



**CHALMERS**  
UNIVERSITY OF TECHNOLOGY



# Implementing video consultation between healthcare providers

What to consider for successful implementation

Master's thesis in Quality and Operations Management

EDVIN HANSSON  
AGNES OSKARSSON

DEPARTMENT OF TECHNOLOGY MANAGEMENT AND ECONOMICS  
DIVISION OF SERVICE MANAGEMENT AND LOGISTICS

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Report no. E2022:143  
Department of Technology Management and Economics  
Chalmers University of Technology  
SE-412 96 Göteborg  
Sweden  
Telephone + 46 (0)31-772 1000

# Implementing video consultation between healthcare providers

## What to consider for successful implementation

EDVIN HANSSON  
AGNES OSKARSSON

Department of Technology Management and Economics  
Chalmers University of Technology

### SUMMARY

In the coming years, the Swedish healthcare system will undergo a transformation to increase accessibility, proximity, and efficiency of care, named *Good quality, local healthcare*. The proposed transformation involves a heavier emphasis on primary care, and digital health innovations and tools are believed to be a central component. At the orthopedic emergency department at Sahlgrenska University Hospital, implementation of synchronous video consultations (VCs) between primary care health centers have been initiated. The purpose with the implementation was to improve the referral process by making specialist competence more available for the health centers, facilitating the steering of patients to the right care level. Several initiatives aiming at implementing video consultation between healthcare providers have been taken in Sweden, but few have reached full scale implementation or been sustained.

This thesis investigates video consultations between specialists and other healthcare providers to increase understanding of what to consider for successful implementation of VCs. Further, the thesis also examines in what way the consultations influence *Good quality, local healthcare*. The study uses semi-structured interviews with people with first-hand experience from projects where VCs between specialists and other healthcare providers were being tested or implemented. The data is analyzed through thematic analysis, and the findings are compared to the Consolidated Framework for Implementation Research.

The findings imply that the VCs studied positively influence *Good quality, local healthcare*, although specifying the influence on a detailed level appears difficult. Understanding the effect on the dimensions of *Good quality, local healthcare* of a specific VC implementation could facilitate receiving funding and support, proving the relative advantage of the implementation, determining purpose and metrics, and motivating personnel by demonstrating the benefits.

Additionally, 38 considerations for implementation of VCs were found. Ten categories summarize all the considerations:

- |  |  |
|--|--|
| 1) Resistance to change                  | 6) Measurement of improvement                    |
| 2) Motivation and engagement             | 7) Information, education, and support personnel |
| 3) Organizational design                 | 8) Project scale-up                              |
| 4) User-friendliness of technical set-up | 9) Financials                                    |
| 5) Confidentiality and privacy           | 10) Process design                               |

The identified considerations can be used by personnel aiming to implement VCs as a checklist to help identify potentially critical aspects of the implementation of VCs between specialists and other healthcare providers. The research findings complement the CFIR by guiding language and illuminating considerations specific to VC projects, as well as generate a basis for future research and improvement of implementation efforts of video consultations between healthcare providers.

Keywords: video consultation, telemedicine, 'Good quality, local healthcare', Consolidated Framework for Implementation Research, implementation science



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Edvin Hansson & Agnes Oskarsson  
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## Abbreviations

<b>VC</b>	Video consultation
<b>CFIR</b>	Consolidated Framework for Implementation Research
<b>DHI</b>	Digital Health Interventions
<b>NBHW</b>	National Board of Health and Welfare

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# 1. Introduction

*The chapter introduces the background and relevance of exploring the use and implementation of Video Consultation (VC) between specialists and other healthcare providers. Subsequently, the purpose, the research questions and the limitations of the study are presented.*

## 1.1. Background

While the medical quality of healthcare in Sweden is generally high, the inquiry *Good quality, local health care – A primary care reform* (SOU 2018:39) states that the healthcare system often fails to deliver continuity, patient participation, and accessibility. Currently, primary care struggles to function as the first instance of healthcare and there are problems with patients at the wrong level in the healthcare system, negatively affecting healthcare quality by increasing the time patients have to wait until receiving appropriate care (SOU 2018:39).

Historically, the Swedish healthcare system has been dominated by investments in specialist care and emergency care (SOU 2020:15). In the coming years, the Swedish healthcare system will undergo a transformation, to maintain or increase the healthcare quality and to increase accessibility, proximity, and efficiency of care. The proposed transformation involves a heavier emphasis on primary care and care being provided outside of the hospitals closer to the patients, and increased accessibility by offering faster contact with the right healthcare level. According to the inquiry, digital health innovations and tools are believed to be a central component in that development (SOU 2018:39).

The problem formulation of this thesis originates from an improvement project at the orthopedic emergency department at Sahlgrenska Hospital in Mölndal, where the emergency department experienced problems with patients being wrongly referred to the emergency department from primary care health centers. According to an analysis of data regarding the incoming patients collected during three months in 2018, 46% of all patients sent to the emergency department from health centers should have been sent to another specialist or care level. To solve this problem, the implementation of synchronous consultations between the emergency department and health centers using video was suggested. The purpose of the implementation was to improve the referral process by making specialist competence more available for the health centers, facilitating the steering of patients to the right care level.

Even though the technology appears rather simple, the application in a healthcare setting has been proven to be more complex. In Sweden, multiple attempts at establishing video consultation between healthcare providers have been initiated; however, few have been successfully implemented and maintained. Research shows that projects for the implementation of digital health innovations and telehealth often fail to be sustained and integrated into routine clinical practice (Brewster et al., 2013; Standing et al., 2016).

Several studies have investigated efforts to implement digital health innovations to better understand what determines the outcome of efforts (Damschroder et al., 2009; Kitson et al.,

1998; Fleuren et al., 2004; Marwaha et al., 2022). One such example is the study conducted by Damschroder et al. (2009) in which a framework for understanding the outcomes of the implementation of health service interventions was developed. The framework, Consolidated Framework for Implementation Research (CFIR), is one of the most commonly used frameworks in the field.

Neither the problem with patients being on the wrong care level nor the issue with the implementation of digital health interventions and technologies are unique for the emergency department, health centers, and other healthcare providers involved in the previously mentioned initiatives. As the pressure on the healthcare system increase and the transformation of the healthcare system progress, primary care needs to be given the prerequisites to fulfill the function as the first instance of healthcare. Increased integration between healthcare providers using video technology might have the potential to facilitate the development.

The Covid-19 pandemic and technological development have increased the interest in and use of telemedicine. However, the focus has often been on contact between a physician and a patient. In this thesis, video consultations occurring between specialists and other healthcare providers are studied. To describe the characteristics of the consultations, a framework from World Health Organization (2018) is used. The consultations studied aim to “manage referrals between points of service within the health sector” (WHO, 2018, p. 7) and enable “case management between healthcare providers” (WHO, 2018, p. 7).

#### *1.1.1. Swedish healthcare system*

Swedish healthcare is divided into multiple levels, where primary care forms the basis for the continuity of patient care in the healthcare system (SOU 2015). Patients that cannot be diagnosed or treated in primary care are referred to one of the levels within the specialist care level, treating uncommon and complex conditions (SOU 2020:15). The patients that cannot be treated at the regional are referred to the national specialized medical care level, which is handling the rarest and complex needs.

Patients are sent between different levels of care and healthcare providers with the use of referrals. A referral, in the Swedish healthcare context, is commonly written by a physician when in need of more specialized competence to treat or diagnose the patient (1177, 2022). A typical referral contains information on the expected care for the patient, symptoms, current health status, and previous diseases. Patients are also able to write a referral, called self-referral, to directly seek specialized care and are booked for a time if judged relevant. At the ED and primary care units, there are no requirements for referrals to receive care. Healthcare providers can nevertheless send referrals for a patient to the ED and primary care units. (1177, 2022).

#### *1.1.2. Good quality, local healthcare*

The transformation of the Swedish healthcare system towards *Good quality, local healthcare* is presented in the inquiries “God och nära vård. En primärvårdsreform” (2018:39), ”Effektiv vård” (SOU 2016:2), ”God och nära vård - en gemensam färdplan och målbild” (SOU

2017:53), "Vård i samverkan" (SOU 2019:29) and "God och nära vård - En reform för ett hållbart hälso- och sjukvårdssystem" (SOU 2020:19). The inquiries state that for the healthcare system to handle current and future challenges, related to for example an aging population and technical development, the system must be reorganized. The investigation aimed to achieve a joint development towards more a modern and accessible healthcare (SOU 2017:53), i.e., a *Good quality, local healthcare*.

