, i. e. social media within the organisation (Garmann-Johnsen *et al* 2018,3). Enterprise Social Networks can only be used successfully if there is a "*culture of openness and transparency*" where employees feel free to share ideas, opinions, and feel involved. To make ESM successful, there should be an environment of helping each other, financial rewarding systems and support from the leaders who should motivate employees in sharing-knowledge. Barriers appear when old behaviour does not change, for example information being hoarded rather than shared. Lack of trust and time is also a barrier for the implementation of ESM (Garmann-Johnsen *et al* 2018,4).

2.4 Crowdsourcing

Crowdsourcing platforms and hackatons makes it possible to get new ideas from external people. They can be designers or experts, but also other customers visiting hackaton events. New skills and knowledge can be accessed (Marchegiani 2021, 26).

2.5 Multidisciplinary, interdisciplinary and transdisciplinary collaboration

Multidisciplinary collaboration means that researchers work parallel to address a common problem. When collaborating interdisciplinarily, researchers do work together to address a common problem as a whole. With transdisciplinary collaboration researchers work together and are *"using a shared conceptual framework that draws together concepts, theories and approaches from the parent disciplines"*. Transdisciplinary collaboration can break down the borders between all the different disciplines and create new frameworks. The challenge is to understand the jargon of all the disciplines and to form a shared problem by integrating the different perspectives. This takes time and demands patience from the members (Mitchell 2005, 332).

When a clear difference between collaboration, cooperation and coordination is needed, it is possible to see them as parts of a pyramid: *"cooperation at the base, coordination in the middle, and collaboration at the top"*. Between the three, there are differences in *the "levels of interdependence, organisational structure, commitment, and risk"*. Professionals who are in collaboration are *"interdependent, more organized, highly committed to one another, and take more risks as a group"* (Iachini *et al* 2018, 15).

With collaboration, the organisation's borders get vaguer and organisations get more mutual and interdependent relationships. Collaboration between organisations is getting easier as the technical tools for making this possible develop. Collaboration gives access to more information, knowledge and expertise. By collaboration costs can be shared which decreases the risk of failure (Marchegiani 2021, 25)

2.6 Virtual teams

Information technology has made the meaning of a workplace broader. Communication technology has created 'digital workplaces' where the closest colleagues aren't physically working together, but virtually (Byström *et al* 2019, 8).

Virtual teams refer to teams with geographically distributed members. The members work together with electronic devices and face-to-face interaction is rare. Members work interdependently on tasks, but share all the responsibility for collective team outcomes (Malhotra *et al* 2007, 60).

Virtual teams are different from physical teams and should also be lead differently. The differences are in communication, coordination and collaboration. It should be considered which communication technologies are facilitating the virtual work and knowledge sharing the most effectively. *"Leaders of virtual teams spend time mentoring the team members, enforcing norms, and recognizing and rewarding members and the team. However, some of these responsibilities are difficult to exercise without the benefit of physical presence"* (Malhotra *et al* 2007, 62).

2.7 The decision-making process

In decision-making the "*distinction between decisions and outcomes*" is made. Good decisions do not always lead to good outcomes. Outcomes can not be controlled, but the choices made can be controlled. Decisions can be improved when the differences between good decisions and good outcomes are recognised. (Spetzler *et al* 2016, 7).

Spetzler *et al* (2016) describes a method of coming to a good decision. He calls it 'Decision Quality'. In the decision-making process there are six requirements which lead to a good decision. "(1) *an appropriate frame, (2) creative alternatives, (3) relevant and reliable information, (4) clear values and trade-offs, (5) sound reasoning, and (6) commitment to action.*" (Spetzler *et al* 2016, 11).

In the decision frame, the problems and/or opportunities are addressed. This includes the purpose of the decision-making, the scope of the decision being made and the perspective of the decision makers. This further includes the point of view, how the decision will be approached, the conversation on what will be needed and the people participating in these conversations. The decision frame can be set up in a broad or narrow scale. When the decision frame is broad, it may involve many stakeholders and include several issues. A narrow decision frame "*involves fewer people, departments, and resources*" Depending on the situation, the frame should be '*not too narrow and not too broad*'. When choosing the wrong frame, there is the risk that the wrong problems get solved or that the opportunity is addressed wrong (Spetzler *et al* 2016, 13).

To make qualitatively good decisions, many alternatives should be presented before making a final decision. Creative alternatives lead to more value (Spetzler *et al* 2016, 13). Alternatives preceding a single decision could be for example the choice between several digital solutions. How to grow as an organisation is a strategy theme that includes many decisions which are connected to each other. Decisions are more complicated than just accepting or rejecting a proposal based on already familiar ideas or experiences (Spetzler *et al* 2016, 14).

Relevant and reliable information is important. Firstly, there should be a clear picture of each possible outcome for each alternative. What is relevant is all the important information "*that we know, would like to know, or should know about the outcomes of the decision*". The information is reliable when it is "*trustworthy, unbiased, and comes from authoritative sources*" (Spetzler *et al* 2016, 14). Information should also be specific and based on facts. Also, trends should be studied and experts should be interviewed (Spetzler *et al* 2016, 15).

Clear values or preferences are important when assessing the benefits of each alternative. The values could be financial and non-financial. Non-financial values can be ethical standards for instance. Ethical standards are a part of the decision frame. When an alternative breaks this ethical standard, it can be dropped. It is rare that one alternative includes everything needed, which is why 'trade-offs' must be made by the decision makers. It should be considered which values are the most important to keep and which values can be dropped (Spetzler *et al* 2016, 15).

Decisions are based on values, information and alternatives. Sound reasoning integrates these values and clarifies which alternatives have to be searched to get what is wanted, based on the available

information. The conclusions from this step must be defended through argumentation phrases, such as "*I am choosing this alternative because... I used the following data and analysis tools in selecting this alternative*" In uncertain situations 'reasoning tools' can be used to clarify the sound reasoning step (Spetzler *et al* 2016, 16).

When all the previous five steps are fulfilled, it is time to act by implementing the decision made. The right people should be involved in the decision-making process; people with the authority and the right resources to bring the decision forward (Spetzler *et al* 2016, 16) and people who are implementing the decision (Spetzler *et al* 2016, 17). Before making a choice, it is important to go through all the steps once again (Spetzler *et al* 2016, 18).

In decision-making it is important to avoid biased mindsets, which can be for instance beliefs, lessons learned, preferences, prejudices and unconscious assumptions. When something does not fit with a biased mindset, the first reaction is rejection and attack (Spetzler *et al* 2016, 126).

It makes a difference if one person is making the decision or if there are many involved. Also, it is important to know if the decisions made include staff or only management, and whether customers are included too (Garcia-Perez *et al* 2019, 30).

The organisation should have a vision of its external business environment. It should also have a picture of how digitalisation is affecting the organisation, the latest trends, what competitors are doing and how suppliers and vendors are performing. Additionally, the organisation should know what is happening in the political environment. Decisions should be based on the organisation's long-term goals and vision (Garcia-Perez *et al* 2019, 44).

Baudin *et al* (2021), has conducted a study which explores the different aspects of the decision-making in assistive technology organisations regarding new technology procurement. The scope of the study is assistive technology for the ageing population (Baudin *et al* 2021, 1).

The results of the study are divided into four subgroups: "*supportive aspects, technology aspects, patient aspects, and knowledge aspects*" (Baudin *et al* 2021, 4). The study has shown that there is still much to develop when it comes to decision-making regarding assistive technology (Baudin *et al* 2021, 11). When it comes to policy and guidelines which belong to the supportive aspects of decision-making, the participants in the study mentioned that they have guidelines which support them in purchasing traditional tools, but regarding innovative technology brought up by patients and their relatives and prescribers they make *ad hoc* decisions. The criteria are as followed: the assistive technology must meet CE-certification and specific ISO standards. There are decision support models and prioritization models provided by a university, but this is not further specified (Baudin *et al* 2021, 5). Lack of support affects decisions on new assistive technologies. When it comes to technology aspects managers' decisions are motivated by cost-functionality and sustainability concerns. This includes quality, maintenance, reusability and replacement of the assistive technology (Baudin *et al* 2021, 6). The practise shows that it is sometimes still easier to replace a device than to reuse it. Therefore it is important to consider the life cycle of the solution. When a solution is reused, it is important to consider how easy it is to get the solution repaired, as well as the level of the knowledge and skills of the technicians and the order time duration. It is important to estimate the lifetime of a solution and make

financial calculations based on it, and to set up criteria. The repairing costs should not be more than a certain percentage of the expense of purchasing a new device. When taking a closer look, the patient aspect, such as patient rights, equity and equality, is important. The patients are for instance involved in the procurement of the assistive technology (Baudin *et al* 2021, 7). Thus, the assistive technologies are offered according to the patient's needs. A wide range of different technologies should be provided for the patient and the patient's legal rights should be respected. The user perspective should be considered and feedback about a solution should be asked for. It is still important to avoid subjective answers from users, such as feedback based on personal needs (Baudin *et al* 2021, 8). A focus group would be ideal. Patients should have access to new technologies to support them in their daily life as they have legal rights. In this case, the organisation should consider some points regarding the decision-making process: what should be the size of the target group and how much influence a person-centred assistive technology assessment should have on the procurement? How far does the responsibility of the organisation go in giving access to new assistive technology, and where is patient themselves responsible? At the same time, the legal rights of the patient must be considered and the organisation should be aware of the power it has over the patient whether assistive technology is purchased or not. Another aspect concerns knowledge discrepancy (Baudin *et al* 2021, 9). To make the right decisions, employees must have the right competencies to cope with assistive technologies. The value of devices should be scientifically proven, and digital skills should be increased. Expertise should be brought in and developed in the organisation. Knowledge should be shared between different organisations, so that managers know whether a solution works as described and if value is being created. This could support the decision-making process (Baudin *et al* 2021, 10). Technology suppliers do have an important role in the decision-making process. They present new solutions which are on the market, educate the organisations about new technologies and their usage. The negative result of this is the creation of dependence on the supplier. Conclusively, an evidence-based approach is needed to take a critical look at new technologies (Baudin *et al* 2021, 11).

2.8 HR Management and digitalisation

Analytics in Human Resources (HR) are important. It is a way to show the linkage between people and business outcomes. Nowadays important subjects in HR analytics are big data, algorithms and automation. These are technologies used to collect important data, but the value of this data is limited as long there are not enough people who are able to extract information and get insights from this data. When this is solved, effective decisions can be made through these methods (Johnson-Murray *et al* 2016, 5).

Measurements and analytics in HR are used to "*understand, improve, and optimize the people side of business*". Metrics focus on '*counting, tracking, and presenting past data*'. Analytics use statistics 'to help you see patterns in the data' (Johnson-Murray *et al* 2016, 5).

There is quantitative data, which are numbers. Then there is qualitative data, such as human observations. The latter one is difficult to measure, but as important. Examples of it are '*exit interview responses, reasons for declining a job offer, or performance goals*' (Johnson-Murray *et al* 2016, 28).

A more-year business plan should include necessary action regarding workforce management which is 'on a daily base' the management of people (Miller 2016, 7). Adding specific competencies to a job is important. This can be done by having a competency framework. Competencies can be seen as *'key observable behaviour'*. These behaviours can be seen, measured and improved *"as they consist of skills, knowledge, and experience"*. It is important to remember that *"the focus needs to be on the key competencies"*, when deciding on the job competencies. Be practical and focus on the key competencies of a job (Miller 2016, 44).

Isson *et al* 2016 talks about 'talent management', which has evolved from Human Resources. Ways should be found to identify how talent can be used to inspire new strategies and create new services (Isson *et al* 2016, 45). Talent management business questions or goals are based on *"workforce planning, talent sourcing, talent onboarding"* (Isson *et al* 2016, 58), and *"talent development"* among others. The organisation should ask themselves what kind of skill sets they need in order to achieve the objectives of the business; what is the talent in the organisation that should be developed, rewarded and promoted; where to search to find the best talent; what is the type of employee that should be attracted and which employees should be retained (Isson *et al* 2016, 59).

2.8.1 Employee digital skills

In the 'digital age', employees with digital skills should be attracted and the competencies of employees should be renewed. *"To make this all happen, an option is to develop internal knowledge of existing employees, capturing external knowledge by recruiting digital talents and access to external knowledge by networking and collaboration."* (Marchegiani 2021, 16). When the organisation wants to gain competitive advantage in the 'digital age', it must increase its flexibility and become strategically agile (Marchegiani 2021, 15).

In many organisations employers are looking for people with digital skills and especially soft digital skills. These skills are e.g. *'troubleshooting'*, skills in learning, customer-centric thinking, goal-centric thinking and collaboration. These are the skills of a compatible digital professional. The combination of the fast developments in digitalisation and organisations not being capable of upskilling their employees fast enough causes an ever growing digital talent gap in the employees. To avoid this, HR departments and leaders of the organisation should understand the importance of digitally talented people and therefore develop a *"digital talent strategy for upgrading and attracting digital talent"*. Digital talents should be integrated into different teams within the organisation. Digital talents should be acquired through different channels, and most importantly, new channels be found to acquire them. Channels can be coordinated together with educational institutions in developing and creating digital talent according to the needs of the organisation. Digital platforms should be further utilized, such as using LinkedIn to hire digital talents. Employees should take the initiative to upgrade their digital skills and learning new skills. The organisation should develop and promote a culture which makes this possible. Employees should be rewarded for their initiatives. Financial and non-financial incentives should be created for the employees who acquire the right digital skills which answer the organisation's needs. When the organisation sets up a clear *"career development path"* for the digital talents, it increases the commitment of the employee. This makes it more likely that the employees are engaged in the organisation's development and in developing their digital talents even further.

Digital talents should have the freedom and power to put the necessary changes through. HR departments and leaders must be open-minded and keep in mind that during innovation and experimentation failure may occur. Creative thinking and flexibility should also be encouraged (Nair 2019, 17).

Health professionals should be prepared for the increasing digitalisation of the field. This could be done by improved training of health professionals and better incentives. The education of professionals should continue *"in the knowledge, use and application of digital health technology"*. The organisation could set up development programs to train professionals in digital skills. (European Health Parliament 2016, 2).

IT professionals working in the healthcare environment must have skills in software engineering and database development, ethics, data privacy and information security (European Health Parliament 2016, 5).

Health Informatics professionals should have skills in project management and communication, development in data-driven solutions and software, 3D image processing, designing and implementation of tools for measuring data, information security, interoperability and analysing data (European Health Parliament 2016, 5).

Administrative staff must have skills in communications, computer literacy, project management and information security among others (European Health Parliament 2016, 5).

Professionals working in the field should have skills in communication, computer literacy, the use of medical devices, mobile applications and data protection programs, data analysis, the ability to read, understand and forward information by using smart devices, using internet and cloud storage (European Health Parliament 2016, 5).

With competencies, we refer to a set of skills, knowledge and attitudes. Employees must understand the complexity of digitalisation to be competent. They should also have the will to take risks. Only by making mistakes can people learn. Organisations may deal with questions like *"where to start"* and *"how to stay competitive amid constant turbulence and disruption?"* (Vey *et al* 2017, 26)

Sihvo *et al* 2018 points out seven competencies which are important to have as an organisation: technology and knowledge management competence, which requires having understanding and a complete view of digitalisation, being capable of applying technology at work, knowledge management competencies, and skills in *"data protection, data security and cyber security skills"*. Secondly, competencies in guidance and counselling are the skills of the promotion of customer and employee participation, skills in guidance and counselling, the ability to market digital services and skills in service management of the digital environment. The third competence is interaction and communication, which requires online communication with the ability to use digital media. The fourth competence is the development of services and applications. This requires skills in developing innovative services and its processes. This must be customer oriented and based on evidence. Leaders must have skills in continuous development of these services and applications. The fifth competence is multidisciplinary collaboration and networking competence. This requires the ability to engage in multidisciplinary collaboration with, for instance, technology companies in application development and deployment. The

sixth, ethical competencies, include skills in investigating and lifting up the ethical concerns of digitalisation and the participation in the development of existing and new ethical guidelines. This includes development within the organisation, as well as the process of implementing these new guidelines into the organisation.

Lastly, self-management competence refers to the skills in enhancing innovation and having the motivation to promote digitalisation in the organisation as an 'eProfessional' (Sihvo *et al* 2018).

2.9 Change Management

Digitalisation is in many ways already present in social welfare organisations. Support from information systems, planning and documentation and communication (communication between employees and between professionals and clients) among others. The use of support services such as chatbots is debated, (Ifenthaler *et al* 2021, 131). Decision support systems, which are based on algorithm and big data analysis, are also in the same position. Social and ethical challenges are coming together with digitalisation, but also opportunities for the employees and social services. The pros and contras of digitalisation and its effects must be monitored (Ifenthaler *et al* 2021, 132).

Employee participation and transparent communication are crucial in the change management process, as change processes can cause uncertainty among employees. By involving employees in the process, they can have control over the situation and will stay involved. Clear goals and visions should be established and communicated transparently within the organisation (Ifenthaler *et al* 2021, 134). This requires leadership. Leaders should have skills to support people at the bottom, instead of leading from the top. Leaders can influence the "*feelings, behaviours and efficiency*" of the employee, by inspiring participants by presenting a vision and explaining the future direction of the organisation. (Mathew 2019, 76). Employees are engaged and connected when they trust their leaders. Trust can be a factor of influence when it comes to change. When trust has been low for a long duration, it is also difficult to improve (Mathew 2019, 78). Communication is the main factor of '*organisational change success*'. Mathew 2019 talks about the 'New Age' which includes '*disruption*', '*Artificial Intelligence*' (AI) and "*ongoing rapid organisational change*". This new age causes constant change, which requires good explanation from leaders in order for them to be accepted by employees (Mathew 2019, 80). Resistance to change is caused by lack of "*information supply, employee participation and employee trust*". Past acts, such as behaviour, messages and results can cause lack of trust even if the leader now appears to be honest (Mathew 2019, 86). An organisational culture of "*shared assumptions, beliefs and values*" are important for gaining the trust of employees (Mathew 2019, 161).

Because of this new age of digitalisation, the traditional 'three-phase approaches' of change management with a beginning, middle and end, do not work. Some change management models are for example "*Kurt Lewin (unfreeze, change, refreeze)*", "*William Bridges (ending, neutral zone, new beginning)*", "*Daryl Conner (present state, transition state, desired state)*", and "*John Kotter (creating the climate for change, engaging and enabling the organization, implementing and sustaining the change)*". (Flanding *et al* 2018, 61). " In the digital age, organisations are permanently in the middle phase, because of the constant change of the digital technologies (Flanding *et al* 2018, 61). Organisations should support their employees in coping with the continues change of the work field, to make

the employees resilient and to let them embrace digital transformation and innovation (Flanding *et al* 2018, 62).

When implementing a digital solution such as an Electronic Health Record (EHR) the following aspects should be considered, as pointed out in a study of Scott *et al* 2018. Resistance among professionals can be tackled by using 'change leaders' at every level of the organisation. These change leaders should be respected and networked and have as their task to empower and motivate their colleagues to accept change and to take their scepticism away. Professionals should participate in the testing and training of the solution (Scott *et al* 2018, 303), as acceptance can be improved by configuring the solution or software with the end-user's input and by testing in order to gain acceptance (Scott *et al* 2018,305). A user training and support program should be provided for all the employees working with a new digital solution, for example "*Hands-on demonstration sessions, web-based tutorials, practice laboratories and problem-solving exercises*". Training could be also provided by using 'sandpits'. These are prototype versions of a specific solution where different situations and workflows can be practised. These trainings should be provided during working hours (Scott *et al* 2018, 306). Communication regarding the digital transformation of the organisation requires a clear and convincing long-term vision covering the entire organisation from the leaders. The clear benefits of the digital solutions should be communicated, as well as the need for change. The message must be supported by peer-reviewed literature and practical experiences of other peer organisations. Oversell must be avoided and there should be transparency regarding the challenges before the full benefits of the solutions are realized. Professionals want to hear the benefits of the solution regarding their work (Scott *et al* 2018, 306) and the benefits for the clients (Konttila *et al* 2018, 13), rather than cost savings and IT goals. It helps when there is an organisational culture of "*innovation, collaboration and teamwork*" with '*tech-savvy*' employees. These employees are mostly young people, with close connections with other peers. They are open-minded towards new experiences and change or have already experienced the positive sides of eHealth technologies. Conducting regular surveys can help in the employees feeling like they are being supported, empowered and ready for the introduction of a new digital solution (Scott *et al* 2018, 306).

Communication continues after the implementation of the digital solution, by modifying and repairing the solution based on feedback on its functioning. This is an ongoing process. The use of 'champions' who support colleagues in the use of the solution is also continued. The digital solutions should be *evaluated "for system quality (response times, user satisfaction), information quality (completeness, accuracy and accessibility), service quality (improved care and operational processes) and net benefits (reduction in errors, efficiency gains, improved patient outcomes, cost savings)"*. (Scott *et al* 2018, 307). The digital solution needs regular refresher training, where the differences in professionals' competencies is considered, so that every professional can get maximum benefits out of the training (Konttila *et al* 2018, 15).

Increasing the competence of the employees regarding digital solutions is important in avoiding negative experiences towards the usage of technology. Negative experiences in the past influence the adaption and the acceptance of other technologies negatively (Konttila *et al* 2018, 6). Education around digitalisation is often seen as pointless, because the benefits are not understood. Resistance

appears because of fears of being overheard and because of prejudices around the usage of digital solutions (Konttila *et al*/2018, 13). Practical problems should be avoided, such as the lack of space or not having suitable equipment. Professionals should be given the time and resources to get used to the new solutions. (Konttila *et al*/2018, 14).

3 RESEARCH METHOD

3.1 Purpose of the research

The purpose of this research is to offer the KVPS concern handgrips in coping with the fast-changing developments in the digitalisation of healthcare and social welfare. This research has as its goal to find answers to the following topics:

- (1) keeping track of the fast-changing developments in digitalisation;
- (2) the selection and decision-making process on what is relevant to the organization regarding digitalisation;
- (3) having the right professionals in enhancing digitalization depending on the steps taken;
- (4) communication within the organization regarding digitalisation.

3.2 Research method

This thesis work is a piece of qualitative research, divided into two parts: integrative literature review and semi-structured interviews (Attia 2020).

The goals of this qualitative research are to identify and characterize the patterns of behaviour: what are the existing viewpoints of digitalisation, the individual perceptions around the topic and the objectives and attitudes of employees and employers regarding the topic. It is important that the research questions are answered comprehensively (Ott 2016).

3.2.1 Integrative literature review

My aim with the integrative literature review is to summarise past research and use that research to make conclusions on my research questions related to digitalisation (Coughlan *et al* 2017, 15). I wanted to gain a broad understanding of the thesis topic, partly because there was a lack of clarity among the researchers, but also to possibly create new perspectives around the thesis topic. My purpose was to reframe the existing views around past research by integrating them into the thesis objectives. The literature review is made up of books, former studies, reviews, conferences, official reports and in the case of terminology I use the websites of reliable sources (companies, organisations and universities).

3.2.2 Searching methods

Literature searches were made through the database of Savonia-Finna (e-literature), Google Scholar, Google search engine and studies and reviews from former study courses downloaded from Savonia Moodle (Ott 2016). The used search terms were: digital transformation, knowledge management, information management, tacit knowledge, knowledge sharing, co-creation, digital skills, digital competences, virtual teams, crowdsourcing, collaboration, digitalisation, organisational change, change management, social welfare, healthcare, information sharing, decision making (process), management of change, human resources, HR analytics, People Analytics, Digital HR Transformation or any combination of these terms. Many of the search terms were created during the literature search process. A log was created from the terminology. I limited the literature to a maximum of 10 pieces per

subject. My aim was to use recent literature; from the beginning of the writing process in 2021 I mostly used literature no older than five years. The purpose of this was to exclude as much dated literature as possible. Excluded were also sources from websites regarding the official review section. The literature I searched for was mainly in the English language. In some cases, I used Finnish or Dutch literature. Literature was chosen based on the abstract or content page (Coughlan *et al* 2017, 16).

3.2.3 Semi-structured interviews

The semi-structured interviews consisted out of 19 open questions divided into four research objectives. All interviews were conducted remotely through MS Teams and recorded through MS Teams. MS Word was used for the transcription. The interviews were conducted in Finnish or Dutch. The automated transcriptions in Finnish and Dutch were checked for mistakes caused by the transcribing software. Afterwards, the Finnish and Dutch transcriptions were translated into English by MS Word. Elaborations were made from the English interview transcriptions. The process from the actual interview in Finnish and Dutch to the elaboration in English increases mistakes and misinterpretations by the translation software and by the researcher. To avoid this, consent of the interviewees has been asked for before publication. I decided to write an elaboration in English of the Finnish and Dutch transcripts, as it was challenging to translate the transcripts literally due to differences in the structures of the languages. The interviewees were free to read the English elaboration and when requested, the transcripts, to control the accuracy of the content.

The semi-structured interviews supported existing literature through new information, approaches, frameworks and insights. Comparison of the interviews and literature was a measure taken to increase the quality of the thesis work and to showcase possible contradictions between data from interviews and existing literature. I interviewed three participants from three different organisations. The expertise of all the participants varied, which made different points of view visible. (Ott 2016).

3.2.4 Constructing the interview questions

When constructing the interview questions, my aim was to avoid several pitfalls. I wanted to avoid academic language, confusing terminology, leading questions, interpretive questions, fact questions and yes/no questions. The questions started with 'what', 'how', 'why' and 'tell me about'. In the draft version, I had nearly 40 questions. I was aware that the large number of questions could be an obstacle for people to participate and would reduce the quality of the questions. After piloting the questions by reading them to other people, I reduced the number to 19. I piloted them once again by sending the questions to the supervisor of Savonia UAS and asked the client organisation for input. By reducing the questions, the interview became more open, and leading questions based on the researcher's existing knowledge were filtered out. I considered many aspects with the interview questions: organisational processes, employee and management aspects, strategy and methods among others. By asking the participants for success stories and any unmentioned facts I increased the openness factor of the interview, hoping for new insights, and I was aware of possible bias from the side of the researcher (Ott 2016).

3.2.5 Analysis of the data

I use an inductive approach in my thesis. In brief, this means that I start with research questions, continue with data collection, formulate empirical generalisations (in other words summarise the findings) and finish with a conclusion (Ruane 2016, 35).

I went through the selected literature with the starting point of identifying what the literature is telling me about the research questions (Aveyard 2014, 100). I marked relevant literature with different colours, each colour presenting a particular research question. I added the relevant literature to my literature review and re-read the text several times, removing parts which presented the topic too incomprehensively. Through this method, I got to know my literature and I started to see links between different parts of literature (Aveyard 2014, 100). The interviews I transcribed as described earlier. I started to code the literature and the transcriptions: "*Coding is the process of segmenting and labelling text to form descriptions and broad themes in the data*" (Creswell *et al* 2020, 179). Further, I divided the text into segments, which I labelled with codes. I reduced the overlap of codes and collapsed them into themes (Creswell *et al* 2020, 180).

4 THE LITERATURE RESULTS

4.1 Keeping track of the fast-changing developments in digitalisation



Effective information and knowledge management

In order to keep track of the fast-changing developments in the digitalisation of social welfare the organisation has to have effective **information and knowledge management**. It should:

- identify knowledge needs within the organisation;
- identify the knowledge in the minds of the employees;
- maintain and secure this knowledge;
- transform this knowledge into information;
- enhance the exchange of knowledge;
- provide systems and technical support;
- provide organisational learning. (Schopflin *et al*/2019, 7)

There are three approaches to information and knowledge management:

- looking at the entire organisation through knowledge audits;
- the creation of a knowledge infrastructure, such as structured databases.
- enhancing collaboration, learning and training within the organisation. (Schopflin *et al*/2019, 7)

In the knowledge management there are **knowledge resources, knowledge channels and knowledge tools** (Byström *et al*/2019, 103).

Keeping track of the newest information is critical to organisations (Byström *et al* 2019, 135).

Knowledge resources are literature, such as journals, books and manuals. Project documentation,

academical work and conferences, networks of people, peers and databases (Byström *et al* 2019, 107, 109, Chouikha 2016, 15). These sources can be in printed, digital or oral form (Byström *et al* 2019, 108). Knowledge resources inside of the organisation are valuable. The professionals with the best connections know where to find the best research, and where to get the latest information (Byström *et al* 2019, 136). **Tacit knowledge**, knowledge inside the heads of people, is more difficult to capture. That is why knowledge-sharing practices are needed (Byström *et al* 2019, 36).

Knowledge channels are e.g search engines and networks of people (Byström *et al* 2019, 109).

Knowledge tools are tools in knowledge sharing and capturing. This can include for example enterprise social media and cloud-based collaboration tools (Byström *et al* 2019, 115). Tools for data storage have been evolving through the years with **collaboration tools** (Byström *et al* 2019, 115). Through cloud computing data can be accessed anytime and anywhere and real time co-writing is made possible (Schopflin *et al* 2019, 37). **Knowledge-sharing tools** are for example Jive (Schopflin *et al* 2019, 59), Slack, Yammer, Microsoft Teams including Office 365. Virtual learning platforms are Docedo, Blackboard and Moodle (Schopflin *et al* 2019, 60).

One thing can be all of these at once: a resource, channel and tool, for example an Intranet. Networks of people are a resource and a channel (Byström *et al* 2019, 114).

Information and knowledge management is made up of, among other things, **knowledge sharing, knowledge capturing and knowledge audits.**

Knowledge sharing is enhanced by:

- The creation of a supportive and positive working environment;
- Trust within the organisation; knowledge should not be seen as a power tool;
- Working in silos must be avoided;
- Expertise should flow through all the layers of the organisation, from expert to grassroot workers;
- Knowledge should flow internally, nationally and internationally by taking into account different suitable approaches (Janus 2016, 3, 6, 12, 14).

Networks are important in knowledge-sharing (Janus 2016, 50). Different **communities** can be established (Schopflin *et al* 2019, 53, 55, 61-66), as well as partnerships (Janus 2016, 45, 46, 51). **Collaboration** should be enhanced (Marchegiani 2021, 44).

There are **communities of practice, communities of interest, communities of purpose** (Schopflin *et al* 2019, 53, 55, 61-66) and the "**Champions Model**". This is a community concentrated on one specific subject or activity. Members of that community use their knowledge of a certain subject and their influence within their own unit (Schopflin *et al* 2019, 67). These communities can be **local or virtual** (Malhotra *et al* 2007, 60).

Knowledge-sharing systems and platforms can be also used for capturing knowledge in and outside the organisation. Examples of knowledge-sharing systems are: **Intranets and extranets, knowledge bases, expertise locators, wikis, learning management systems, social media networks, blogs and webinars** (Janus 2016, 34-36).

These systems and platforms can give guidance and improve the know-how of employees. Notably, many of these platforms are working from the principle of a **top-down approach**. It is important to evaluate the usage of these platforms by asking staff members **if they use them, what they are missing and what should be improved** (Janus 2016, 107).

Partnerships can help increase good practises and learning and can give support in development, research, knowledge capturing and peer reviews. Partnerships provide variety and depth of expertise and increase new ideas (Janus 2016, 45-46). **Academical partnerships** through universities bring expertise and knowledge into the organisation (methodologies for research and partnerships in skilled course development). Academic partners also get the possibility to test theories and do research. Student teams are beneficial in developing new relevant work force skills (Janus 2016, 51). Partnerships can be **national or international** (Janus 2016, 45).