The definition of *good quality healthcare* differs depending on the context. In this thesis, the definition of the Swedish National Board of Health and Welfare (NBHW) is used. NBHW (2021, p. 44) describe good quality care in terms of the six dimensions of quality in healthcare developed by the Institute of Medicine [IoM] (2001): safe, efficient, patient-centered, timely, effective, and equitable. The six dimensions of quality in healthcare will be described in more detail in section 3.1.

The term *local healthcare* is not clearly defined but rather determined by the patient's experience of the care, according to the NBHW (2022). Nevertheless, the board has stated elements of what can explain local healthcare. Care can be considered local when the population experience accessibility considering time and place, or when it is person-centered and organized so that different caregivers cooperate based on each patient's needs and circumstances while ensuring continuity (NBHW, 2022). Region Västra Götaland (VGR, 2022) defines local care as the provision of care that is close and adapted to the needs of the population. Close care is not limited to physical closeness, but it also encapsulates contact through digital care services or a high continuity.

## 1.2. Purpose and specification of the issue under investigation

The purpose of the thesis is to increase the understanding of the implementation of video consultation between specialists and other healthcare providers. The study focuses on what should be considered before, during, and after efforts to implement video consultation. The considerations identified in the study are not intended to function as a complete guide, but rather to facilitate discussions, support the choice of implementation strategy and evaluate the outcome of implementation efforts. To connect the work to the current development in the Swedish healthcare system, the thesis examines in what way the consultations influence the dimensions of *Good quality, local healthcare*. To guide the research, the following research questions have been used:

1. *In what way do video consultations, between specialists and other healthcare providers, influence 'Good quality, local healthcare'?*
2. *What should be considered before, during, and after implementing video consultations between specialists and other healthcare providers?*

### 1.3. Delimitations

The empirical material and current theoretical knowledge can to some extent help understand possible connections between considerations. However, this study is not investigating interactions and relationships between considerations. Moreover, the study does not consider quantitative measurements of the considerations. The study is also limited to the Swedish healthcare setting.

Due to the limited time frame of the project, there was not enough time to receive permission from the Ethical Committee and therefore, interviews with patients and the perspective of patients had to be excluded. The study is also excluding medical considerations.

## 2. Methodology

*The following chapter presents the methodology of the study. In the first section, the research strategy and design of the study are introduced. The second section presents the data collection, while the third is describing how the data was analyzed. In the last sections, the research quality is discussed.*

### 2.1. Research strategy and design

Data was collected through interviews with people from both healthcare and academia, and the study emphasized different perspectives and an in-depth understanding of the topic. Thus, the research strategy was qualitative. The data collected during interviews was analyzed and the insights were used to answer the research questions. The analysis is described in more detail in section 2.3.

The research design of the study is a model adopted from Maxwell (2013), illustrated in Figure 2.1. The model has five components: *goals*; *conceptual framework*; *research questions*; *methods*; and *validity*. As the components of the research design are related and interact, changing one of the components might imply changes in the other components as well (Maxwell, 2013). As illustrated in the figure, the research questions are the center of the model, with the most direct connections to the other components. Thus, the research questions are both the component with the greatest influence on other components, as well as the component that is most affected by the other components (Maxwell, 2013).

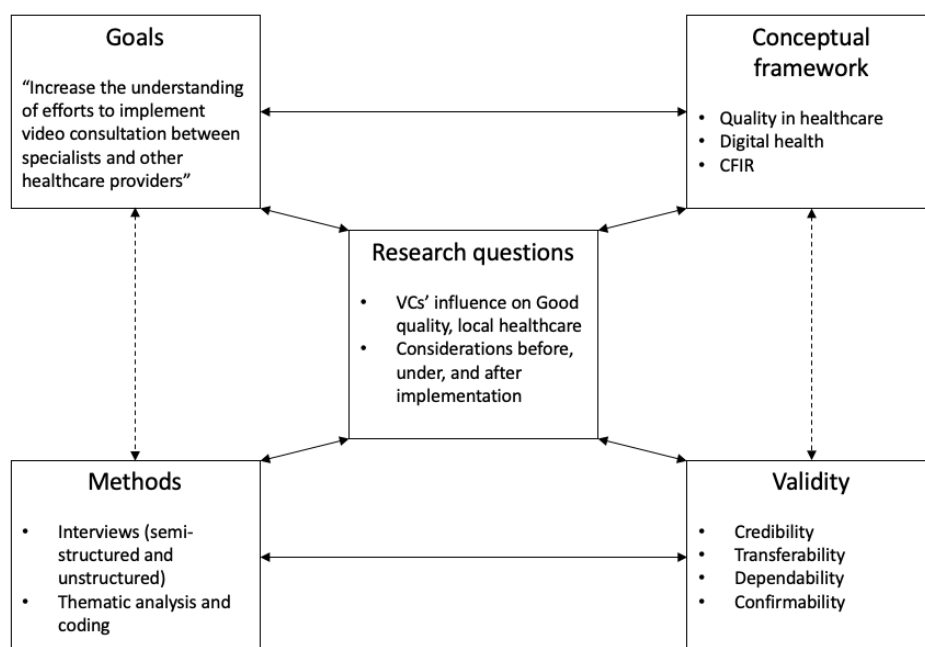


Figure 2.1. The research design of the study (adopted from Maxwell, 2013)

The process of constructing the research design of the thesis has been iterative, changing depending on what was found during the research and the feasible research methods. The goal of this study is to contribute to the understanding of the implementation of VCs between

specialists and other healthcare providers, which is achieved by answering the research questions outlined in section 1.2. The conceptual framework relates to the first research question by presenting the dimensions of quality in healthcare used to evaluate the VCs' contribution to *Good quality, local healthcare*. Furthermore, the conceptual framework relates to the second research question by covering the current knowledge regarding determinants of outcome in implementation efforts. The framework of implementation determinants also relates to the validity of the study, as a commonly used framework, CFIR, is compared to the findings of the study to find similarities and differences. The methods used, i.e., semi-structured interviews, coding and thematic analysis were perceived as the most appropriate and feasible methods to answer the research questions considering the context and circumstances of the study. The data collection and analysis methods were conducted in accordance with established guidelines to increase the validity and the overall trustworthiness of the study.

Maxwell (2013) presents several other factors influencing the research design, shown in Figure 2.2. Three of the most important factors shaping the research design in this study have been the research setting, ethical standards, and the existing theory and prior research. The healthcare setting has limited possible methods due to ethical considerations, which limits the research questions. The existing theory and prior research on the topic are relatively scarce, which affected the research questions and conceptual framework used.

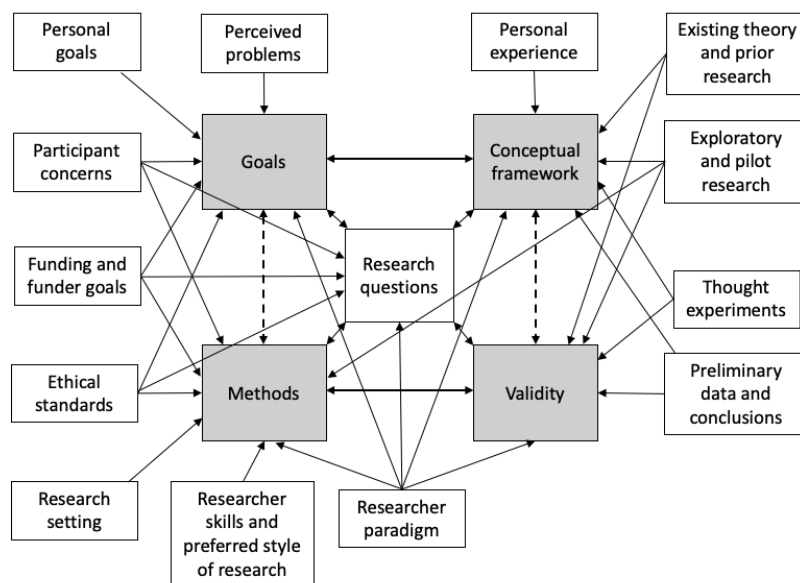


Figure 2.2. Factors influencing a research design (Maxwell, 2013, p. 6)

## 2.2. Data collection

The data collected in the study is mainly primary data. Some secondary data were obtained from the documentation of previous projects. In the following sections, the data collection methods are described.