Knowledge capturing

- When knowledge is collected it must be captured and preserved.
- It must be searchable, retrievable and available all the time.
- This prevents the loss of knowledge, increases the speed and quality of decision-making, builds resources for staff education and external knowledge sharing.
- When having the right knowledge, decision-making can be improved.
- Codified knowledge and tacit knowledge should be captured. Capturing knowledge should be selectively done and choices should be evaluated to avoid unproductivity.
- The knowledge resource should be relevant and the focus of the knowledge resource narrow, because otherwise it is hard to find the necessary information. The resource should also be easy to capture and to validate, and the resource could be in risk of being easily lost (Janus 2016, 53-55).

Knowledge audits

Knowledge audits can be used to discover **the flow of tacit knowledge** and where to find the tacit knowledge. Tacit knowledge can be captured through **interviews, discussions and questionnaires** (Schopflin *et al* 2019, 101). *Continues in RQ 3.*

A clear strategy and vision

Knowledge is of strategic importance, so it should be included in the strategy and vision of the organisation (Janus 2016, 12). The same applies to digitalisation. When digitalisation isn't a part of a clear vision and strategy, people are not dedicated to developing practises in the organisation (Ifenthaler *et al* 2021, 134, Mathew 2019, 76, Hardeman 2017).

A network of champions could be created to support cultural change and to set a good example (Schopflin *et al* 2019, 41).

Organisational culture, management styles and leadership

The **digital age** asks for a new organisational culture, new management styles and new leadership. Important assets are organisations' networks and their knowledge. These are the human capitals which can't yet be replaced by robotics and artificial intelligence (Marchegiani 2021, 44).

Organisations must transform their culture in a **fully collaborative** organisation (Marchegiani 2021, 44). This includes:

- **continuous innovation and the appreciation of new ideas** from all over the organisation (Marchegiani 2021, 44);
- The ability to **motivate the employees in participation** and to keep them satisfied by meeting individual expectations (Marchegiani 2021, 44);
- Co-creation: **employees and customers** from the whole organisation are **valuable resources**; they are **co-creators** who make their own contributions to **experience-based value creation** (Ramaswamy *et al*/2014, 15, 28, 248);
- When furthering the **digital transformation** in the organisation '**employee participation in co-creation**' is important. It enhances innovation and effectiveness in work. Employee participation can be enhanced further by using '**Enterprise Social Media**' (social media within the organisation). Employees may have knowledge about the organisation and about new technologies, networks and important education. This needs **a transparent and open organisational culture** where employees feel involved and free in sharing ideas and opinions (Garmann-Johnsen *et al*/2018, 1, 2);
- **Crowdsourcing** platforms and **hackatons** make it possible to get new ideas from external people (Marchegiani 2021, 26).

Collaboration in the digital transformation is important. There are different forms of collaboration: **multidisciplinary, interdisciplinary and transdisciplinary collaboration** (Mitchell 2005, 332). Professionals who are collaborating are interdependent on one another, more organized, committed and take more risks as a group (Iachini *et al*/2018, 15). Borders are getting vaguer. Technical tools are making collaboration easier. Collaboration gives access to more information, knowledge and expertise. By collaboration costs can be shared and the risk of failure decreased (Marchegiani 2021, 25).

Collaboration can also be boosted by establishing **virtual teams**. It must be considered that a virtual team requires different approaches than an allocated physical team to be successful in terms of communication, coordination and collaboration (Malhotra *et al*/2007, 62).

4.2 Selection and decision-making process on what is relevant for the organization regarding digitalization



Decision Quality

In the decision-making process it is important to control the choices being made. Good decisions do not always lead to good outcomes. (Spetzler *et al* 2016, 7). There are multiple methods of coming to good decisions. Spetzler *et al* (2016) points out 6 requirements to come to a good decision, the so-called Decision Quality points (Spetzler *et al* 2016, 11):

(1) An appropriate frame. The problems and/or opportunities are addressed. This includes among others the purpose of the decision-making, the scope of the decision being made and the perspective of the decision makers. This includes the point of view, how the decision will be approached, the conversation on what will be needed and the people participating in these conversations (Spetzler *et al* 2016, 13).

(2) Creative alternatives. Many alternatives should be presented before making a final decision. Alternatives with a single decision could be for example the choice between several digital solutions (Spetzler *et al* 2016, 13, 14).

(3) Relevant and reliable information is important in order to find a clear picture of each possible outcome for each alternative. Information is fact based and specific, trends should be studied and experts interviewed (Spetzler *et al* 2016, 14, 15).

(4) Clear values are needed to assess the benefits of each alternative. Values could be financial and non-financial, such as ethical standards. Ethical standards are part of the decision frame too. When an alternative breaks this ethical standard, it can be dropped. It is rare that one alternative includes everything needed, which is why 'trade-offs' must be made by the decision makers (Spetzler *et al* 2016, 15).

(5) Sound reasoning is the integration of the decisions based on values, information and alternatives. The conclusions from this step must be defended through argumentation phrases, such as "*I am choosing this alternative because... I used the following data and analysis tools in selecting this alternative*" In uncertain situations 'reasoning tools' can be used to clarify the sound reasoning steps (Spetzler *et al* 2016, 16).

(6) Commitment to action means the implementation of the decision made. The right people with authority, the right resources and commitments must be included. All the steps should be gone through before making a final decision (Spetzler *et al* 2016, 16-18).

External business environment

The organisation should have a picture of its external business environment. It should have a vision of how digitalisation is affecting the organisation, the latest trends, what competitors are doing and how suppliers and vendors are performing. The organisation should know what is happening in the political environment. Decisions must be based on the organisation's long-term goals and visions (Garcia-Perez *et al* 2019, 44).

Who are involved in the decision-making process?

It makes a difference if one person is deciding or if there are many involved. Also, it is important to know if the decision made includes staff or only management, and if customers are included as well (Garcia-Perez *et al* 2019, 30).

Supportive aspects, technology aspects, patient aspects, and knowledge aspects in decision-making (Baudin *et al* 2021, 4).

In the decision-making process regarding assistive technology **supportive aspects** should be considered, such as policy and guidelines: technologies must be CE- certified; a solution should meet specific ISO- standards and the decision support guidelines can for instance be made in cooperation with universities (Baudin *et al* 2021, 5). When considering **technology aspects**, the outcome from the study is that the decisions are motivated by cost-functionality and sustainability. This includes maintenance, quality, reusability and replacement; in practice it is often easier to replace than to reuse the device. The life cycle of the solution should be considered; the product should be compatible with new product solutions for having a longer lifespan. When a solution is to be reused, it is important to consider the order time durations, how easy it is to get the solution repaired and the level of the knowledge and skills of the technicians; estimate the lifetime of a solution and make financial calculations. Set up criteria; the repairing costs should not be more than a certain percentage of the price of a new device (Baudin *et al* 2021, 6, 7). Regarding the **patient aspect**, the following considerations have been brought up: the patients' legal rights, equity and equality should be taken into account and respected; the patients are for instance involved in the procurement of the assistive technology and the technologies are offered according to the patients' needs. A wide range of different technologies should be provided for the patient; be aware of the power the organisation has over the patient whether assistive technology is purchased or not; the user perspective should be considered and feedback about a solution should be asked; patient should have access to new technologies to support them in daily life (Baudin *et al* 2021, 7-9). The **knowledge aspects** are: to make the right decisions

employees must have the right competencies to cope with digitalisation and assistive technologies; the value of devices should be shown scientifically; digital skills should be increased; expertise should be brought in and developed in the organisation; knowledge should be shared between different organisations, so that managers know whether a solution does work as described and create value. Technology suppliers do have an important role in the decision-making process. They present new solutions which are on the market, educate the organisations about new technologies and its usage. The negative result of this is that it will create dependency on the supplier. An evidence-based approach is needed to take a critical look at new technologies (Baudin *et al*/2021, 9-11).

Evaluation of the solution after implementation

Digital solutions should be *evaluated "for system quality (response times, user satisfaction), information quality (completeness, accuracy and accessibility), service quality (improved care and operational processes) and net benefits (reduction in errors, efficiency gains, improved patient outcomes, cost savings)".* (Scott *et al* 2018, 307).

4.3 Having the right professionals in enhancing digitalisation depending on the steps taken in the digitalisation



Analytics

Analytics are important when the linkage between people and businesses outcomes need to be shown. Technologies which collect data, such as automation, algorithms and big data can help in these analytics. It only requires people who can extract information and get insights from this data. To see patterns in data, statistics can be used: quantitative data, which is numbers. Then there is qualitative data, such as human observations. The last one is difficult to measure, but important. Examples are 'exit interview responses or performance goals' (Johnson-Murray *et al*/2016, 5).

Knowledge audits, gap analysis & knowledge maps

Knowledge audits can be used to discover the flow of tacit knowledge and where to find the tacit knowledge. Tacit knowledge can be captured through interviews, discussions and questionnaires (Schopflin *et al* 2019, 101). Regular knowledge audits can show knowledge gaps by implementing a 'gap analysis' and based on these outcomes the recruitment strategy of an organisation can be adjusted. This analysis puts current organisational competencies against what is required. New skills can be developed (Janus 2016, 56). The organisation can identify the skills and knowledge that are needed to succeed in a specific area. A 'knowledge map' could be constructed which supports the identification of who shares knowledge with who and where this stops (Schopflin *et al* 2019, 101), but also where it is located and who owns the knowledge (Janus 2016, 56). Knowledge profiles could be set up for every employee, so that it is known what knowledge is lost when an employee leaves the organisation (Schopflin *et al* 2019, 101). It will help to identify colleagues when they search for a particular knowledge or expertise to fulfil a task (Janus 2016, 56).

Business plan

Workforce management, people management or HR management needs a more-year business plan that should include necessary action regarding workforce management 'on a daily base', i.e the management of people. A competency framework should be made for specific jobs (Miller 2016, 44).

Talent management

Ways should be found to identify how talent could be used to inspire new strategies and create new services (Isson *et al* 2016, 45). Talent management business questions or goals are related to for instance workforce planning, talent sourcing, talent onboarding, and talent development (Isson *et al* 2016, 58). The organisation should ask themselves what kind of skill sets they need to achieve the objectives of the business; what is the talent in the organisation that should be developed, rewarded and promoted; where to search to find the best talent; what is the type of employee that should be attracted and which employees should be retained. (Isson *et al* 2016, 59).

Talent gap strategy

In the digital age employees with digital skills must be attracted into the organisation and competencies of existing employees must be updated (Janus 2016, 56). The 'digital talent gap' increases when employees aren't upskilled faster than the newest digital developments appear. A digital talent strategy for upgrading and attracting digital talent must be developed (Nair 2019, 17).

Organisational culture

Employees should take the initiative to upgrade their digital skills and learn new skills. The organisation should develop and promote a culture which makes this possible. Integrate digital talents into different teams within the organisation. Develop and create the digital talents together with educational institutions. Use digital platforms to hire digital talents. During innovation and experimentation failures can appear. HR departments and leaders must be open-minded and keep that in mind. Encourage creative thinking and flexibility. Develop digital skills through courses and education (Nair 2019, 17). External knowledge should be accessed through collaboration and networking (Marchegiani 2021, 16).

Training of professionals

Training of health professionals should be improved in preparation for the increasing digitalisation of the field. The education of professionals should continue in the knowledge, use and application of digital health technology. The organisation can set up development programs to train professionals into digital skills (European Health Parliament 2016, 2).

Skill sets in digitalisation

'Soft skills' are important digital skills. An example of this is '**troubleshooting**', which can be described as a systematic approach to problem solving. Other soft skills are **collaboration, skills in learning, customer-centric thinking, and goal-centric thinking** (Nair 2019, 17).

Depending on the position and job description of the professional it is important to have a specific skill set in enhancing digitalisation in the social and healthcare: **IT professionals** should have skills in software engineering and database development, data privacy and information security, as well as ethics; **health informatics professionals** should have skills in project management and communication, development in data-driven solutions and software, 3D image processing, designing and implementation of tools for measuring data, information security, interoperability and skills in analysing data; **administrative staff** must have skills in communications, computer literacy, project management and information security; **professionals working in the field** should have skills in communication, computer literacy, the use of medical devices, mobile applications and data protection programs, data analysis, the ability to read, understand and forward information by using smart devices, using the internet and cloud storage (European Health Parliament 2016, 5).

Organisational competencies

An organisation should possess several competencies in digitalisation. With competencies, we refer to a set of skills, knowledge and attitudes (Vey *et al* 2017, 26): Competency in **technology and knowledge management** primarily refer to having an understanding about **digitalisation's overall picture**. It includes competency in **data protection, security and cyber security**. Other competencies include **knowledge management** and knowing how **technology** could be **applied** into work.

Competencies in **guidance and counselling** include skills of **promotion of customer and employee participation**, skills in **guidance and counselling**, the ability to **market digital services** and skills in the **service management** of the digital environment.

Communication competencies include **online communication** and the ability to use **digital media**.

Competencies in developing different **digital services and applications** refer to the skills in developing **innovative services and its processes**. This must be **customer-oriented** and **based on evidence**. Leaders must have skills in the **continuous development** of these services and applications.

Competencies in **networking and multidisciplinary collaboration** are important, for example engagement in **multidisciplinary collaboration** with technology companies in the **development and implementation** of applications.

Under **ethical competencies** are the skills in investigating and lifting up the **ethical concerns of digitalisation** and the participation in the development of **existing and new ethical guidelines**. This includes the development within the organisation, as well as the process of implementing these new guidelines into the organisation.

Self-management competence means the skills in **enhancing innovation** and having the **motivation to promote digitalisation** in the organisation as an **'eProfessional'** (Sihvo *et al* 2018).

4.4 Communication within the organization regarding digitalization



Communication

Communication is the main factor in successful change management, as organisations are constantly changing in the digital age (Mathew 2019, 80). Change processes can cause uncertainty among employees. Employees should be involved in the process, so that they can have control over the situation and feel involved in digitalisation. Employee participation and transparent communication are good methods (Ifenthaler *et al* 2021, 134). Leaders must communicate clear and compelling future goals and visions. Explain the benefits and the need for change, supported with peer-reviewed literature and good practices of other peer organisations (Scott *et al* 2018, 306). Be transparent about the challenges before the full benefits of the solutions are realized (Scott *et al* 2018, 306). Professionals want to hear the benefits of the solution for their work and the benefits for the clients (Konttila *et al* 2018, 13), rather than information on cost savings and IT goals (Scott *et al* 2018, 306). Communication must continue after the implementation of the digital solution by making it possible for employees to give requests about fixes and modifications (Scott *et al* 2018, 307).

Avoid resistance and increase acceptance

Resistance to change is caused by lack of information, employee participation and trust among employees (Mathew 2019, 86). Resistance among professionals regarding digitalisation can be tackled by using change leaders at every level of the organisation. These change leaders should be respected and networked and have as their task to empower and motivate their colleagues to accept change and to take their scepticism away (Scott *et al* 2018, 303). Resistance appears because of the fear of being overheard and the prejudices surrounding the usage of digital solutions (Konttila *et al* 2018, 13). Professionals should participate in testing and training of the solution to improve acceptance (Scott *et al* 2018, 303). End-users' input can be used to improve the solution and software (Scott *et al* 2018,305). A user training, education or support program should be provided for all the employees working with a new digital solution: practice laboratories, problem-solving exercises and 'sandpits', prototype versions where you can practise multiple scenarios and workflows. These trainings should be provided during working hours and enough time should be provided for them (Scott *et al* 2018, 306). Practical problems should be avoided and there should be suitable equipment available and a comfortable space to work (Konttila *et al* 2018, 14).

Leadership and organisational culture

Leaders must have skills to support people at the bottom, instead of leading from the top. Leaders must inspire employees by presenting a vision and explaining where the organisation is heading to. Leaders must also gain trust to engage employees and to make successful change possible (Mathew 2019, 76). The digital transformation requires leaders to present good motives for their decisions in order to gain acceptance (Mathew 2019, 80). Organisational beliefs and values should be shared by everyone in the organisation in order for everyone to gain trust (Mathew 2019, 161). In the digital transformation the traditional three-phase approach does not work, as organisations are stuck in the middle phase of 'change' or 'transition state' (Flanding *et al* 2018, 61). Organisations should support employees in building personal resilience to cope with this constantly changing environment (Flanding *et al* 2018, 62). The organisational culture must support innovation, collaboration and teamwork (Scott *et al* 2018, 306). Employees who have more positive experiences with digital solutions are more open to change. Increasing the competence of the employees regarding digital solutions is important in increasing positive attitudes towards digitalisation (Konttila *et al* 2018, 6). Surveys should be conducted on a regular basis. This can help in the employees feeling supported, empowered and ready for the introduction of a new digital solution (Scott *et al* 2018, 306).

Offer support

Colleagues must get support in the use of the solution. This can be done by the use of 'Champions' (Scott *et al* 2018, 307). The digital solution needs regular refresher trainings, where the differences in professionals' competencies is considered, so that every professional gets maximum benefits out of the training (Konttila *et al* 2018, 15).

Communication systems and platforms

There are several systems and platforms to communicate within the organisation regarding digitalisation, such as Intranets and extranets, learning management systems, social media networks, enterprise social media, blogs and webinars. These platforms can be good communication tools, but what has to be taken into account is that these platforms transfer information based on a top-down approach. That is why it is important to evaluate these systems by asking staff members if they use the offered platforms, what they are missing and what should be improved (Janus 2016, 107).

5 INTERVIEW RESULTS

I have interviewed three organisations through semi-structured interviews. The interview questions are divided into four subjects based on the research objectives. The interview questions as well as the elaborations of the interviews are found in appendix 1 - 4. The interviewed parties are staff members of the city of Tampere, Amerpoort Foundation (the Netherlands) and an organisation who wished to stay anonymous. I name this organisation X and its two projects which are mentioned are titled project 'A' and 'B'. Every participant presented a different role in their organisation. The interview questions were answered from their perspective. The interviewee from Amerpoort Foundation points out more personal experiences in digitalisation and the interviewee answered the questions from the perspective of a particular digitalisation project.

5.1 Keeping track of the fast-changing developments in digitalisation.

- Different ways of enhancing of the digitalisation of the organisation

Cooperation with different departments

The city of Tampere promotes the digitalisation of their organisation through the cooperation between different departments in the organisation. For example, the digitalisation of support services for healthcare and social service workers and the city's inhabitants is improved by cooperation between the city's ICT department and the healthcare and social service centres and the reception services. These services are increasingly focused on digital solutions. Improving these digital services is done together with the development planning officers from the healthcare and social service centres. Cooperation includes the development of digital services for the healthcare and social welfare, and supportive solutions for these digital services.

Project leaders

The staff member of Amerpoort foundation states that the promotion of digitalisation is done by project leaders.

Projects

One and a half years ago, a project leader in Amerpoort Foundation was appointed to map the digitalisation of the field. A project leader within the organisation is currently working on several digitalisation projects, such as the new Electronic Patient Record (EPR).

Organisation X also works in terms of different projects with a specific theme regarding digitalisation. The projects last several years. New activities are based on the lessons learned from former projects. They continue the promotion of digitalisation connected with increasing digital skills, more systematically experimental activities and bring this to the use of services. The aim is to set up regional "digi-clubs" to bring this forward.

Partnerships

Project A of organisation X is done together with partners who have approximately the same target group. Resources are put together locally in order to be a strong local player, to get more visibility,

as well as more say in things and better connections, perhaps to those who can sponsor these activities and have their own services in digitalisation.

Responsibility over digitalisation

Nobody in organisation X has complete responsibility over promoting digitalisation. Within the organisation the chief financial officer (CFO) has the responsibility over ICT procurements and other back-office functions also related to ICT. There is no dedicated IT manager or development manager in the foundation who develops the organisation's own operations. The responsibilities are determined by the projects and spread out by the resources. It depends on the project.

The continuous improvement of services

In the organisation of the city of Tampere the aim is to continuously improve the services. This is maintained by the utilization of a "service point portfolio", where all the developed digital solutions are gathered.

- The organisation's strategy and vision

In Tampere city a strategy regarding digitalisation is set up. The strategy in the years 2017-2020 the goal was to get an answer to the question of how services could be developed into digital ones and the aim for 2025 is to primarily offer all services digitally (Box 1).

In organisation X, digitalisation has risen up quite clearly in the organisation's strategy. There are three strategic goals: the goal around personal customer experience defines that customers should be able to cope with the transformation of a digitalizing society. Organisation X specified that they are an open-minded developer and exploiter of technological solutions. They see that digitalisation and helping people go hand in hand.

Box 1: The strategy in digitalisation in the City of Tampere is set up in the '*Pormestariohjelma*' 2021-2025, page 31-33.

The roadmap of the city of Tampere has the following priorities regarding digitalisation:

- The assurance of smooth digital service processes for local residents and other actors;
- Keeping everyone involved in the evolving daily life through usability and accessibility;
- Strengthening the situation of people-oriented management;
- Creating an internationally attractive smart city platform for Tampere;
- Creating a city 'information product portfolio' and a management model for this;
- Strengthening the acquisition skills of information systems;
- Ensuring the competence of the staff;
- Promoting a common project portfolio for the whole public sector;
- Strengthening the co-operation in all measures between the state, other municipalities, hospital districts, the welfare area, companies and the third sector.

Source: https://www.tampere.fi/tampereenkaupunki/ajankohtaista/tiedot_tee/2021/08/13082021_2.html

- The wide variety of significant themes in digitalisation

Robotics and Artificial Intelligence (AI)

Important themes in enhancing digitalisation in the city of Tampere include how the healthcare and social services could benefit from robotics in assisting people and how people could benefit from artificial intelligence (AI). AI could for example support humans in different working processes, it could delegate working processes forward and AI could be linked to a physical robot. Tampere tried to integrate AI Robotics into the appointment system of dentist services. This did not work as there are many human factors involved.

Remote doctor visits

In Tampere the functioning of remote doctor appointments through video is being monitored at the moment.

Teaching digital skills to customers

Organisation X organized project B which was a project for teaching digital skills to customers.

Digital solutions which promote independent living

Project A had as its goal to find suitable digital solutions that promote independent living. They were tested together with the customers and it was assessed whether they can be useful for surviving in everyday life and integrated in assisted living. Solutions that were tested were for example lightweight applications, such as a specific application and 'mood diaries', smart lights and Virtual Reality (VR) glasses. Both projects came to an end at the end of the year 2021.

During the interview with Organisation X about project A an interesting point of view came up, which brings another perspective into digitalisation (Box 2):

Box 2: Sample of the Interview with 'Organisation X' about 'Project A'

"Until recently digitalisation has been focused on information systems and data, but what a regular person needs from digitalisation is smart lights working properly, Google Home guiding and helping and the door opening remotely with the cell phone, not the information on how many times the door has opened during one month. The utilization of practical digital solutions which are useful for daily life still has a long way to go before it is part of everyday life. For example, smart clothes are not yet known of by many, but could be useful for people with a physical disability. Nobody has been planning the implementation of these solutions until now. Time is often needed for a particular solution to be considered useful."

"Another example of a solution which could help young people with neuropsychiatric disorders, such as people on the autistic spectrum, are different sensors. Not used from the perspective of supervision, but from the perspective of reminding people of things. When a person is stuck on the computer for too long, a sensor on the refrigerator can remind the person to eat, or a sensor on the door can remind the person to go outside. The

sensor can give a notification to the cell phone or give a light signal, without the announcement going to a general control centre.”

- How to stay updated regarding the newest developments in digitalisation

Digital equipment market

Tampere utilises a digital 'equipment market', called 'Laitetori', where technology suppliers can deliver their equipment and technological solutions.

Technology suppliers who take contact

Technology suppliers are also in contact with Tampere-city.

Cooperation with educational institutions

Tampere is in close cooperation with educational institutions, especially with Tampere University of Applied Sciences (TAMK). They have a 'Social Virtual Lab'. There is a network of universities of technology and universities in Tampere, Oulu, Turku and Helsinki. This network is utilised for the monitoring of developments and research made in the universities.

Knowledge-sharing sources

Common sources include digital newsletters from trusted sources, LinkedIn sources related to digitalisation, magazines related to the field (in the best case via social media) and the usage of media monitoring where keywords related to digitalisation are used. Organisation X states that the search for sources leans mostly on your own interest.

Monitoring start-up companies

Tampere monitors start-up companies in their developments of digital solutions.

Monitoring websites of national institutions

Sources are the Finnish Ministry of Social Affairs and Health (STM), who have for instance the Welfare AI and robotics- programme called Hyteairo, and the Finnish Institute for Health and Welfare (THL), which has the "Technology supporting smart ageing and care at home- programme", called KATI.

List of sources:

Laitetori (equipment market): <http://www.tampereenkotitori.fi/laitetori>

Social Virtual Lab Tampere UAS: <https://sites.tuni.fi/vlabforhealth/>

Technology supporting smart ageing and care at home- programme, KATI: <https://thl.fi/fi/tutkimus-ja-kehittaminen/tutkimukset-ja-hankkeet/kotona-asumisen-teknologiat-ikaihmisille-ohjelma-kati->

Welfare AI and robotics- programme, Hyteairo: <https://stm.fi/hyteairo>

5.2 Selection and decision-making process on what is relevant for the organization regarding digitalisation

➤ Frameworks and methods

Public procurement system

Public organisations like the city of Tampere have a strict framework to follow regarding their selection and decision-making processes. A public procurement system is used, called 'Hilma', as the city is obligated to act according to the "Act on Public Procurement and Concession Contracts" (Hankintalaki).

The selection and decision-making process in public organisations with small investments

The public organisations can put a request in 'Hilma' where the type of solution needed is described, including the features that the solution should have. Companies monitor the requests by getting a procurement notification when a relevant request comes through. They can respond to the procurement notification when they think that they can fulfill the request of the public instance. When the investment is small, the public institution takes the service immediately.

Larger investments

When the price rises above a certain amount, the "Act on Public Procurement and Concession Contracts" demands that the service should be put out to tender and different companies should be asked for offers. Either the cheapest offer or the one which can fulfill the demands the best is accepted.

Qualitative demands

This includes qualitative demands, such as data protection, data security and how data is processed, according to the 'General Data Protection Regulations' (GDPR) or technical demands.

The selection and decision-making process in a private organisation regarding the procurement of a new 'electronic patient record' (EPR)

The staff member of Amerpoort describes a practical example of how a new Electronic Patient Record was chosen and implemented: the responsible project leader set up a method supporting each step of the decision-making process. A broad interaction structure with users was organised: *"Eight providers were pitching their EPR and the two best providers were chosen. The two best providers with their EPR were presented to the customers. This included clients and their relatives, behavioural experts and employees"*. The project leader made the final decision based on input from everyone in the organisation. The provider created an implementation plan to which the organisation adhered to.

The selection and decision-making process in a private organisation regarding a specific project

The selection and decision-making process during project A of organisation X worked as followed: the project had small subprojects where the criteria were set, based on a target or trial that was to be achieved. Firstly, decisions in the project were based on whether the test persons found a solution useful. The decisions made were based on what was tested. This varies depending on the situation of usage. The most important goal was that a tester reached their set-up goals and was positive about

a certain solution. The experience of the tester is disseminated, not the solution itself. This is to spread out the message that a certain solution could help someone, as it helped a certain person with similar challenges. The criteria can be different in every project. In the case of project A, a selection was made out of several similar solutions. The needs of the customer have to be taken into account as well as all the other experiments made. For customers, guidance was important in their decision-making process. Workshops were organised. For example, smart home systems included many different solutions, so the first step was to decide which of them were worth testing based on availability and costs.

Define the needs carefully

The city of Tampere explains that every company gets points based on their needs. The company with the best points can deliver the service or solution.

Agile development

Tampere no longer automatically accepts the cheapest offer but looks for a solution to an existing need. They do not necessarily define the final product, but accept offers from certain technology suppliers and by co-development develop a solution, observe the functionality of the solution, evaluate it, and depending on the budget continuously improve the solution. This is also called 'agile development'.

Starting from an existing solution already on the market, Organisation X

"We had a process goal where the aim was to develop the process of getting people's everyday needs visible. We were searching for fitting digital solutions according to the people's needs. This test's hypotheses turned out to be bad, because it is much better to take a solution known to be helpful, and from there start shaping the solution with the people, so that it fits in their everyday life."

- The professionals who are involved in the selection and decision-making process

Who are involved in the process and who makes the final decision

In the city of Tampere everyone who is involved in the development of the solution is part of the decision-making process. The working group decides what a good solution is, most of the time including different experts from different professional areas. The working group can include for instance a contract specialist and a technical specialist. The CIO makes the final procurement decision.

As mentioned earlier, Amerpoort foundation involved the users of the new EPR, which included clients and their relatives, behavioural experts and employees. The project leader makes the final procurement decision based on input from everyone.

In organisation X, the person responsible for purchasing the system will make the decision about which system it is going to be. The decision is based on specific criteria, more specifically regarding project A customers involved in the decision-making process who received guidance through workshops to support them in their decision-making process.

- Evaluation after implementation

Challenges

The staff worker of Amerpoort Foundation mentioned that the process of the new EPR is evaluated after implementation, but it appears to be challenging to end the cooperation when the systems do not work as expected.

Customer and user feedback

After the introduction of the digital solutions their implementation and functioning is evaluated by customer and user feedback. As said earlier, Project A is not introducing a solution, but presenting the solution to others who could benefit from it.

Continuous Development

When it comes to a specific application that has now been developed, the aim is 'continuous development', which is part of the decision-making process.

Service Design and experimentation

"Regarding the evaluation of the process and future decision-making processes we follow the logic of Service Design and experimentation: depending on the length of the project we are going step by step through the process. We adjust the process through customer feedback among other things. This knowledge is used to make adjustments earlier in the process in future projects. When something goes totally wrong, we have to stop the whole experiment. Service design is strongly present. We have a culture of experimentation which is internalized within the organisation and used in project work."

List of sources:

Act on Public Procurement and Concession Contracts (Hankintalaki):

<https://www.finlex.fi/fi/laki/kaannokset/2016/en20161397>

General Data Protection Regulations (GDPR): <https://tietosuoja.fi/en/legislation>

Hilma- public procurement system: <https://www.hankintailmoitukset.fi/fi/>

5.3 Having the right professionals in promoting digitalisation depending on the steps taken

Networking

Tampere points out that the professionals working for the city do not have all the information about digitalisation as a subject, so knowledge should increase by continuous conversation and networking. The benefit of a large organisation is that their networks are big and almost always somebody might have the answer regarding digitalisation. In this matter it is difficult to secure having the right professionals in promoting digitalisation.

Cooperation with workers and customers

In addition to the working group, Tampere also involves grass-root workers and patients when testing a digital solution as the city does not want to put through a digital solution solely from the upper management downwards.

In Amerpoort Foundation, when looking specifically at the process of the new EPR, in addition to the project manager behavioural experts, employees and clients and their relatives are involved.

In project A of organisation X, development professionals and people of development activities are involved in the digitalisation. There is a strong sense of cooperation with their customers, but they are not trained experience specialists. They have experience in the challenges of everyday life, and they involve them a lot in their activities.

Early Adapters

During the interview with Amerpoort Foundation the topic of employees who have just graduated and/or UAS educated often being enthusiastic and eager to participate in the implementation of digital solutions came up, they are the so-called "early adapters".