### 2.2.1. Interviews

There are three main types of interviews: structured interviews, unstructured interviews, and semi-structured interviews (Bell et al., 2019). The first type is more standardized and most common in quantitative research, as the structure allows for higher reliability and validity. In qualitative research, an unstructured or semi-structured approach is often adopted to generate detailed answers and enable the researcher to capture the opinions and perspectives of the people interviewed.

The interviews in this study can be divided into two phases. In the first phase, explorative and unstructured interviews were held with the leader of the project aiming at implementing video consultation between health centers in and near Gothenburg, and the orthopedical emergency department in Mölndal. The interviews were primarily held to formulate initial research questions, and few or no questions were prepared in advance (Bell et al., 2019). In the second phase, semi-structured interviews were carried out with people involved in other projects in which video consultations between healthcare providers were tested, either by the time of the study or previously. The goal of the interviews in the second phase was to outline learnings regarding critical considerations from similar projects and VCs' influence on *Good quality, local healthcare*. To cover more than one perspective, people with different roles within the same project were interviewed when possible.

Because of the authors' limited network within the healthcare sector, a snowball sampling strategy was adopted. The sample included healthcare personnel, project leaders as well as experts in the field from academia. The people interviewed during the second phase are presented in Table 2.1. The criteria of inclusion were that the person had first-hand experience from projects where video consultations between specialists and other healthcare providers were being tested or implemented. Although some projects were still ongoing, none of the projects in which the interviewees were involved had successfully maintained or fully implemented the VCs by the time of the interviews. The VCs in the projects differed in terms of setting, involvement of the patient, type of specialist consulted, and if the consultation was scheduled or not. However, all had in common that a healthcare provider was connected to a specialist providing consultation, to steer patients to the right care level or unit. Even though all projects studied to some extent include both referral coordination and case consultation services, the focus on one or the other varies between projects.

Table 2.1. List of people interviewed in the second phase

Project	Title	Unit	Role in project
A	Specialist in orthopedics	Orthopedic department	Project leader, user
A	Head of department	Public health center	Project leader
A	Senior project and change leader	Regional office	Project leader
B, C	Program manager, associate professor	Research center	Project leader
B,	Nurse	Pre-hospital care	User
B	Specialist in neurology	Neurologic department	User
B,	Adjunct professor of Healthcare Informatics	Research center	Professor of practice
D	Senior consultant orthopedics	Orthopedic department	User
E	Senior consultant orthopedics	Emergency department	Project leader

The interviews were held remotely using video conference software. All the interviews were held in Swedish. To prepare the interviewees, an interview guide was sent out in advance, together with the invitation. The interview guide included relevant background information about the study and questions to cover during the interview. The interview guide can be found in Appendix A. To ensure that the answers were captured correctly, the interviews were recorded and transcribed, after permission from the interviewee. As it is important to inform the interviewee about the recording before the interview (Bell et al., 2019), information about the recording was also included in the interview guide. In total 9 interviews were held, each with a duration of 45-60 minutes.

### 2.2.2. *Other qualitative data*

In addition to the primary data from interviews, a small amount of secondary data was also collected from written material about the projects studied. This data was mainly used to develop an understanding of the project and prepare for the interviews.

## 2.3. Data analysis

Recording and transcription of interviews are important to enable a detailed data analysis (Bell et al., 2019). In this study, thematic analysis was conducted, which is a method for finding, analyzing, and reporting patterns (themes) in the data (Braun & Clarke, 2006). Table 2.2 shows six general phases of thematic analysis. The phases are not unique to this type of analysis but can be found in other qualitative methods as well.

Table 2.2. “Phases of thematic analysis” (Braun & Clarke, 2006, p. 87)

Phase	Description of the process
1. Familiarizing yourself with your data:	Transcribe the data if necessary and continue by writing down preliminary thoughts while reading and re-reading the data.
2. Generating initial codes:	Scan the entire data set and systematically code features of the data and arrange the data relating to each code.
3. Searching for themes:	Organize codes into potential themes by gathering all data related to each theme.
4. Reviewing themes:	The themes are inspected to check for fit with the coded extracts (Level 1) and coverage of the data set altogether (Level 2), resulting in a thematic ‘map’ of the analysis.
5. Defining and naming themes:	An analysis is continued to improve the details of each theme. In this step, the themes are clearly defined and named, and the general story of the analysis becomes well-defined.
6. Producing the report:	The last part of the analysis consists of choosing vivid, convincing extract examples, ultimate analysis of selected examples, connecting the analysis to the research questions and literature, and lastly producing an academic report of the thematic analysis.

After the semi-structured interviews were carried out and transcribed, initial codes were generated i.e., the content was reviewed, and relevant statements were highlighted and extracted. The statements were registered together with an ID specific to the interviewee, to allow the researchers to track which interview each statement was extracted from. As questions regarding both the first and second research questions were asked in the interviews, the statements were divided into two groups depending on which research question it intended to answer.

When the initial coding was done, themes were searched for among the statements. According to Braun and Clark (2006), one of the main benefits of thematic analysis is the high flexibility, allowing for a broad area of use. However, the flexibility also implies that there are many various approaches to carrying out a thematic analysis, and the researcher has to make certain decisions before conducting the analysis. One such decision regards what counts as a theme. Braun and Clarke (2006) recommend flexibility in judgment, rather than using rigid rules. Moreover, a theme does not have to be reliant on quantifiable measures. Instead, the researcher should make sure that the theme captures something important associated with the research questions. (Braun & Clarke, 2006)

Another decision that the researcher has to make is how to identify themes and patterns. Braun and Clarke (2006) state that there are two main ways: deductive and inductive. A deductive approach means that data is coded to fit predetermined themes, often originating from existing theory. When using the inductive approach, the themes are created from the data. However, Bell et al. (2019) suggest a third abductive approach that researchers can opt for. The abductive approach is more iterative in its nature and involves switching between data and theory focus (Bell et al., 2019).

For the first research question, the data were fitted into themes based on the National Board of Health and Welfare's predefined dimensions of *Good quality, local healthcare*. For the second research question, themes were searched for by identification of connections and similarities between the statements extracted after the initial coding. Subsequently, the connected statements were grouped into preliminary themes, where one theme represents one consideration. As the connections emerge and change when more data is coded, the themes were modified repeatedly. According to Bell et al. (2019), this constant comparison is important to maintain a connection between the data and conceptualization. The final version of the themes was set when all data relevant to the research question could be coded to one of the themes. The themes were then grouped into more aggregated categories to enable a better overview of the findings. The coding process of the second research question is illustrated in Figure 2.3.

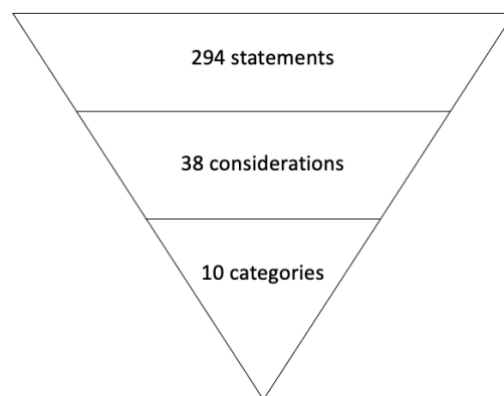


Figure 2.3. The coding process of RQ2

After identifying considerations, a literature search was conducted to find existing frameworks used to understand and explain the outcome of implementations of digital health interventions and technologies. The considerations were compared with an existing framework, CFIR, to validate the findings and gain further insights. The CFIR was opted for as it is widely utilized within the field, integrating multiple frameworks to provide a more comprehensive approach compared to alternative models. Connections between the considerations and the existing framework were made, and similarities and differences were highlighted and discussed. Altogether the study followed an abductive approach.

## 2.4. Trustworthiness of findings

When conducting qualitative research, it is crucial to evaluate the research. Lincoln and Guba (1985) suggest that qualitative research can be evaluated in terms of trustworthiness. To achieve trustworthiness, *credibility*, *transferability*, *dependability*, and *confirmability* should be established (Lincoln & Guba, 1985).