Key Users

"Key users" could be used to familiarise colleagues with their own department with the use of a specific system. A key user has above average knowledge of a certain system, in case of the interviewee, the new EPR. The key user is involved in the process and the preparations of the introduction of the new EPR. *"The key user guides employees in the new features of the EPR and inventorises the wishes and ideas of users for the further development of the EPR. Key users have better access to tools and are supported by functional management. The key user cooperates with key users from other clusters, regional managers and behavioural experts and financial administration. Support is asked from each other and updates are communicated".*

Training courses

Training courses regarding digitalisation could be offered to employees for them to get more skills regarding digitalisation. Amerpoort uses training courses from the "VGN Academie" and "Good Habitz", the latter one being an international online learning platform.

List of Sources:

Good Habitz: <https://www.goodhabitz.com/en-gb/>

VGN Academie: <https://www.vgnacademie.nl/home/nl-nl/shop>

5.4 Communication within the organization regarding digitalisation

Asking for feedback

Tampere communicates in several ways about digitalisation. When it comes to communication regarding already used solutions, the users of services are asked for feedback (questionnaires, open feedback formulars) and experiences are monitored.

Net Promoter Score

The NPS-questionnaire (Net Promoter Score) is used in monitoring people's individual experience in relation to a specific service or solution, including the situation in where it has been used.

Change management: user training, education and support services

Tampere mentioned that Covid-19 has increased the work pressure in social welfare and healthcare. Workers are not eager for changes which might increase their workload even more. That is why good change management is necessary: *"When we have planned the implementation of a digital solution, we communicate this from the start and inform the employees continuously about the progress. When the implementation of a new solution means that employees must change their way of working, we organise a user training or education for all the employees whom the changes affect. Also, we set up a support service where employees can call or send an e-mail when needing help or having a question. Depending on the type of solution it can be a service desk through phone or MS Teams where you can expect immediate help, or support which provides answers later."* The staff member states that it is important that there are enough people working at the help desk, so that people get enough help when needing support.

In project A the aim is to inform colleagues as comprehensively as possible about new developments and when the developments cover a wider scope within the organisation, the news are given in a more detailed manner about development activities and what has been under testing and deployed with customers. An office meeting is organised once a month, where practically all the staff participates through MS Teams. When there are organisational developments coming which directly concern staff, it will be communicated in an early stage.

Organising meetings and introduction videos

The staff worker of Amerpoort mentioned that the organisation familiarised employees with the new EPR by organising meetings or by providing the possibility of watching introduction videos about the new EPR. Tutorials were offered to get employees familiar with the usage and features of the EPR.

Improvements: enable learning during working hours & give more support

The opinion of the staff member of Amerpoort Foundation is that the familiarisation is well intended, but there are some improvements to be made: working hours should be allocated for the workers to familiarise themselves with the new EPR, and employees who are not digitally handy should be taken more into consideration.

Communication channels

External

Communication channels when communicating with the citizens of Tampere are traditional newspapers, the website of the city of Tampere and social media, like Facebook, Instagram and Twitter.

When communicating outside of organisation X, the organisation utilizes websites and social media.

Internal

To inform employees of the city of Tampere their intranet is used, called 'Tasku'. Other communication channels are e-mail, face-to-face from the superior towards their subordinates and MS Teams because of its many features. In organisation X, communication happens also through MS Teams. The Amerpoort Foundation uses an intranet "as a means of communication within the organization, with a toolkit called *"Working together on the care for tomorrow" (Samen werken aan de zorg voor morgen)* which gives updates regarding developments in digitalisation within the organisation and manuals and instructional videos concerning various digital systems and applications."

Facilitate the usage of the communication channels

According to the staff member of Amerpoort, it is important that employees get time to inform themselves through the intranet by offering facilitating opportunities. The intranet should be updated regularly, so that the employees are well-informed.

Self-determination theory

The staff member of Amerpoort mentions the "self-determination theory "(SDT) of "Deci and Ryan" (Box 2). Next to autonomy, feeling involved and being competent is highlighted: *"it is essential that the organisation is competent to offer it (digitalisation) in the right way, so among other things the infrastructure is arranged, and the organization is competent to motivate the employee to delve into digitalisation and to involve themselves in these new developments. In addition, it is important to create conditions in time and resources to remove 'noise'. Help is also very important when employees need it, so that desperation with regard to digital resources is prevented. This can prevent resistance. Employees quickly experience too much pressure when there is too much communication. An overload of information should be avoided, because this creates resistance. Connect with the experience of employees; make a connection with a particular client and figure out how you can apply the digital system or application based on that example."*

Involve employees in digitalisation, but no one-size-fits-all

Do not require employees to be able to do the same thing as others when it comes to digitalisation, but everyone should still be involved in digitalisation. Nowadays everyone has a smartphone or a tablet, so people are not digitally illiterate. Involve people in digitalisation and see that digitalisation is part of everyone's profession. At the same time connect with the qualities of people and the possibilities that exist on the basis of everyone's qualities. Give people the space to develop.

Handling Resistance

In organisation X, resistance towards organisational change and resistance towards digitalisation are discussed. The organisation is open to complaints. They talk openly about the issues and try to solve the problems as well as possible.

BOX 2: The Self-Determination Theory

The self-determination theory of Deci and Ryan states that people have in addition to physical needs, also three essential psychological basic needs: the needs for autonomy, relatedness and competence. When these needs are all fulfilled, the employee feels motivated and comfortable, and they perform better.

Employees feel autonomous when they can choose to do the tasks which they want to do. When tasks are imposed from higher management, employees can still feel autonomous when the task is clearly motivated towards them, or when employees can stand behind the imposed tasks and see the added value. The need for relatedness concerns the feeling that colleagues and the management care about the employee, but also vice versa. The need for competence is about the employee utilizing their qualities and strengths and the ability to develop those further (Van den Broeck 2016, 67)

A community for key users

Amerpoort Foundation has set up a community of key users, including a toolbox with important information for them (This is a different toolbox than the toolbox in the organisation's public intranet available for everyone). The toolbox contains information about the distribution of the key users within the organisation, including a list of each key user and their role. Examples of tools are an EPR training and a 'cyclical working' (cyclisch werken) training (cyclical working refers among others to the PDCA-cycle). Later on tools will be put in regarding the new EPR. The toolbox is still under development.

Jan Rotman: the change of eras

Apart from the actual interview with the staff members of Amerpoort Foundation, we talked about organisational change; its cultural change and how long the process of change takes. I was advised to delve into Professor Jan Rotmans. I found an interesting article from the website of Amerpoort Foundation which connects the point of view of professor Jan Rotmans with digitalisation (Box 3).

BOX 3: Jan Rotman's Change of Eras and the Top 5 e-health tips by Jethro Hardeman

"We face the great challenge of reinventing the definitions of care in these changes of eras. This requires entrepreneurship, trust in employees and a flexible course with a clear vision. In 10 years' time we will be able to look back and determine whether we have made the right choices at this time. But for now we should not wait quietly and wait for the storm to pass, but proactively look for our new care!"

Tip 1: Let digitalisation be part of the organisation's strategy or vision;

Tip 2: Work on your employees' digital skills;

Tip 3: Create a space where employees can experiment (with new technologies), learn and come up with new ideas;

Tip 4: Always keep the care process in mind and then see which e-health application may be suitable;

Tip 5: Find other people who take care of the e-health initiative, who have the same interests and who want to think along with you.

Source: <https://www.amerpoort.nl/blogs/2017/top-5-tips-e-health>

List of Sources:

NPS- questionnaire (Net Promotor Score): <https://www.tampere.fi/tampereen-kaupunki/organisaatio/sosiaali-ja-terveyspalvelujen-palvelualue/asiakastytyvaisuus/tietoa-nps-kyselysta.html>

PDCA-cycle: <https://kanbanize.com/lean-management/improvement/what-is-pdca-cycle>

Tasku- intranet: <https://www.tampere.fi/tampereen-kaupunki/yhteystiedot-ja-asiointi/viestinta/intranet.html>

6 DISCUSSION

6.1 Ethical Issues

I have taken care that the good name of the KVPS concern is not harmed. This is secured by following the requirements given in the research permit: the researcher undertakes to comply with the General Data Protection Regulation (GDPR) when processing and protecting data and the provisions of the Data Protection Act, any research records of individual data that may be created during the study will be destroyed or archived as required by the GDPR and the Data Protection Act, the consent document issued to the subject shall state the consent of the person concerned to use the data concerning him or her, the voluntary nature of participation in the study and the possibility for the persons to suspend participation in the study immediately if they wish, the research permit does not entitle you to retrieve information from KVPS Tukena Oy's information systems and the reporting of the study must be carried out in such a way that an individual service unit, customer or employee of KVPS Tukena Oy cannot be identified.

The same principles are mentioned in the interview consent forms for participants outside of the organisation. Collected data is stored on a password protected computer or cloud, individual names are removed from the documents. The participants decide how they are presented in the final thesis work; whether their organisation name is mentioned in the thesis and if their job title is allowed to be mentioned, so that the identity of the participant is not retrievable. Names are not used in the thesis. Participation is always on a voluntary base, and withdrawal is possible anytime (Arifin 2018, 30). Before participation, the interviewees do know the content of the interview. The purpose of the research should be explained and how the data will be used, as well as the data collection process. I provided an information sheet in the participant's mother tongue to avoid misconceptions. I asked the interviewee for their permission to record the interview and to let a third party read the transcript in order to determine the accuracy of the Finnish to English translations. The interviews were conducted remotely in a quiet place where no outsider could listen in on the interview and the same was done regarding the transcription of the interview data. As long as the consent form wasn't signed, I could not use the interview data for the thesis. After approval and publication of the thesis work, I will destroy all the collected data from the interviews and other sensitive information (Arifin 2018, 31 & Creswell 2020, 47).

6.2 Reliability and Validity

I assured the reliability of the research by applying two research methods: integrative literature review and semi-structured interviews. The validity of both methods was measured by the saturation of the specific data from the literature and interviews. When specific data was not found in multiple sources, it was valuable information, but not enough to make hard conclusions. Validity is secured by the two research methods when they support each other. When the two methods produce comparable data, it underpins the quality of the sources and the validity of the research. As I have learned about different topics during studies related to the thesis objectives, I have knowledge. The negative aspect is that the knowledge is subjective and can be limited by what I have learned. Still, it is necessary to base the interview questions on literature research for them to be valid. It is important to ask follow-

up questions when the main answers are showing consistency with other participants or literature. The purpose is to avoid socially accepted answers, which could affect the quality of the outcomes negatively. The interviews can bring reliability from the aspect of new insights and the need for further theoretical background and literature research. In my thesis work, I have to integrate definitions into unknown terminology to secure the validity of the thesis content. My aim is that all the research questions are equally represented in the thesis work. (Benders 2016)

It is important to describe the questions as precisely as possible. I have to test if I get the answer as wished and if the questions are understood right. I check the questions by mailing them to my supervisor of Savonia and KVPS Tukena Oy. I make an interview design with questions in a logical order. (Dingemans 2015)

The reliability of the research I secure by asking the same questions to every interviewee, and I give them the same information about the research before they give consent to the interview. (Benders 2016)

For the literature review, I hold a log (1) to describe the terminology being used, and (2) which databases I have used. I mainly use English literature. I'm aiming for primary sources, scientific reports and peer-reviewed articles. When I can't find useful literature, I use other sources. In this case I must be aware of the quality of the source. (Swaen 2017)

As the interviews are conducted in Finnish or Dutch and translated into English there is the risk of mistakes appearing in translations and misinterpretation from the side of the interviewer. The risk increases because the interviewer's mother tongue is neither one of the two languages. The researcher was aware of the linguistic barriers. Therefore, it was important that the interviewer asked control questions. The draft versions of the elaborations were read through by the participant before approval to secure the accuracy of the elaborations. When needed, I was able to send the original Finnish sample to compare with the English elaboration (Arifin 2018, 32). This was to avoid that the researcher changed outcomes accidentally. The researcher was also aware that outcomes should not be changed to favour the interests of any parties (Creswell 2020, 48).

6.3 Discussion about the results

The answer to the first objective points out the importance of knowledge management, networks, project work, strategy and vision, and knowledge capturing in digitalisation. Different forms of knowledge-sharing and different forms of networking within the organisation, but also with external stakeholders is emphasised. The importance of project work is emphasised in enhancing digitalisation. Even employees from the interviewed organisations have different responsibilities regarding digitalisation; no one has complete responsibility over the whole organisation's digitalisation. The importance of a strategy and vision is pointed out in the interviews and literature, not only directly regarding digitalisation, but also knowledge management and human resources. Knowledge capturing is relevant in digitalisation. Examples about different digitalisation themes show the diversity and complexity of the subject. Themes are for instance robotics and artificial intelligence and teaching digital skills to customers. Digitalisation is a large field where information and knowledge are found in many sources. Thus, it is crucial that organisations utilize different networks, collaborate and do not stay alone in

reaching this objective of keeping track of digitalisation. The same issue applies to the question of who is responsible for the digitalisation within the organisation. There are several people responsible for enhancing digitalisation, with every employee having their own task. A digitalisation strategy is needed because of its complexity; a future direction is needed. These are important results, because not every organisation is yet aware of the importance of a digitalisation strategy, has an overview of the relevant resources or the crucial aspects of using networks and the importance of collaboration. These answers do not show a ready framework on how to keep track of digitalisation. There are many methods of reaching that goal and the best practises can vary per organisation. This is up to the organisation to find out. The validity is secured by the large quantity of literature supported by the interview results.

The answer to the second objective shows the importance of a decision-making framework to come to good decisions and considering external environment in the decision-making process. Different aspects to consider when deciding on digital devices offers a good framework. The decision-making process can go through pitching products, agile/continuous development, and whether the starting point of decision making is the customer's need or the already available solutions. In the decision-making process end-users can be involved. In the interviewed organisations a working group is involved, but the final decision is made by one person. The principle of service design can be used for the evaluation of the decision-making process. The answers presented many methods in the decision-making process. They showed that general frameworks can be used in the decision-making process regarding digitalisation. Methods and frameworks in decision-making are systematic and easy to apply. This is an important result of the thesis, as organisations do not have to reinvent the wheel, rather they can use existing methods. The results can not perfectly explain how to be sure that a made decision is good, but frameworks can make decision-making easier and can increase the quality of the decision. The practical examples mostly fit the theory regarding different aspects to consider in decision-making processes. No clear answers exist for when a situation arises where after the implementation of the solution it is found that a decision does not work as required. The change management theory presents information about the evaluation of a digital solution after going live. I am surprised about the fact that there is not much written about the decision-making process specifically related to digitalisation, which could have answered this objective more comprehensively.

The answers to the third objective show the importance of knowing the flow of tacit knowledge within the organisation and finding the right people to enhance digitalisation by interviews, discussions and questionnaires. A gap analysis and knowledge profiles can be part of the recruitment strategy and can be used to find tacit knowledge within the organisation. It shows which knowledge disappears when an employee leaves. This should be all part of a business plan which includes a competency framework for every job. The results show the importance of a new organisational culture where employees are developing their digital skills. Digital talents all over the organisation should be integrated into different teams in the organisation. Digital skills are divided into soft and hard skills, and differentiated depending on the work description of the employee. The outcomes of the interviews show similarities with parts of the literature. Even though the literature and interviews do not give an absolute answer on how to know that the right people are furthering digitalisation depending on the steps taken in digi-

talisation, they do give several guidelines. The different skills and competencies related to job descriptions show that people from different organisational layers could be involved in digitalisation. This is of course dependant on the steps taken in digitalisation. I am surprised by the lack of literature regarding this specific question. One interviewed organisation states that nobody can know everything, so it is challenging to answer this question. They also mention the importance of networking.

The fourth and last objective regarding communication on digitalisation in the organisation is mostly based on different aspects of change management. The communication tool or channel used is less relevant. These aspects include successful communication regarding digitalisation, avoiding resistance, increasing acceptance, how support is offered and feedback processed, the role of leaders and organisational culture. The importance of a clear strategy and vision regarding digitalisation is also emphasised in this objective regarding communication and change management. These aspects correlate between the literature and interviews. Communication tools and channels are mentioned in the literature and interviews, and they are successful enablers of effective communication regarding digitalisation. As mentioned in the literature and interviews, the organisation should monitor if and how they are used by employees within the organisation. The same applies to the communication towards external stakeholders. The results of the objective are as expected.

When considering the overall validity of the thesis, I recognise that the number of interviews does put some pressure on the validity. I have conducted four interviews, three of which I am able to use in the thesis work. The positive aspect of the interview results is that many of them are supported by literature. It is interesting to point out that at the beginning of my thesis work, I considered the four objectives as separate parts, but now I see that the themes, such as knowledge management, organisational culture, digital skills, change management, employee participation and different forms of networking, come back during the whole thesis process and cover all the four objectives and connect them to each other. This strengthens the validity of the thesis results. The results are as expected regarding objectives 1 and 4. I feel slightly disappointment regarding objectives 2 and 3 as I expected more relevant literature.

7 CONCLUSION & RECOMMENDATIONS

7.1 About the research process

The goal of this thesis was to find answers on how to keep track of the fast-changing developments in the digitalisation of social welfare, the selection and decision-making process on what is relevant to the organisation regarding digitalisation, having the right professionals in enhancing digitalisation depending on the steps taken in digitalisation and communication within the organisation regarding digitalisation. Through an integrative literature review in combination with knowledge gained during the interviews, I found answers to the first and the last research question. While conducting my thesis I had to be aware of staying close to the original objectives. My interest in the subject caused me to dive too deep into the subject. Literature about the selection and decision-making process was limited to models and frameworks related to the process itself. This in combination with a qualitative study gave relevant answers to the research question, but not as complete ones as I hoped for. The research question on having the right professionals in enhancing digitalisation was challenging. I did research on 'Human Resources', 'HR Analytics', 'People Analytics' and 'Digital HR Transformation'. Literature was limited mostly to processes, analytics, efficiency on human resources and the automation of processes in HR management. Additionally, I recognised the lack of basic knowledge about the subject. I found some relevant sources on how to attract the right professionals in combination with research regarding digital skills and competencies.

Much of the literature was not directly related to digitalisation, so to increase the quality of the research outcomes I conducted semi-structured interviews to (1) test the literature in relation to the interview outcomes and to (2) gain practical examples from other organisations in addition to the theory. I was dependent on my own network in the search for interviewees, as I recognised that many professionals have a busy schedule. This limited the number of possible participants. The participants' time used per interview was limited from 45 minutes to 1 hour.

My aim with this thesis is to offer a basis for further research. The collected literature together with the interview questions and results can form a basis for building structures in organisations which enhance the digitalisation in the client organisation and in social welfare in general.

7.2 Conclusion of the thesis

To further digitalisation it is crucial to implement a clear and comprehensive vision on digitalisation in the organisation's strategy. This can include the digitalisation happening in the organisation itself, but also how digitalisation is apparent in the client's daily life. The interview outcomes show the variety of themes in digitalisation. Knowledge management and recruitment strategy should be also included. It would be advisable to capture tacit knowledge regarding digitalisation within the organisation. To know where knowledge regarding digitalisation is located and where it flows, 'expertise locators' could be implemented as well as 'enterprise social media'. Tacit knowledge about digitalisation can be captured through interviews, questionnaires and discussion. For instance, a community of practise could be established in the organisation, including employees from different departments. In this community new developments in digitalisation could be discussed and ideas for different digitalisation projects

could be presented. Different digitalisation projects should be organised, where possible end-users are also involved. Field workers and clients possess valuable experience-based knowledge and should participate in co-creation. 'Champions' or 'key users' could be established around different systems and solutions, who would support and help out their colleagues in digitalisation. They can set good examples and remove scepticism, which will reduce resistance. Different collaboration structures and academical partnerships can be established. Virtual teams have made collaboration easier and opened the door for national and international collaboration. Collaboration gives access to more information, knowledge and expertise, which provide a lot of valuable information and insights. Crowdsourcing and hackaton events are other ways of accessing external expertise. Academical partnerships provide research, virtual labs and they are the key places where digitally skilled people are educated. All of the people in the organisation should possess a particular set of competencies depending on their position as presented in the literature. Next to upgrading the competencies of existing employees, new employees should be recruited and external knowledge should be accessed by networking and collaboration. The organisation should consider what kind of digital talent they are in need of, where to search for it and whom to retain. It is difficult to know and assure that the right professionals are enhancing digitalisation depending on the steps taken in the digitalisation. The presented competencies could support the search for the right people by internal recruiting interviews. A gap analysis can be done to identify what the current state of people's competencies is and what is needed. It should not be forgotten that no one can know everything about the subject. This illustrates the importance of networking. Next to different forms of networks, knowledge can be shared through different sources. There are many systems or platforms available in knowledge-sharing but also in the communication regarding the digitalisation developments. Many of them are communicating with a top-down approach. It is important to get a clear picture of how the platforms are used. When diving deeper into the way of communication in the organisation regarding digitalisation, intranet and MS teams are mostly used among the interviewees. They handle possible resistance by remaining open for it and providing the possibility for conversation. Other ways are to offer information, education and support services. Change management is important in successful communication. In the digital age organisations are constantly changing. This creates uncertainty. Let people regain control over the situation. Involve people in the process, so that they feel involved in the digitalisation. Employee participation and transparent communication are important and good methods. The benefits and the need for change should be explained in the organisation's vision, supported by good practises. Workers want to hear the benefits of their work, as well as practical examples. An overload of information should be avoided. Resistance can increase because of lack of trust and employee participation. Change leaders can change the minds of the people. They are well respected and networked. For example, let employees give input regarding the introduced solution in the conversation. Organise education and give employees enough time and resources. Involve everyone in digitalisation but take care of everyone's individual qualities and wishes. Much is talked about an organisational culture which is open for ideas, where people have the trust to share ideas and knowledge, people experimenting with new ideas including being allowed to fail; organisations supporting employees in coping with the constant change instead leading from the top. A culture which supports innovation, collaboration and teamwork. When the organisation succeeds in these things, employees share more knowledge and have a more positive attitude towards digitalisation. Increasing digital competencies can help in increasing this positive

attitude. Ask for regular feedback and conduct surveys. When it comes to the decision-making process there are many ways to come to a decision. This depends on the type of organisation, but also on the type of digitalisation project. This is referred to back in the interview outcomes; there is no right answer. Who is involved in the selection and decision-making process varies depending on the organisational structures. It is important to follow a decision-making method for increased quality. When it comes to the aspects to consider there are the following considerations: supportive aspects, such as policy and guidelines (CE, ISO, GDPR, regulations), technological aspects (life-cycle, quality, cost-functionality), patient aspects (legal rights, equality, access to new technology, decision-making) and knowledge aspects. The organisation must be aware of the external business environment to make good decisions. In the interviews, results present interesting themes regarding different digitalisation projects. There is a contradiction in the thesis regarding where to start from when searching for suitable digital solutions for clients. In the interview with organisation X they have experienced that it is easier to look at available digital solutions which could be tested by customers. Opposingly, in an internet source about recommendations regarding e-health, it is stated that the client's care plan must be the starting point and from there it should be considered which solution fits the best. In my opinion they can both be good approaches; it depends on the situation.

7.3 Recommendations

During the writing of this thesis, I recognised a small discrepancy in what management considers a good working communication tool and what field workers consider important in communication. It would be interesting to get answers on what workers in the field prefer regarding the way of communication. A survey could be conducted to get answers to this.

Studies about digital skills were plenty. In the future organisations could do further research to use these skill sets and competencies in developing a recruitment framework, and determine how well these skills and competencies are assisting in having the correct professionals enhancing digitalisation. This point stayed unanswered and will require the expertise of an HR department.

I could not find clear answers about the process after the implementation of a digital solution when it is shown that a decision does not work as desired. This could also be an interesting subject for further research.

This thesis work can be seen as a beginning in getting conclusive answers to the research questions. However, as earlier mentioned, connections between other professionals and organisations is crucial in getting these answers. That is why the client organisation could further build on the thesis results by using existing networks and contacts to share and gain knowledge regarding the subject, to cooperate and to build up collaborative structures.

REFERENCES

- Adams, Lucie 2016-12-1. My love-hate relationship with 'digital transformation'. Medium. [Available: https://medium.com/@lucia_adams/my-love-hate-relationship-with-the-term-digital-transformation-db27bec0cde] [Accessed: 2021-10-11]
- Attia, Shady 2020-01-06. Qualitative Research Methods. [Available: <https://www.youtube.com/watch?v=pV3xspoR4gA>] [Accessed: 2021-09-09]
- Aveyard, Helen 2014. Doing a Literature Review in Health and Social Care: A Practical Guide. Open University Press. Location: Savonia-Finna Library [E-Book] [Accessed: 2022-04-27]
- Baudin, Katarina; Sundström, Angelina; Borg, Johan; Gustafsson, Christine 2021. Decision-Making Is in the Making! Aspects of Decision-Making in the Area of Assistive and Welfare Technology—A Qualitative Study. *International Journal of Environmental Research and Public Health* 2021, 18, 4028. [Available: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8068827/pdf/ijerph-18-04028.pdf>] [Accessed: 2022-02-16]
- Benders, Lou 2016-11-30. Validiteit en betrouwbaarheid vaststellen in je scriptie. Scribbr. [Available: <https://www.scribbr.nl/onderzoeksmethoden/validiteit-en-betrouwbaarheid-vaststellen-scriptie/>] [Accessed: 2021-09-14]
- Broeck van den, Anja; Ferris, Lance; Chang, Chu-Hsiang; Rosen, Christopher 2016. De Basisbehoeften van de Zelf-Determinatie Theorie: Een Samenvatting van de Literatuur (original: Review of Self-Determination Theory's Basic Psychological Needs at Work). *Tijdschrift van het Steunpunt Werk*. Uitgeverij Acco 2/2016. [Accessed: 2022-01-17]
- Buer, Sven-Vegard; Fragapane, Giuseppe; Strandhagen, Jan 2018. The Data-Driven Process Improvement Cycle: Using Digitalization for Continuous Improvement. *International Federation of Automatic Control*. Elsevier Ltd. [Available: <https://www.sciencedirect.com/science/article/pii/S2405896318315994>] [Accessed: 2022-04-28]
- Byström, Katriina; Heinström, Jannica; Ruthven, Ian 2019. Information at Work : Information management in the workplace. Facet Publishing. Location: Savonia-Finna Library [E-Book] [Accessed: 2021-11-24]
- Chouikha, Mona Ben 2016. Organizational Design for Knowledge Management. John Wiley & Sons, Incorporated. Location: Savonia-Finna Library [E-Book] [Accessed: 2021-11-15]
- Coughlan, Michael; Cronin Patricia 2017. Doing a Literature Review in Nursing, Health and Social Care. SAGE Publications Ltd. [Available: https://books.google.fi/books?hl=fi&lr=&id=n6w5AwAAQBAJ&oi=fnd&pg=PP2&dq=Doing+a+Literature+Review+in+Nursing,+Health+and+Social+Care.+SAGE+Publications+Ltd.&ots=lgPKF34LIh&sig=6JJIR8DWIg7BeZmvl1BvP0ZPWz8&redir_esc=y#v=onepage&q=Doing%20a%20Literature%20Review%20in%20Nursing%2C%20Health%20and%20Social%20Care.%20SAGE%20Publications%20Ltd.&f=false] [Accessed: 2022-04-27]
- Creswell, John W., Guetterman, Timothy C. 2021. Educational research : planning, conducting, and evaluating quantitative and qualitative research. Pearson Education Limited. Sixth edition. Global edition. Location: Savonia-Finna Library. [Accessed: 2021-09-14]
- Davis, Nickolas 2016-01-19. What is the fourth industrial revolution?. World Economic Forum [Website]. [Available: <https://www.weforum.org/agenda/2016/01/what-is-the-fourth-industrial-revolution/>] [Accessed: 2022-04-26]

Digitalisaatio terveyden ja hyvinvoinnin tukena. Sosiaali- ja terveysministeriön digitalisaatiolinjaukset 2025. Ministry of Social Affairs and Health (STM). Publication 2016:5. [Available: <https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/75526/JUL2016-5-hallinnonalan-ditalisaation-linjaukset-2025.pdf?sequence=1&isAllowed=y>] [Accessed: 2021-10-5]

Digital Skills for Health Professionals 2016. Committee on Digital Skills for Health Professionals. European Health Parliament 2016. [Available: <https://www.healthparliament.eu/wp-content/uploads/2017/09/Digital-skills-for-health-professionals.pdf>] [Accessed: 2022-03-17]

Dingemans, Kirsten 2015-09-29. Validiteit van interviews in je scriptie. Scribbr. [Available: <https://www.scribbr.nl/onderzoeksmethoden/validiteit-in-interviews/>] [Accessed: 2021-09-14]

Flanding, Jens; Grabman, Genevieve; Cox, Sheila 2018. The Technology Takers : Leading Change in the Digital Era. Emerald Publishing Limited. Location: Savonia-Finna Library [E-Book] [Accessed: 2022-03-21]

Garcia-Perez, Alexeis; Gheriss, Farah; Bedford, Denise 2019. Designing and Tracking Knowledge Management Metrics. Emerald Publishing Limited. Location: Savonia-Finna Library [E-Book] [Accessed: 2021-11-10]

Garmann-Johnsen, Niels; Eikebrokk, Tom Roar; Helmersen, Mige 2018. Transformation in Healthcare Digital Transformation in Healthcare: Enabling Employee Co-Creation through Web 2.0. Completed Research. Twenty-fourth Americas Conference on Information Systems, New Orleans, 2018. ResearchGate. [Available: https://www.researchgate.net/publication/328997843_Digital_Transformation_in_Healthcare_Enabling_Employee_Co-Creation_through_Web_20_Completed_Research] [Accessed: 2022-01-20]

Hardeman, Jethro 2017. Top 5 tips E-health inzetten in de zorg [Blog]. [Available: <https://www.amerpoort.nl/blogs/2017/top-5-tips-e-health>] [Accessed: 2022-04-18]

Iachini, Aidyn; Bronstein, Laura; Mellin, Elizabeth 2018. A Guide for Interprofessional Collaboration. Council on Social Work Education. Location: Savonia-Finna Library [E-Book] [Accessed: 2022-03-21]

Ifenthaler, Dirk; Hofhues, Sandra; Egloffstein, Marc; Helbig, Christian 2021. Digital Transformation of Learning Organizations. Springer Open. [Available: https://library.oapen.org/bitstream/handle/20.500.12657/46121/2021_Book_DigitalTransformationOfLearnin.pdf?sequence=1#page=146] [Accessed: 2022-03-21]

Ikonen, Anna-Kaisa 2021. Ihmisten Tampere – Mahdollisuuksien Kaupunki. Anna-Kaisa Ikonen pormestariohjelman vuosille 2021-2025. . [Available: https://www.tampere.fi/material/attachments/uutiskeskus/tampere/i/CTMGcZFo7/ihmisten_tampere_mahdollisuuksien_kaupunki.pdf] [Accessed: 2022-04-18]

Isson, Jean-Paul; Harriott, Jesse; Fitz-enz, Jac 2016. People Analytics in the Era of Big Data: Changing the Way You Attract, Acquire, Develop, and Retain Talent. John Wiley & Sons, Incorporated. Location: Savonia-Finna Library [E-Book] [Accessed: 2022-03-10]