#### 2.4.1. *Credibility*

As a way to achieve credibility, Lincoln and Guba (1985) present triangulation, which refers to the cross-checking of facts through multiple methods of research and sources of data. When sampling and conducting the semi-structured interview, credibility was aimed at by interviewing several people within the same project. By including interviewees with experience from the same project but with different roles, the statements could be checked with multiple sources. Moreover, the interviews were held in Swedish to minimize the risk of misunderstandings or inaccurate answers due to language barriers.

Common critique towards coding qualitative data brings forward the risk of fragmentation of data, resulting in loss of the narrative flow of the answers (Bell et al., 2019). Moreover, there is a risk of losing the context and social setting when parts of a text are taken out, which in turn could risk the credibility of the findings (Bell et al., 2019). To minimize this risk, statements were not separated from the ID of the interviewee until the coding process was finished, to enable the researchers to go back to the transcripts and recordings to find who said what, and in what context.

#### 2.4.2. *Transferability*

Transferability relates to the issue of generalizability and whether the findings from the research can be applied to other contexts than the one in the study (Bell et al., 2019). The transferability of a study is closely connected to the sampling strategy of the study. In qualitative research, it is crucial to generate representative samples. To achieve transferability, the sample included interviewees from several projects, which all had different characteristics.

#### 2.4.3. *Dependability*

Dependability deals with the issue of reliability. Throughout the research process, researchers should make sure that each phase is documented (Bell et al., 2019). Lincoln and Guba (1985) propose that researchers should use an external auditor to establish a sufficient level of dependability. The process of writing this thesis has been documented carefully and reviewed by the supervisor at Chalmers.

#### 2.4.4. *Confirmability*

For research to be considered trustworthy, it has to be objective (Bell et al., 2019). Even though complete objectivity can never be reached, researchers should put in the effort to minimize bias and make sure personal opinions and values are not influencing the research process or the results. As in the case of dependability, an external auditor can review the research to expose potential bias.

### 2.5. Ethical considerations

When conducting research, it is critical to reflect on the ethical aspects of the research throughout the whole research process (Bell et al., 2019). Research within healthcare does in

many cases require permission from the Ethical Committee but permission is not needed for interviewing healthcare personnel. Bell et al. (2019) present four main areas of ethical considerations to regard: lack of informed consent; harm to participants; invasion of privacy; and deception.

To ensure informed consent of the participants, all participants need to be given enough information about the study before they decide whether to participate in it (Bell et al. 2019). Before each interview was booked, an interview guide was sent out to the interviewee to give information about the researchers, the purpose of the study, and the topics to discuss during the interview. Moreover, the interview guide informed the interviewees about the researchers' wish to record the interview. The information about the recording was given to the interviewee again just before the interview began so that the interviewee could give permission before the recording started. Interviewees were also allowed to ask questions before the interview was booked and during the interview.

Harm to participants can for example include physical harm; harm to participants' development; stress; and harm to participants' career or future employment (Bell et al., 2019). To avoid harm to participants and ensure confidentiality, all answers from interviews were anonymized. Files containing information that could harm participants were handled with care and not shown to any third party. The recordings and transcriptions from the interviews were deleted by the end of the study.

Moreover, the researchers have to make sure that the participants' privacy is not invaded (Bell et al., 2019). The principle of privacy is closely linked to the informed consent of the participants. Even though the participant provides informed consent, certain questions or topics could be perceived as intrusive by the interviewee. During the interviews carried out in this study, the interviewees were given the opportunity to not answer, rephrase or withdraw answers.

The last area of ethical consideration regards how the researchers present their research to interviewees or other participants (Bell et al. 2019). If the research is presented in a misleading way to allow for the researchers to collect certain data, the research can be considered deceptive. To prevent deception, the purpose of the study was presented to the participants, both in the interview guide and during the interviews.

### 3. Theoretical framework

*The chapter includes a section concerning the definition of quality in healthcare, a section regarding the field of digital health interventions (DHI), and a part regarding existing frameworks for the implementation of innovations in healthcare. These three areas encapsulate the theoretical framework that will be used to answer our research questions together with the empirical findings.*

#### 3.1. Quality in healthcare

Quality in healthcare is central to the development and improvement of healthcare systems. However, the term is also complex and can be described in several ways and broken into different dimensions. Both the NBHW (2009, 2021) and the Institute of Medicine (IoM, 2001) define good care and quality in healthcare by six dimensions of quality. The dimensions are safe, effective, patient-centered, timely, efficient, and equitable.

By stating that quality healthcare needs to be *safe* the authors explain that care should be provided without causing harm to patients or the professionals working in healthcare (IoM, 2001). Safety should apply at all times, for every patient, and in every setting and process. More specifically, patient safety is defined as “freedom from accidental injury” (IoM, 2001, p. 45).

*Effective* healthcare is defined as the utilization of the most appropriate evidence-based practices (IoM, 2001; NBHW, 2009). The evidence-based practice combines clinical expertise, individual patient values, as well as the best clinically relevant research available. (IoM, 2001; NBHW, 2009). Effective care systematically prevents the overuse of ineffective care and underuse of effective care (IoM, 2001).

*Patient-centered* healthcare focuses on respecting individual patients’ experiences, equal rights, values, needs, and preferences. This aim of healthcare quality includes a healthcare system where patients feel heard and are given the ability to take their own, yet informed, decisions (IoM, 2001; NBHW, 2009). The IoM (2001) summarizes patient-centeredness with six characteristics:

- (1) Respect for patient's values, preferences, and expressed needs
- (2) Coordination and integration of care
- (3) Information, communication, and education
- (4) Physical comfort
- (5) Emotional support – relieving fear and anxiety
- (6) Involvement of family and friends.

*Timely* healthcare aims to achieve an even process flow with infrequent delays, a system that reduces waiting times, and the rescheduling and cancellation of visits (IoM, 2001). Further, *efficient* healthcare is defined as cost-effectiveness, to obtain the most value per money spent

(IoM, 2001; NBHW, 2009). Efficiency can be improved by either decreasing quality waste or by decreasing costs from production or administration (IoM, 2001).

Lastly, *equitable* healthcare refers to a healthcare system that is constructed to sustain and improve the health of all people. Regardless of income, education, race, gender, age, ethnicity, disability, sexual orientation, or place of housing, the quality, and availability of healthcare should be the same (IoM, 2001; NBHW, 2009). Additionally, the NBHW (2009) states that religious belonging and social status should not affect patients' right to healthcare and that the people in most need of healthcare should be prioritized.

### 3.2. Digital health interventions and telemedicine

Digital technologies and solutions are more commonly being adopted in the healthcare sector to increase value creation (Cannavacciuolo et al., 2022), urged by drivers such as an aging population. Digital health interventions (DHIs) have proven to improve patient outcomes and have matured to be a crucial complement in healthcare to enhance communication and support at a distance (Ventura et al., 2022).

The World Health Organization (WHO, 2018) defines digital health interventions as the way that health system needs are supported by the use of digital and mobile technologies. The classification of DHIs made by WHO is divided into four groups based on the targeted primary user. Since this thesis focuses on one of them, interventions for healthcare providers, the other three (clients, resource managers, and data services) will not be explained further. One of the DHIs of healthcare providers is telemedicine, which is broadly defined by WHO as the "provision of healthcare services at a distance" (WHO, 2018, p. 13).

Telemedicine is a general concept and has varying interpretations and definitions (Garattini et al., 2020; Cannavacciuolo, et al., 2022). Studies in the field mainly focus on the perspective of treating patients through a remote intervention between a healthcare provider and a patient (e.g., Haleem et al., 2021; Payán et al., 2022). However, telemedicine also includes using digital technologies for inter-provider communication, consultation, and collaboration between healthcare providers, with or without the patient involved, specifically when in need of specialist consultation (WHO, 2018; Kamsu-Foguem et al., 2015). Thus, VC is a practice of telemedicine and can be used both between healthcare providers but also for healthcare provider-patient contact.

Telemedicine has shown many positive qualities, such as being cost-effective (Kamsu-Foguem et al., 2015; Garattini et al., 2020; Haleem et al., 2021; Payán et al., 2022), patient-centered (Garattini et al., 2020; Haleem et al., 2021), time-saving (Haleem et al. 2021; Cannavacciuolo, et al., 2022; Payán et al., 2022), resulting in less hospital stay (Haleem et al., 2021; Cannavacciuolo et al., 2022), increasing expertise sharing (Kamsu-Foguem et al., 2015; Haleem et al., 2021), and making care more accessible in rural areas (Kamsu-Foguem et al., 2015; Haleem et al., 2021; Cannavacciuolo et al., 2022; Payán et al., 2022). Even though telemedicine has shown benefits, the diffusion in clinical practice is limited (Cannavacciuolo et al., 2022), specifically in primary care according to Garattini et al. (2020).

### 3.3. Framework for implementation of innovations in healthcare

Introduction of ideas, practices, or objects that are perceived as new by users tends to be complex in the field of healthcare, and efforts aiming at implementing technological interventions within the healthcare sector often fail to scale, spread, or sustain the intervention (Fleuren et al., 2004; Greenhalgh et al., 2017). Many frameworks and theories have been developed to explain outcomes and facilitate these efforts (Damschroder et al., 2009; Kitson et al., 1998; Fleuren et al., 2004; Marwaha et al., 2022). What influences the outcome of the implementation of digital health interventions are in some studies explained in terms of “determinants” (Fleuren et al., 2004), while others express it as “barriers and facilitators” (Bach-Mortensen et al., 2018), or “considerations” (Marwaha et al., 2022). However, they all refer to factors influencing the outcome of the implementation of digital health interventions.

One such framework is the Nonadoption, Abandonment, Scale-up, Spread, and Sustainability (NASSS) framework developed by Greenhalgh et al., (2017). The framework is built up by questions in 7 areas to determine if the implementation is characterized by simplicity, complicatedness, or complexity. The areas to which the questions relate are the condition or illness, the technology, the value proposition, the adopter system, the organization, the wider institutional and societal context, and the interaction and mutual adaptation between all these domains over time (Greenhalgh, et al., 2017).

The framework presented by Kitson et al., (1998) known as the PARIHS framework is based on the idea that the outcome of an implementation is the function of the provided evidence, context, and facilitation. Another framework for the adoption of digital health tools in large complex organizations within healthcare identifies product selection, financial value, clinical value, data assets, internal champion, executive sponsors, institutional priorities, implementation, and long-term operational home as key considerations (Marwaha et al., 2022). Fleuren et al., (2004) identify 50 determinants that might enable or hinder the implementation of innovation. The determinants can be grouped into determinants related to the socio-political context, determinants related to the organization, determinants related to the adopting person/user/health professional, determinants related to the innovation, and determinants related to facilities needed to implement the innovation (Fleuren et al., 2004).

Damschroder et al. (2009) highlight that when comparing frameworks within the area, they all have important aspects missing which can be found in other frameworks, and there is a lack of consistency in terminology and definitions. Moreover, when studying individual frameworks, the content often overlaps. With this in mind, Damschroder et al. (2009) developed a determinant framework through the consolidation of several frameworks, called Consolidated Framework for Implementation Research (CFIR), which is one of the most commonly used frameworks in the field of implementation science. The framework is derived from health service research but has been applied in other fields and contexts as well (Damschroder et al., 2022). The original version of the determinant framework was published in 2009 (Damschroder et al., 2009). In October 2022, an updated version of the framework based on user feedback was published (Damschroder et al., 2022).

The overall aim of the framework is to anticipate or explain factors that either hinder or enable successful implementation (Damschroder et al., 2009). The framework presents five main domains: innovation, outer setting, inner setting, individuals involved, and the process of implementation. Each domain includes several determinants. Researchers can choose to consider only the determinants found most relevant for the specific context. The insights from applying the framework can be used to make decisions regarding what implementation strategy is most appropriate to manage the contextual determinants, predict outcomes of future implementations or explain the outcome of previous implementations. The current, updated version of the framework and the content of the main domains is presented and elaborated on in the following sections (Damschroder et al., 2022).

### 3.3.1. Innovation domain

The innovation is, in the framework, defined as “the thing” which is implemented, e.g., a new method of treatment or medical service. The determinants of the innovation domain regard the *source, evidence base, relative advantage, adaptability, trialability, complexity, design, and cost* of the innovation. The innovation domain is different from the implementation process domain and focuses on what to implement, whereas the implementation process domain focuses on how to implement (Damschroder et al. 2022). A summary of the domain and the included determinants, as well as definitions of the determinants, are presented in Table 3.1.

Table 3.1. Determinants within the innovation domain and definitions (Damschroder et al., 2022, p. 5)

Innovation domain	Determinant	Definition <i>To which level:</i>
	Innovation Source	The people responsible for the development and/or advocating the usage of the innovation are credible, trustable, and reputable
	Innovation Evidence Base	There is convincing evidence supporting the innovation’s effectiveness
	Innovation Relative Advantage	The innovation outperforms the current practice or other accessible innovations
	Innovation Adaptability	The innovation can be altered, customized, or refined to fit local needs or context
	Innovation Trialability	There is a possibility to trial or pilot the innovation on a small scale and also that it can be undone
	Innovation Complexity	The innovation is complicated, which can be described by its capacity and/or by the number of steps and connections
	Innovation Design	The innovation is packaged and designed satisfactory, which includes the way it is bundled, assembled, and presented
	Innovation Cost	The costs of purchasing and operating the innovation are reasonable

### 3.3.2. Outer setting domain

The outer setting is described as “the setting in which the Inner Setting exists” (Damschroder et al. 2022). The domain is consisting of *critical incidents, local attitudes, local conditions, partnerships & connections, policies & laws, financing, and external pressure*. A summary of the domain and the included determinants, as well as definitions of the determinants, are presented in Table 3.2 (Damschroder et al. 2022).

Table 3.2. Determinants within the outer setting domain and definitions (Damschroder et al. 2022, p. 5)

Outer setting domain	Determinant	Definition <i>To which level:</i>
	Critical Incidents	Substantially large and/or unforeseen incidents disrupt the innovation’s delivery and/or implementation
	Local Attitudes	Sociocultural values (such as collective responsibility in helping recipients) and beliefs (e.g., principles about the worth of recipients) support the Outer Setting to enhance implementation and/or delivery of the innovation
	Local Conditions	Political, environmental, economic, and/or technological circumstances facilitate the Outer Setting to support the innovation’s implementation and/or delivery
	Partnerships & Connections	The Inner Setting interacts with external units, e.g., professional organizational networks, academic associations, and referral networks
	Policies & Laws	Law, regulations, guidelines, and recommendations for professional groups, or accreditation standards support the innovation’s implementation and/or delivery
	Financing	Grants, reimbursement, or other fundings from external entities are available for the implementation and/or delivery of the innovation
	External Pressure	External pressures urge the implementation and/or delivery of the innovation <i>This determinant should be used to entail subjects regarding External Pressure that are not specified in the sub-determinant below</i>
	1. Societal Pressure	Social movements, protests, mass media campaigns, or protests urge the innovation to be implemented and/or delivered
	2. Market Pressure	Competing units on the market urge the innovation to be implemented and/or delivered
	3. Performance Measurement Pressure	Benchmarks, quality measurements, or service goals urge the innovation to be implemented and/or delivered

### 3.3.3. Inner setting domain

The inner setting domain regards the setting of the implementation. An implementation could have multiple inner settings, and each inner setting could have multiple levels. The determinants of *structural characteristics*, *relational connections*, *communications*, and *culture* are general and persistent characteristics of the Inner Setting, meaning they exist regardless of implementation and/or delivery of the innovation is done. Moreover, the domain includes seven determinants specific to the implementation and/or delivery of the innovation: *tension for change*, *compatibility*, *relative priority*, *incentive systems*, *mission alignment*, and *available resources* (Damschroder et al. 2022). A summary of the domain and the included determinants, as well as definitions of the determinants, are presented in Table 3.3.