Janus, Steffen Soulejman 2016. Becoming a Knowledge-Sharing Organization : A Handbook for Scaling Up Solutions through Knowledge Capturing and Sharing. Work Bank Publications. Location: Savonia-Finna Library [E-Book] [Accessed: 2021-11-08]

Johnson-Murray, Rachael; McFarlane, Lindsay; Streets, Valerie; Waters, Shonna 2018. The Practical Guide to HR Analytics : Using Data to Inform, Transform, and Empower HR Decisions. Society For Human Resource Management. Location: Savonia-Finna Library [E-Book] [Accessed: 2022-03-02]

Konttila, Jenni; Siira, Heidi; Kyngäs, Helvi; Lahtinen, Minna; Elo, Satu; Kääriäinen, Maria; Kaakinen, Pirjo; Oikarinen, Anne; Yamakawa, Miyae; Fukui, Sakiko; Utsumi, Momoe; Higami, Yoko; Higuchi, Akari; Mikkonen, Kristina 2018. Healthcare professionals' competence in digitalisation: A systematic

- review. *Journal of Clinical Nursing* 2018: 1-17. [Available: https://www.researchgate.net/publication/333090486_Overcoming_today%27s_digital_talent_gap_in_organizations_worldwide] [Accessed: 2022-03-17]
- Malhotra, Arvind; Majchrzak, Ann; Rosen, Benson 2007. *Leading Virtual Teams. Academy of Management Perspectives*. February 2007. Location: Savonia Moodle [Accessed: 2022-03-18]
- Marchegiani, Lucia 2021. *Digital Transformation and Knowledge Management*. Taylor and Francis Group. Location: Savonia-Finna Library [E-Book] [Accessed: 2021-11-08]
- Mathew, Donald 2019. *Leading and Managing Change in the Age of Disruption and Artificial Intelligence*. Emerald Publishing Limited. Location: Savonia-Finna Library [E-Book] [Accessed: 2022-03-21]
- Mitchell, Pamela 2005. What's In A Name? Multidisciplinary, Interdisciplinary, and Transdisciplinary. *Journal of Professional Nursing*, Vol 21, No 6 (November –December), 2005: pp 332 – 334. Elsevier Inc. [Available: <https://www.sciencedirect.com/science/article/abs/pii/S8755722305001481?via%3Dihub>] [Accessed: 2022-03-21]
- Nair, Kiran 2019. Overcoming today's digital talent gap in organizations worldwide. *Development and Learning in Organisations* Vol. 33 No 6 2019. [Available: https://www.researchgate.net/publication/333090486_Overcoming_today%27s_digital_talent_gap_in_organizations_worldwide] [Accessed: 2022-03-17]
- Ott, Molly 2016-07-08. *Qualitative Data Collection*. [Available: <https://www.youtube.com/watch?v=2oFnSAG576c>] [Accessed: 2021-09-13]
- Ramaswamy, Venkat; Ozcan, Kerimcan 2014. *The Co-creation Paradigm*. Stanford University Press. Location: Savonia-Finna Library [E-Book] [Accessed: 2021-11-30]
- Rijswijk, Kelly 2020. *Digital Transformation: Ongoing digitisation and digitalization processes*. DESIRA 2020 [Available: https://desira2020.eu/wp-content/uploads/2020/05/DESIRA_article_rijswijk_digitisation.pdf] [Accessed: 2022-04-26]
- Ruane, Janet 2016. *Introducing Social Research Methods*. John Wiley & Sons, Incorporated. Location: Savonia-Finna Library [E-Book] [Accessed: 2022-04-27]
- Schopflin, Katharine and Walsh, Matt 2019. *Practical Knowledge and Information Management*. Facet Publishing. Location: Savonia-Finna Library [E-Book] [Accessed: 2021-11-03]
- Scott, Ian; Sullivan, Claire; Staib, Andrew 2018. Going digital: a checklist in preparing for hospital-wide electronic medical record implementation and digital transformation. *Australian Health Review* 2018, 43, 302-313. Csir Publishing. [Available: <https://www.publish.csiro.au/ah/AH17153>] [Accessed: 2022-03-22]
- Sihvo, Päivi; Hämäläinen, Susanne 2018. eProfessionals as Promoters of Digitalisation in Social and Healthcare. WIS 2018 Conference, 28.08.2018 Turku. Location: Savonia Moodle [Accessed: 2022-03-18]
- Spetzler Carl; Winter, Hannah; Meyer, Jennifer 2016. *Decision Quality: Value Creation from Better Business Decisions*. John Wiley & Sons, Incorporated. Location: Savonia-Finna Library [E-Book] [Accessed: 2022-02-15]
- Swaen, Bas. 2017-03-21. *Validiteit en betrouwbaarheid in literatuuronderzoek*. Scribbr. [Available: <https://www.scribbr.nl/onderzoeksmethoden/validiteit-en-betrouwbaarheid-literatuuronderzoek/>] [Accessed: 2021-09-14]

Vey, Karin; Fandel-Meyer, Tanja; Zipp, Jan; Schneider, Christian 2017. Learning & Development in Times of Digital Transformation: Facilitating a Culture of Change and Innovation. *International Journal of Advanced Corporate Learning* Vol.10 No. 1 2017. [Available: <https://online-journals.org/index.php/i-jac/article/view/6334>] [Accessed: 2022-03-18]

APPENDIX 1: INTERVIEW QUESTIONS

Keeping track of the fast-changing developments in the digitalization.

1. Can you tell me what the organization as a whole is doing to enhance the digitalization within the organization and whether/if the organization has set up a concrete strategy to enhance the digitalization?
2. How is the strategy implemented in the organization? Which methods are used?
3. Who is in charge of enhancing digitalization within your organization?
4. What are the success stories within the organization regarding digitalization and what needs to be improved?
5. Is there still some relevant or important information regarding the topic, which hasn't been covered in the previous questions?

Selection and decision-making process on what is relevant for the organization regarding digitalization

6. How is the selection process of the relevant digital solutions working within your organization? Are there specific criteria, framework, models or methods which are used?
7. How are these decisions made within the organization, who are involved into the decision-making process and who is responsible for the introduction of the digital solutions into the organization?
8. After the introduction of the digital solutions, how is the implementation and the functioning of the digital solutions evaluated and what kind of effect does it have on the further decision-making process?
9. Is there something else that hasn't been discussed, but is in your opinion important to mention/to take into account?

Having the right professionals in enhancing digitalization depending on the taken steps in digitalization.

10. How does your organization secure that the right professionals are involved in enhancing the digitalization?
11. Which professionals within the organization are involved in digitalization, depending on the different stages in the process?

12. Why are these professionals involved in enhancing the digitalization; how are the choices motivated?
13. If needed, how smoothly are the professionals replaced depending on the taken steps in the digitalization and how are the new ones introduced and integrated into the process?
14. Is there something else that hasn't been discussed, but is in your opinion important to mention?

Communication within the organization regarding digitalization

15. How does the organization communicate within the organization when a digital solution is introduced and when it comes to the organizational changes due to digitalization (for example changes that could have a negative effect on the job description of the employees)?
16. Which communication methods and tools are used when discussing digitalization and the possible organizational changes?
17. How does the organization handle resistance to digitalization AND resistance to changes?
18. Could you tell me about your personal experiences regarding the topic. What has gone well and what needs to be improved?
19. Is there something else that hasn't been discussed, but is in your opinion important to mention?

APPENDIX 2: INTERVIEW ELABORATION CITY OF TAMPERE

City of Tampere, social and health services & welfare technology services

When, talking about digitalisation in the area of the healthcare and social welfare delivered by the city of Tampere the goal is to find solutions to fulfil the needs of the healthcare and social welfare patient and improve the services they use.

Keeping track of the fast-changing developments in the digitalisation.

From the city's ICT department there is cooperation with the healthcare and social service centres and the reception services. The task from Tampere-city is to deliver support services to the healthcare and social service workers and to the city's citizens. This is done together with the development planning officers from the healthcare and social service centres. These services of these centres are increasingly focussed on digital solutions. The cooperation does include the development of digital services for the healthcare and social welfare and supportive solutions for these digital services. We are aiming for continues improvement of the services maintained by the so called "service point portfolio" where is gathered all the developed digital solutions.

An important issue recently is how the healthcare and social services could benefit from robotics in assisting people and how people could benefit from artificial intelligence (AI). AI could for example support humans in different working processes, it could delegate working processes forward and AI could be linked to a physical robot.

A lot is already automated, such as strong identification regarding city's "e-services". Nevertheless, there is still a lot to develop. For instance, the city has tried to develop the integration of AI Robotics into the appointment system of dentist services. Patients were able to ask the robot an estimation when they could get an appointment for a dentist visit. This didn't work as there are many human factors involved. A Smart bot was not the right solution in this case.

At the moment, the functioning of remote doctor appointment through video is monitored.

There are two pathways in staying updated regarding new digital solutions: Tampere has an equipment market, called 'Laitetori', where technology supplier can deliver their equipment and technological solutions. Technology suppliers are also in contact with Tampere-city.

There is close cooperation with educational institutions, especially with Tampere University of Applied Sciences (TAMK). They have a "Social Virtual Lab".

I receive information through e-mail where I have subscribed to digital newsletters from trusted sources, related to digitalisation. Through the professional social media platform LinkedIn I follow over 1000 people nationally and globally where I get useful information about digitalisation. This requires active monitoring. Our network consists also out of universities of technology and universities in Tampere, Oulu, Turku and Helsinki. These networks with universities are used for monitoring developments and research made in these universities. Start-up companies and their developments in digital solutions are also monitored. It takes years before the product comes on the market, but the progress is observed in case the project could be sold to Tampere-city.

Other sources are the Finnish Ministry of Social Affairs and Health (STM), who has for instance the Welfare AI and robotics- programme called Hyteairo and the Finnish Institute for Health and Welfare (THL), which has the "Technology supporting smart ageing and care at home- programme", called KATI. These public institutions are important for us, as we are a public institution as well. Another important organisation is Business Tampere. They mentioned in a webinar that Finland isn't that strong in the development of robotics, but again is an important global frontrunner in AI and has much knowledge and skills in this area.

Within Tampere-city there are many in charge and involved in enhancing digitalization. This is directly seen in our strategy. In our strategy from 2017-2020 our goal was to get answer to the question of how we can get developed our services into digital ones and our aim for 2025 is that we firstly offer all our services digitally. *The strategy is set up in the 'Pormestariohjelman' 2021-2025, 31-33 of Tampere-city.*

Selection and decision-making process on what is relevant for the organisation regarding digitalisation

In public institutions like Tampere-city a public procurement system is used, called "Hilma", as the city obligated to act according the "Act on Public Procurement and Concession Contracts" (Hankintalaki). When in "Hilma" is put a request where is described the type of solution needed, including the features which the solution should have, companies are monitoring the requests, by getting a procurement notification when there comes a relevant request. They can respond to the procurement notification, when they think that they can fulfil the request of the public instance. When the investment is small, the city takes the service immediately. When the price rises above 15,000 euros or 60,000 euros in 4 years, the "Act on Public Procurement and Concession Contracts" demands that the service should be put out to tender and asked for offers from the different companies. The cheapest offer is accepted or the one which can fulfil the best the demands. This includes qualitative demands, such as data protection, data security and how data is processed (GDPR) or technical demands. This asks from us that we define carefully what we want and need. Every company gets points. The company with the best point can deliver the service or solution to us.

In earlier days, we had clear needs to be followed with a clear solution. We made a call for tenders from suppliers and the cheapest offer we took. Nowadays we also take other point of view. We are looking for a solution to an existing need. We do not necessarily define the final product, but we accept an offer from a certain technology supplier and by co-development we develop a solution, observe the functionality of the solution, evaluate the functionality of the solution and depending on the budget we continuously improve the solution, also called 'agile development'. Everyone who is involved in the development of the solution is part of the decision-making process. The IT- developers who are doing the coding again improves the solution, based on our wishes. The result is presented and evaluated if it covers the requirements and when needed it will be further developed. As mentioned earlier, the price is the main factor after all, but our requirements should be clear, so that we accept the solution the closest to our requirements.

The working group decides what a good solution is, most of the time including different experts from different professional areas. For example, an alarm system for elderly people in service units which was tendered out: A contract specialist, technical specialist and two specialists working in the old people's home were involved. We defined our requirements and got tenders from different suppliers. We again went through all the offers and took the one who was the closest to our requirements. Finally, the responsible specialist prepares the decision and the CIO makes the procurement decision.

Having the right professionals in enhancing digitalisation depending on the taken steps in the digitalisation.

The reality unfortunately is that the professionals working in the city do not have all the knowledge about the subject digitalisation, so the knowledge should increase by continues conversations between colleagues among others, because no one can know everything. This means that work is done together in the form of networking. In a big organisation we know almost always somebody who might know an answer.

We don't want to put through a digital solution from the upper management downwards and that it must be accepted without criticism. This is the reason why we involve grassroot workers such as nurses, especially when we introduce a solution which is going to be in use by them. We have a 'testing culture' when implementing a digital solution, where we involve grassroot workers and patients. This testing culture includes a user's questionnaire which is done during the testing period and afterwards. A part of the workers and patients is also interviewed afterwards.

Communication within the organisation regarding digitalisation

The users of services and solutions are asked for feedback and experiences are monitored. Questionnaires are used as well as open feedback forms to ask how the people experience a certain service. More specifically, the NPS-questionnaire (Net Promotor Score) is used in monitoring people's individual experience in relation to a specific service, solution, including the situation in where it has been used.

The work pressure in the social welfare and healthcare has due to Covid-19 increased tremendously, so the workers aren't waiting for changes which is increasing their work load. So this is asking good change management. When we have planned the implementation of a digital solution, we communicate this from the start and inform the employees continuously about the progress. When the implementation of a new solution means that employees must change their way of working, we organise a user training or education for all the employees whom the changes affect. Also, we set up a support service where employees can call or send an e-mail when needing help or having a question. Depending on the type of solution it can be a service desk through phone or MS Teams where you can expect immediate help, or support which provides answers later.

When communicate with the citizens of Tampere and informing them we use different channels such as traditional newspapers, digital media such as our city's homepage and social media such as Facebook, Instagram and Twitter.

Within the organisation we use our own intranet to inform our employees. Our intranet is called 'Tasku'. Other ways of communicating are through e-mail, face-to-face from the superior towards their subordinates, and then we use MS Teams a lot, because of its many features.

APPENDIX 3: INTERVIEW ELABORATION AMERPOORT FOUNDATION

Interview Amerpoort

I was able to interview a staff member of Amerpoort Foundation. She has knowledge of the new Electronic Patient Record (EPR) and is a "key user" of the EPR. In the interview, an explanation is given about the role of key users. Since the interviewee is not involved in the entire digitalisation within the organization, the interview is therefore mainly limited to the EPR and how the employees experience digitalisation. For this reason the interview is based on personal experiences.

Amerpoort foundation is an organisation for people with an intellectual disability, situated in central Netherlands. Employees of a total of 2700 including about 25 managers and about 40 behavioral experts work in the organisation. The organisation has 240 locations. The foundation has several divisions, such as a division healthcare and expertise. Within the organisation is given support to 2400 people with an intellectual disability. Services of all levels, such as group housing, daytime activities, ambulatory care and parent initiatives are provided.

Keeping track of the fast-changing developments in the digitalisation.

A year and a half ago, a project leader was appointed to map digitalisation. The project leader within the organisation is currently working on several digitalisation projects, such as the new Electronic Patient Record (EPR). However, the experience is that digitalisation isn't much in the spotlight among employees. However within the project groups it plays a central role which is why an implementation plan is currently being developed to involve the employees more in digitalisation.

To know what is going on in the field of digital developments, sources from the internet are mainly used.