Table 3.3. Determinants within the inner setting domain and definitions (Damschroder et al., 2022, p. 6-7)

Inner setting domain	Determinant	Definition <i>To which level:</i>
	Structural Characteristics	Components of the infrastructure support the Inner Setting's functional performance <i>This determinant should be used to entail subjects regarding Structural Characteristics that are not specified in the sub-determinants below</i>
	1. Physical Infrastructure	Tangible material features, such as layout and configuration of space, support the Inner Setting's functional performance
	2. Information Technology Infrastructure	The functional performance of the Inner Setting is supported by technical systems for data storage, management, telecommunication, e-documentation, reporting, and analysis.
	3. Work Infrastructure	The functional performance of the Inner Setting is supported by organizing tasks and responsibilities in and among individuals and teams.
	Relational Connections	Informal and formal, high-quality, networks, relationships, and groups exist within and outside the Inner Setting borders (e.g., professional, structural)
	Communications	Informal and formal, high-quality, information-sharing practices exist within and outside the Inner Setting borders (e.g., professional, structural)
	Culture	Beliefs, shared values, and norms exist across the Inner Setting <i>This determinant should be used to entail subjects regarding Culture that are not specified in the sub-determinant below</i>
	1. Human Equality-Centeredness	Beliefs, shared values, and norms regarding the inherent equal value and worth of all human beings exist
	2. Recipient-Centeredness	Beliefs, shared values, and norms regarding the support, care, and address of welfare and needs of recipients exist

	3. Deliverer-Centeredness	Beliefs, shared values, norms regarding the support, care, and address of welfare and needs of deliverers exist
	4. Learning-Centeredness	Beliefs, shared values, and norms regarding continuous improvement, usage of data to inform practice, and psychological safety exist
	Tension for Change	The status quo is unbearable and has to change
	Compatibility	The innovation is fitting with processes, systems, and workflows
	Relative Priority	The importance of implementing and delivering the innovation is higher compared to the importance of other initiatives
	Incentive Systems	Incentives and rewards and/or disincentives and punishments, both tangible and/or intangible, support encourage the innovation to be implemented or delivered
	Mission Alignment	Implementation and delivery of the innovation align with the central purpose, commitment, or goals of the Inner Settings
	Available Resources	There are resources accessible for the implementation and delivery of the innovation <i>This determinant should be used to entail subjects regarding Available Resources that are not specified in the sub-determinants below</i>
	1. Funding	There is funding for the implementation and delivery of the innovation
	2. Space	There is physical space accessible for the implementation and delivery of the innovation
	3. Materials & Equipment	There are supplies accessible for the implementation and delivery of the innovation
	Access to Knowledge & Information	There are training and/or guidance available for the implementation and delivery of the innovation

#### 3.3.4. *Individuals domain*

The individuals domain is the only domain divided into two subdomains: roles and characteristics. Applicable and relevant roles for the project should be identified, and the determinants mentioned are *high-level leaders*, *mid-level leaders*, *opinion leaders*, *implementation facilitators*, *implementation leads*, *implementation team members*, *other implementation support*, *innovation deliverers*, and *innovation recipients*. The characteristics subdomain consists of each relevant role's characteristics divided into four determinants: *need*, *capability*, *opportunity*, and *motivation* (Damschroder et al. 2022). A summary of the domain and the included determinants, as well as definitions of the determinants, are presented in Table 3.4.

Table 3.4. Determinant within the individuals domain and definitions (Damschroder et al., 2022, p. 7-8)

<b>Individuals domain</b>	<b>Determinant</b>	<b>Definition</b>
	<b>Roles subdomain</b>	
	High-level Leaders	Director, executive leaders, key decision-makers, or other high-level authority individuals
	Mid-level Leaders	Moderate-level authority individuals, such as leaders supervising others while also being supervised by a high-level leader
	Opinion Leaders	Individuals that informally influence the behavior and attitudes of other individuals
	Implementation Facilitators	People having expert knowledge in the subject matter and assist, coach, or support the implementation process
	Implementation Leads	People that drive implementation efforts of the innovation
	Implementation Team Members	Collaborators or supporters to the Implementation Leads in implementing the innovation, preferably the Implementation Team Members include Innovation Recipients and Deliverers
	Other Implementation Support	Other individuals that support the Implementation Leads and/or Team Members in the implementation of the innovation
	Innovation Deliverers	The direct or indirect deliverers of the innovation
	Innovation Recipients	The direct or indirect receivers of the innovation
	<b>Characteristics subdomain</b>	<i>To which level:</i>
	Need	The individual(s) experience survival, personal fulfillment, or well-being issues that the implementation and/or delivery of the innovation will address
	Capability	The individual(s) in the Role subdomain has adequate competence, skills, and knowledge to fulfill Role
	Opportunity	The individual(s) in the Role subdomain has adequate power, accessibility, and scope to fulfill Role
	Motivation	Dedication to fulfilling Role exists in the individual(s)

### 3.3.5. Implementation process domain

The implementation process domain aims to capture strategies and activities used to implement the innovation. The implementation process domain includes *teaming, assessing needs, assessing context, planning, tailoring strategies, engaging, doing, reflecting & evaluating, and adapting*. The implementation process domain is different from the innovation and focuses on how to implement, whereas the innovation domain focuses on what to implement (Damschroder et al. 2022). A summary of the domain and the included determinants, as well as definitions of the determinants, are presented in Table 3.5.

Table 3.5. Determinant within the implementation process domain and definitions (Damschroder et al., 2022, p. 7-8)

Implementation process	Determinant	Definition <i>To which level people:</i>
	Teaming	Collaborate and coordinate deliberately on codependent tasks, united together, to implement the innovation
	Assessing Needs	Gather information on people's main concerns, needs, and preferences <i>This determinant should be used to entail subjects regarding Assessing Needs that are not specified in the sub-determinants below</i>
	1. Innovation Deliverers	Gather information on the deliverer's main concerns, needs, and preferences to support the implementation and delivery of the innovation
	2. Innovation Recipients	Gather information on recipients' main concerns, needs, and preferences to support the implementation and delivery of the innovation
	Assessing Context	Identify barriers and facilitators to the innovation's implementation and delivery
	Planning	Identify and outline roles and responsibilities, define steps and milestones, and set goals and metrics for the success of the implementation beforehand
	Tailoring Strategies	Select and initiate implementation strategies as a response to barriers, to leverage facilitators, and tailor to the context
	Engaging	Inspire and engage others to participate in the implementation and/or the innovation <i>This determinant should be used to entail subjects regarding Engaging that are not specified in the sub-determinant below</i>
	1. Innovation Deliverers	Inspire and engage deliverers to join the implementation team and/or deliver the innovation
	2. Innovation Recipients	Inspire and engage recipients to join the implementation team and/or deliver the innovation
	Doing	Carries out implementation in tests, trial by cycles of change, or minor steps, and the delivery of the innovation is optimized cumulatively

	Reflecting & Evaluating	Gather and review qualitative and quantitative data related to the implementation's and/or the innovation's success <i>This determinant should be used to entail subjects regarding Reflecting &amp; Evaluating that are not specified in the sub-determinant below</i>
	1. Implementation	Gather and review qualitative and quantitative data related to the implementation's success
	2. Innovation	Gather and review qualitative and quantitative data related to the innovation's success
	Adapting	Adjust the innovation, and/or the Inner Setting, to better integrate with current work processes and reach optimal fit.

## 4. Empirical findings

*In the chapter, the findings will be presented for each research question separately. The findings show the result from the coding of personal reflections and experience that was stated in the interviews. In total, the coding process resulted in 442 statements. Moreover, the findings from the second research question are put in relation to an existing framework used to analyze outcomes of implementation projects, namely the CFIR.*

### 4.1. VCs' influence on *Good quality, local healthcare*

For the first research question, the statements were coded into one or several dimensions of *Good quality, local healthcare: safe, effective, patient-centered, timely, efficient, equitable, and local*. In total 148 statements relating to *Good quality, local healthcare* were found in the transcriptions, of which 65 statements were coded into two or more dimensions. In general, the result suggests that the use of VCs between healthcare providers contributes to *Good quality, local healthcare*, and all interviewees exemplified in what way the consultations relate to *Good quality, local healthcare*.

Although interviewees used varying terminology, the findings indicate that the VCs enable more *effective* selection of the appropriate care and avoidance of patients being sent to the wrong care levels. One interviewee stated that the VCs resulted in “better decisions regarding which patients should be escalated to the next care level” and another one that the VCs helped decide “the appropriate care at the appropriate care level”. The *local* care dimension of VCs was likewise mentioned by all interviewees. The statements of the *local* dimension include better cooperation between caregivers, closer and more accessible contact with specialists, and reduced need for traveling for patients.