The people responsible for promoting digitalisation within the organization are mainly the project leaders.

Selection and decision-making process on what is relevant for the organisation regarding digitalisation

The organisation's management is aiming for a bottom-up culture within the organization. In concrete terms, this means for example that training courses are given to guide employees in the usage of new solutions. The experience of the interviewee, is that the employees don't necessarily experience the culture in the organization as bottom-up because the support and guidance after the given courses is minimal.

When a new EPR was chosen, a method was set up by the project leader, where tiny steps were made in each part of the decision-making process. In addition, a broad interaction structure with the users was organised. Eight providers were pitching their EPR and the two best providers were chosen. The two best providers with their EPR were presented to the customers. This included clients and their relatives, behavioural experts and employees. The project leader ultimately made the final decision based on the input from everyone in the organisation. As a side note, the people who were involved had to make their judgments on the basis of many hours of film and extensive feedback

forms which became an obstacle to many to participate. So the positive aspect was that everyone was involved, but the realization caused problems, because the managers didn't provide enough time for viewing the material.

As for the new EPR, the provider has created an implementation plan, to which the organisation adheres. The process is evaluated, but after the implementation, based on the past experiences, the system is not closed down if it turns out that it does not work as expected.

Having the right professionals in enhancing digitalization depending on the taken steps in the digitalization.

When examining the process of the new EPR, it can be seen that clients and their relatives, behavioural experts and employees are involved in choosing the new system and in giving feedback.

The "early adapters", often just graduated and/or with UAS educated are often enthusiastic and would like to participate in the implementation of digital solutions.

Do not require all the employees to have the same skills when it comes to digitalisation. However, it is still essential to involve everyone in digitalization. Everyone has a smartphone or a tablet nowadays, so it is important to remember that the workers are not digital illiterate.

The interviewee is involved in offering training courses from the 'VGN Academie'. Trainings are also offered by 'Good Habitz' which includes themes, such as digitalization. Good Habitz is an international online learning platform. After a study, the interviewee has found out that this platform is not being used enough, regardless of how good the platform is. This shows that more can or should be done in order to gain more attention around digitalization, or more specifically in the field of learning and development and in the professionalization of the employee.

'Key Users' are people who have above-average more knowledge of, in case of the interviewee, the EPR. Key Users have the task to familiarize employees and different teams from their own cluster with the use of a specific system. The key user is also involved in the process and the preparations for the introduction of the new EPR. The key user guides employees in the new features of the EPR and inventorises the wishes and ideas of users for the further development of the EPR. Key users have better access to tools and are supported by functional management. The key user cooperates with key users from other clusters, regional managers and behavioural experts and financial administration. Support is asked from each other and updates are communicated. A specific job description is still in progress.

Communication within the organisation regarding digitalisation

When talking about how resistance to digitalization is dealt with, it is noticeable that too little is being done to get grass with poor digitalization skills involved. For example, to familiarize people with the new EPR, meetings were organized. Workers who were able to participate in these meeting could familiarize with the new system by watching introduction videos. This was not feasible in practice due to lack of time. Something that was well-intentioned, didn't fit the employees (the users), the people you want to involve in the new system.

There is an intranet as a means of communication within the organization, with a toolkit called "Working together on the care for tomorrow" (Samen werken aan de zorg voor morgen) with, among other things, updates regarding developments in digitalization within the organization and manuals and instructional videos concerning various digital systems and applications.

In my experience, employees do not have enough time to look at the intranet and delve into it. People who work directly with the clients prefer to spend their time paying attention to the clients. To change this, in my opinion, the manager should give the employees more time to inform themselves through the intranet. Moreover, the updates on the intranet are not updated regularly, so employees are poorly informed about the state of affairs regarding the new EPR, for instance.

This has to do with the "self-determination theory" (SDT) of "Deci and Ryan": "Are you autonomous in what you can do, are you involved in what you want to do and are you competent to be able to do it", here it is essential that the organization is competent to offer it in the right way, so among other things the infrastructure is arranged and the organization is competent in motivating the employee to delve into digitalization and to involve themselves in these new developments. In addition, it is important to create conditions in time and resources to remove the noise. Help is also very important when employees need it, so that frustration with regard to digital resources is prevented. This can prevent resistance. Employees quickly experience too much pressure when there is too much communication. An overload of information should be avoided, because this creates resistance. Connect with the experience of employees; make a connection with a particular client and figure out how you can apply the digital system or application based on that example.

It is important to involve people the way they want. So let the people who are interested in digitalisation contribute. Other people must perform the most necessary and basic tasks. Give good tailored support. Do not require employees to be able to do the same things when it comes to digitalization, but everyone can be involved in digitalization. Everyone nowadays has a smartphone or a tablet, so people are not digital illiterate.

A "community for key users" has been set up, which includes a toolbox containing important information for key users. Among others there is information about the distribution of the key users within the organisation, including a list of each key user and its role. This community includes also different tools, such as a training EPR Plancare and a training "cyclisch werken", which can be translated as "cyclical working". (Cyclical working refers among others to the PDCA-cycle.) Later on there are tools available regarding the new EPR. The tool box is still under development. This will be a closed community for key users and it is different from the toolbox in the intranet of the organisation which is public to everyone within the organisation. At the moment the community of key users communicates mainly through the telephone.

It is important that there is enough support for people to familiarize themselves with the EPR. This requires, among other things, that there are enough people working at the help desk.

Involve people in digitalisation and show that digitalisation is part of everyone's profession. However, at the same time connect with the qualities of people and the possibilities that exist on the basis of everyone's qualities. Give people time to develop.

Many employees nowadays watch in their free time non-work related tutorials when they want to learn about a specific topic. This could be also a method when employees should learn about the usage and features of the EPR.

In addition to the recordings and the actual interview, we talked about organizational changes and changes in organizational culture and the time that a change lasts. In addition, I was advised to delve into professor Jan Rotmans.

APPENDIX 4: INTERVIEW ELABORATION ORGANISATION X

Introduction interviewed organisation and the project A

[Organisation] has two divisions between the [Organisation]'s activities. One of the divisions is the renting of apartments. With public-aid money, we purchase these apartments for supported housing, which will be rented out to the target group. The renting of these houses is a regulated activity and the determination of the rent is an exact one. We are not allowed to make profit, but we are only allowed to collect money for reparations. This is well regulated.

The other side is the so-called "development of general interest". The development activities under which the [Project A] falls is one of those, because it is a publicly funded development activity. Everything we do, must be freely available and shareable. The project's output we share in public. During the project, we aren't doing business. When it becomes a business after the project, it is another case. Public funding places some constraints on what we do and how we do it. With our development activities, we aren't only focusing on our own tenants living in our units or renting an apartment through us, but we also develop products and activities open to all persons with a disability and mental health rehabilitators in need of support in their housing. We look for these customers through our partners and by communication through social media among others. The [Project A] lasts three years with the idea to experiment with existing lightweight digital application together with the customers and whether they can be useful for surviving in everyday life and integrated in assisted living. One example is the [name]-application which we coded with our partners. The project has as goal to test and gain customer experience from light digital applications like this and how they can help in everyday life. This peer-to-peer information we disseminate to other people with challenges in everyday life, and we present it that it might be useful for others too. This is the simple logic we use.

The [Project A] was born out of the realization that at the municipalities or the "Health and Social Services areas" aren't structures who offer or create "digital assisted living", neither our legislation is supporting this. No one is trying to take advantage of the opportunities for digitalization. At the same time knowing that it is difficult to get workers into the housing service to help the customer in everyday life. These obstacles were a dilemma, but we can only take small steps. But if this projects points out the way ahead and we can talk about this, then this serves the objective very well. In the elderly care independent living by the support of digital solutions is emphasized, which is logic, because for the society this is an important topic. Still, it is funny that that dominates this field, because the customers in the elderly care are at the end of the life cycle and quite fragile. This means that the presence of another person has a different sphere and is often more important. People with disabilities who want increase independency in their life are usually young people who have a life ahead of them and who usually have that need for support for the rest of their lives. That would be a great segment which would benefit from digital solutions. Not to mention when these people tell us what they wish from living on their own. We have numerous studies and surveys made in [Organisation] regarding the subject. Everyone wants to live as independently as possible and like others, if that goal can be supported by digital means, why not do it? It would be useful for society too.

The [Project A] has worked in the way we implemented it. We went from the idea that we are approaching this subject softly by bringing the subject to the people by presenting and considering together with people how the solution could benefit the service they receive, how it can be used in everyday life and which benefits would be obtained.

Covid-19 has hit us badly, because we couldn't meet people, but we did what we could do. We had some experiences with the [name]-application and smart lights. Regarding the smart-lights, the customers had their own goals what they want to achieve with these solutions. The testing lasted about 2.5 months. After that, we interviewed the customers and what kind of benefits they experienced. According to the customers, the smart lights were experienced for being useful and they wanted to continue to use them. Next to the original goals, customers experienced more benefits than what they wished. Customers were discovering more benefits when they had the possibility to approach the solution in peace. It must take into account that Smart Lights aren't expensive, but for customers permanently outside of the labour market and with a little money, it is impossible for them to purchase and test them by themselves. So, with a little aid, a great deal of benefit can be gained.

We have tried Virtual Reality (VR)-glasses and existing "mood-diary" applications. The mood-diaries has helped in stabilising the mood and helped the well-being of the customer. We have just started with VR, but till now with good results. What we couldn't do because of Covid-19, but what we like to do is to visit at least one service unit where we describe the environment with a 360 degrees camera. Through VR, customers can practice and train situations in daily life around the housing unit, when for example having challenges with mental health. The equipment is no longer very expensive and making many opportunities possible. These digital and virtual environments can be exploited in many ways and would have a lot of opportunities in housing services. There is still a lot of work to do, but these results have now been achieved in the [Project A].

We had a process goal where the aim was to develop the process of getting people's everyday needs visible. We were searching for fitting digital solutions according to the people's needs. This test's hypotheses turned out to be bad, because it is much better to take a solution known to be helpful, and from there start shaping the solution with the people, so that it fits in their everyday life.

Keeping track of the fast-changing developments in the digitalization.

To know what is going on in the field we are following different sources of information. It is important to be as an employee interested in the developments around digitalization and it is important to work systematically. We follow magazines related to the field, we have media monitoring where we use keywords related to digitalization and weekly magazines who are in the best case through social media. Mostly it is leaning on your own interest, because we do not have any comprehensive process that has been systematized.

There isn't a specific "digitalization strategy", but in the organisation's strategy, digitalization has been raised quite clearly. We have three strategic goals: In the goal around personal customer experience has been defined that customers should be able to cope with the transformation of a digitalizing society. We have specified that the organisation is an open-minded developer and exploiter of technological solutions. We see that digitalization and helping people goes hand in hand.

Our method is to use different kinds of projects. Next to the [Project A] we have the [Project B], which was a project for teaching digital skills to customers. Both project will end the end of 2021. We will continue with new activities, based on the lessons learned from these former projects. We continue the promotion of digitalization connected with increasing digital skills, more systematically experimental activities and bring this to the usage of services. The aim is to set up regional "Digi-clubs" to bring this forward.

We make this project with our partners who have about the same target group. Resources are put together locally to be a stronger local player, getting more visibility, getting more say and better connections, maybe to those who can sponsor these activities and have their own services in digitalization. These are all ways to put digitalisation in practice.

Nobody in the organisation has the whole responsibility over enhancing digitalization. Within the organisation our chief financial officer (CFO) has the responsibility over ICT procurements and other back office functions also related to ICT. There isn't for example an own IT manager or development manager in the [Organisation] who develops the organisation's own operation. The responsibilities are determined by the projects we have and spread out by the resources we get. It depends on the project.

Until recently digitalisation has been focused on information systems and data, but what a regular person needs from digitalisation is smart lights working properly, Google Home guiding and helping and the door opening remotely with the cell phone, not the information on how many times the door has opened during one month. The utilization of practical digital solutions which are useful for daily life still has a long way to go before it is part of everyday life. For example, smart clothes are not yet known of by many, but could be useful for people with a physical disability. Nobody has been planning the implementation of these solutions until now. Time is often needed for a particular solution to be considered useful. Another example of a solution which could help young people with neuropsychiatric disorders, such as people on the autistic spectrum, are different sensors. Not used from the perspective of supervision, but from the perspective of reminding people of things. When a person is stuck on the computer for too long, a sensor on the refrigerator can remind the person to eat, or a sensor on the door can remind the person to go outside. The sensor can give a notification to the cell phone or give a light signal, without the announcement going to a general control centre. We were planning to pilot this solution, as the offer we got was not even that expensive, but we had to cancel it because we didn't found any partners.

Selection and decision-making process on what is relevant for the organization regarding digitalization

The [Project A] has small subprojects, where we set criteria based on a target or trial we want to achieve. But the first goal we base our decisions on, is that the testing persons do feel for a solution being useful. The made decisions totally depends on what is tested. We don't have single-concept criteria after all, because the solutions are tested in different situations of usage. The criteria of selection and decision-making is after all based on the experiences of the tester. When the tester is positive about a certain solution and he has reached his set-up goals, this is the most important goal

of the experience. The fact is that we aren't disseminating the solution, but the user experiences of testers. Spreading out the message of that a certain solution could help someone, as it helped a certain person with similar challenges. That is our product.

When talking about the selection and decision-making process in the organisation as a whole, then we are using the method that the one, who is responsible for purchasing the system, will make the decision which system it is going to be. The one who is in charge of the project is making the decisions based on the specific criteria. The criteria can be different in every project.

In the case of the [Project A] we made a selection out of more solutions. Then we have started to look at the needs of the customer and all the experiments we have already had. We have organized workshops where we have considered how digitalization could help and what kind of help would be needed. For customers, guidance was the biggest help. Smart home systems are many solutions, so we started based on what is worth testing based on availability and costs.

After the introduction of the digital solutions the implementation and the functioning of the digital solutions is evaluated by customer and user feedback. However, as earlier said, we are not introducing them, but we do present the solution to others who could benefit from the solution. The starting point of our assessment is positive and negative feedback. When someone has taken it into use, and then we receive feedback we aren't using that feedback anymore for the further decision-making process. When it comes to the [name] application that has been now developed, we are aiming for continues development, which is part of the decision-making process.

Regarding the evaluation of the process and future decision-making processes we follow the logic of Service Design and experimentation: depending on the length of the project we are going step by step through the process. We adjust the process through customer feedback among other things. This knowledge is used to make adjustments earlier in the process in future projects. When something goes totally wrong, we have to stop the whole experiment. Service design is strongly present. We have a culture of experimentation which is internalized within the organisation and used in project work.

Having the right professionals in enhancing digitalization depending on the taken steps in the digitalization.

The question can only be answered from the perspective of the [Project A]. In the project, the resources are fixed. The financier determines for what purpose the money is used and it can be only used for that specific project.

Development professionals and people of development activities are involved in the digitalisation. Then we work in strong cooperation with our customers, but they are not trained experience specialists. They have experience of the challenges of everyday life, and we involve them a lot in our activities.

Communication within the organization regarding digitalization

We use Microsoft Teams within the organization as a communication tool and we communicate a lot. Our aim in [Project A] is of inform colleagues as comprehensively as possible about new developments

and when the developments cover a wider scope within the organization, we are giving the news more detailed about development activities and what have been tested and deployed with customers.

Once a month the [Organisation] have an office meeting where practically all the staff is participating through MS Teams. When there are coming organizational developments, which directly concerns staff, it will be communicated in an early stage.

When communicating outside of the organization we use websites and social media.

When, it comes to handle resistance towards organizational changes and resistance towards digitalization, in a normal organisation these issues are discussed and of course in every organization are complaints. In our organization it is allowed to complain. We are talking openly and are trying to solve the problem as good as possible. In the Information System field, some resistance is normal.