The dimensions *safe, timely, patient-centered, and efficient* were mentioned several times by various interviewees, although not to the same extent as *effective* and *local* care. Interviewees stated that the VCs could contribute to *safer* care by avoiding unnecessary hospital care, as hospital care for some patients means an increased risk of injuries and mortality. In some projects and cases, the VCs resulted in faster diagnosis and identification of the need for care, as well as faster progress through the care process, i.e., VCs contributed to *timely* care. In projects where the patient was participating in the consultation, the consultations resulted in more *patient-centered* care by involving the patient in the decision-making. Moreover, the VCs were stated to facilitate the selection of care based on the patient's condition. As with *efficient* care, interviewees mentioned that VCs can result in more efficient resource utilization and fewer administrative tasks and referrals sent between healthcare providers. More specifically regarding referrals, it was mentioned that the consultations result in decreasing number of redirected referrals.

The dimension *equitable* was the most scarcely mentioned dimension of *Good quality, local healthcare* in the interviews. Emphasized by a few, was the fact that the VCs could give better access to specialist care and experienced personnel regardless of the patient's place of

residence. By connecting healthcare providers working in rural areas with specialists at larger hospitals, more equitable care could be offered to the patients.

Even though most dimensions were covered by the interviewees, the focus and terminology when describing *Good quality, local healthcare* varied in each interview. Some interviewees focused more on aspects related to the patient dimension, e.g., how the patient can be more involved in the care process, the focus it puts on patients, and that patients are educated in the process, while others emphasized the efficiency of results of the consultations, such as how administration and resources would be utilized more efficiently. Another emphasized the possibility to make a more accurate and informed decision realized by the VCs. Three statements from the interviews are presented for each statement of *Good quality, local healthcare* in Table 4.1.

Table 4.1. Statements regarding *Good quality, local healthcare*, with three statements presented per dimension

<b>Safe</b>	<i>“Increased patient safety if one can avoid unnecessary hospital visits, as for some patients the visit entails increased risk of injuries and mortality”</i>	<i>“Easier to identify care needs that are time critical”</i>	<i>“A more certain diagnosis”</i>
<b>Effective</b>	<i>“Patients receive the appropriate care”</i>	<i>“Knowledge transfer between departments about the correct procedure/care”</i>	<i>“Avoid wrong care level, and steer them to the correct care level as soon as possible”</i>
<b>Patient-centered</b>	<i>“Best care based on the patient’s circumstances”</i>	<i>“Better communication with patients”</i>	<i>“Minimize false hopes”</i>
<b>Timely</b>	<i>“Faster determine the need of care”</i>	<i>“Faster progress through the process”</i>	<i>“Appropriate care at the right time”</i>
<b>Efficient</b>	<i>“Less time spent on administration and writing referrals”</i>	<i>“More efficient care process”</i>	<i>“Utilize resources more efficiently”</i>
<b>Equitable</b>	<i>“Diagnosis for the patient is independent of their place of housing”</i>	<i>“A clearer way to access emergency care”</i>	<i>“Even if one lives far away from the hospital you are getting direct access to more experience personnel – a more equitable care”</i>
<b>Local</b>	<i>“Increased collaboration between specialists and primary care”</i>	<i>“Direct contact – right here, right now”</i>	<i>“No need to go to the hospital if they don’t need surgery”</i>

## 4.2. Considerations before, during, and after implementing video consultations between healthcare providers

In total, 294 statements regarding the second research question were extracted from the transcripts. The data analysis resulted in the identification of 38 considerations for the implementation of VCs between specialists and other healthcare providers. The considerations were aggregated into the ten following categories: resistance to change; motivation and engagement; organizational design; user-friendliness of technical set-up; confidentiality and privacy; measurement of improvement; information, education, and support to personnel; project scale-up; financials; and process design, illustrated in Figure 4.1. In Appendix B all categories, all considerations, and selected statements from interviews connected to each consideration are presented in table format.

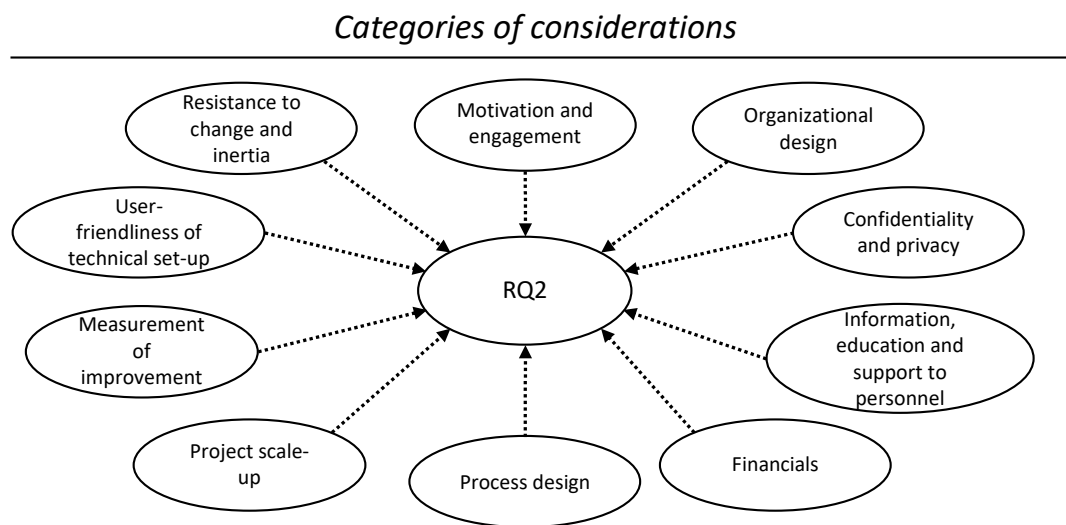


Figure 4.1. Summary of the ten categories of considerations

### 4.2.1. Resistance to change and inertia

Three different considerations associated with resistance to change and inertia could be identified from the interviews. The considerations, illustrated in Figure 4.2, can all hinder or facilitate change on an individual or organizational level and are outlined as *people's will to change*, *organizational inertia*, and *fear of exposing gaps of knowledge*.

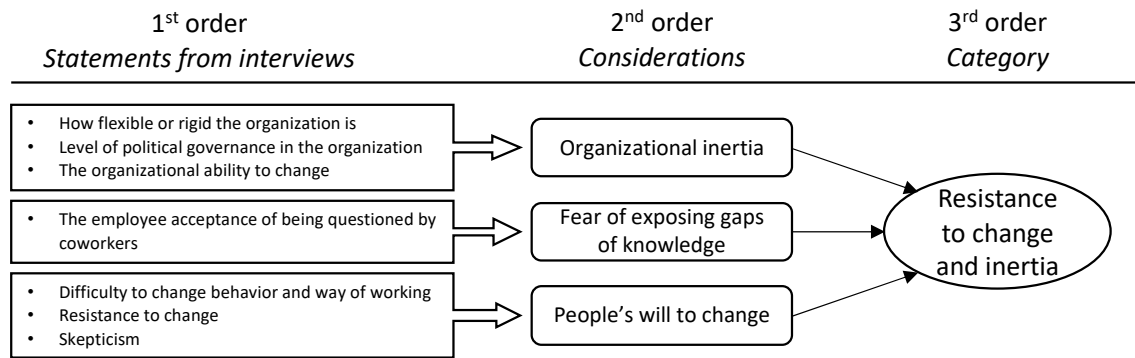


Figure 4.2. Statements and considerations connected to resistance to change and inertia (inspired by Gioia et al., 2013)

The findings from the study indicate that people, in this setting referring to physicians and other healthcare personnel, can have a hard time readjusting to new ways of working or changing behavior. “People can be resistant to change”, “in the industry personnel are unwilling to change”, and “employees prefer not to try new things” are some statements demonstrating the relevance of considering *people's will to change*. On the other hand, one interviewee mentioned the importance of acknowledging skepticism, both to demonstrate that employee opinions are listened to and to identify potential improvements in the innovation. Findings also point to *organizational inertia* as an important consideration in the implementation process. The inertia was explained by respondents as built into the organization, meaning that it is time demanding to change and improve. Moreover, some responses included the fact that the organization has to be prepared for the change and adoption of the innovation so that internal mechanisms do not hinder the progress. Lastly, findings indicate that the VCs might trigger a *fear of exposing gaps of knowledge* for the physicians, which could hinder the implementation and therefore should be considered. For example, one interviewee stated that “being opposed by other physicians can be difficult and some colleagues did not like this fact and would not try it [the VC].”

#### 4.2.2. Motivation and engagement

The results point towards three main considerations related to motivation and engagement: *incentives and motivation of personnel*, *key personnel and enthusiasts*, and *views, opinions, and knowledge of the personnel*. The considerations are illustrated in Figure 4.3. While resistance to change and inertia focuses on the individual and organizational restraints that may hinder implementation, motivation and engagement focuses on how to facilitate change.

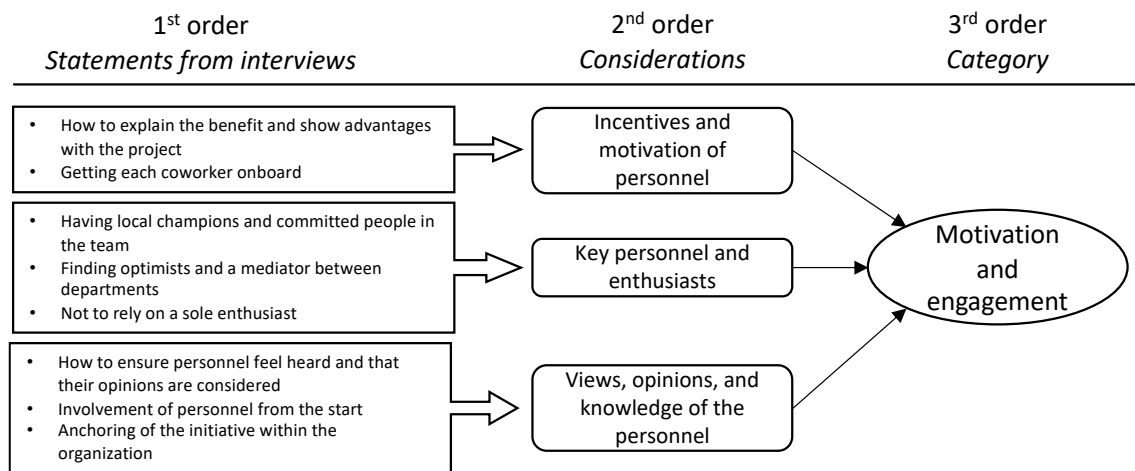


Figure 4.3. Statements and considerations connected to motivation and engagement (inspired by Gioia et al., 2013)

To successfully implement VCs, the findings highlight the importance of motivation and engagement among personnel. One interviewee stated that implementation was hindered as “some people didn’t feel like they needed this type of support”. Moreover, regarding motivation and engagement, findings propose that it is crucial for the success of the implementation that people recognize the benefit of the new way of working to create a will to change and induce ownership: “people need to be interested in doing this – it is difficult to enforce innovations like this” (*incentives and motivation of personnel*). Several interviewees stated that improvements for the patients in general work as a strong motivator for personnel within healthcare.

It was also clear that identifying *key personnel and enthusiasts* was important. However, while some interviewees emphasized having a local champion, one respondent pointed out that having a local champion is not enough. In numerous interviews, the meaning of including coworkers’ perspectives was highlighted, making sure that they feel heard, and anchoring the initiative within the organization (*views, opinions, and knowledge of the personnel*).

#### 4.2.3. Organizational design

*Communication and cooperation within the organization, coordination and spread of improvement initiatives, stakeholders in the organization, complexity of the healthcare system, and decision-making and support* summarize the findings grouped in the category of organizational design. The considerations related to organizational design are presented in Figure 4.4.

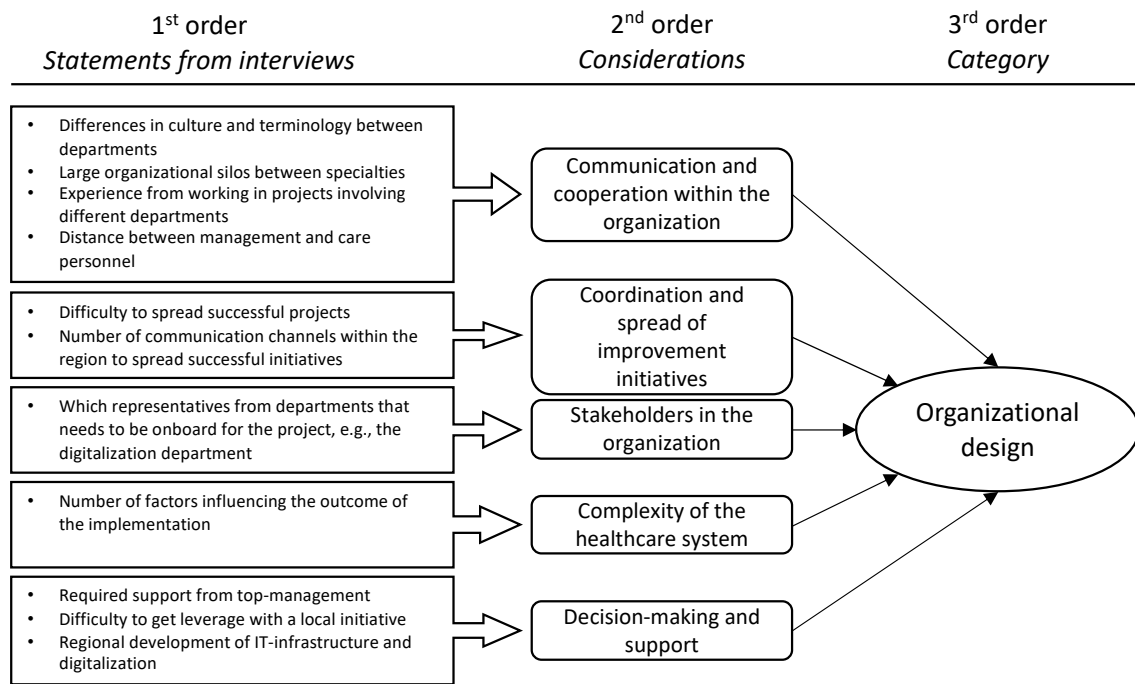


Figure 4.4. Statements and considerations connected to organizational design (inspired by Gioia et al., 2013)

The findings from the study stress the importance of collaboration and communication between healthcare providers and care levels. However, the ability to communicate with other departments was stated to be limited in many cases, by some motivated by the hierarchal organization and few cross-functional connections. On the other hand, one interviewee highlighted the hierarchal organization as an enabler to effectively distribute information to other healthcare providers. Thus, when implementing VCs between healthcare providers, the need and circumstances regarding *communication and cooperation within the organization* should be considered.

Another consideration related to organizational design was the support of the initiative from higher levels of the organization, and interviewees stated that the absence of a formal decision regarding the initiative could hinder the implementation (*decision-making and support*). Several projects experienced the importance of having key decision-makers backing the initiative and deciding on funding the implementation of the innovation.

Additionally, findings indicate that there is difficulty in spreading local successful projects (*coordination and spread of improvement initiatives*). On the topic, the lack of a “clear structured way to exchange experiences between healthcare providers” was highlighted, while another interviewee mentioned that there are several communication channels for the coordination and spread of improvement initiatives. Hence, if the goal is to spread the usage of VCs to other organizations or departments, the opportunities to spread the initiative need to be considered. Moreover, the findings stress the *complexity of the healthcare system* as a consideration, as the complexity implies unpredictability, and a large number of factors are influencing the outcome of the implementation. Additionally, results point out the *stakeholders in the organization* and who should be included in the project group as important aspects to consider in the implementation process.

#### 4.2.4. User-friendliness of the technical set-up

In most interviews, the user-friendliness of the technical set-up was brought up and expressed to be a significant aspect when implementing VC between specialists and other healthcare providers. Within this category, five considerations were found from the interviews: *equipment used to film and stream video*, *complexity of technology*, *personnel's level of tech know-how*, and *technology disturbance*. Figure 4.5 illustrates the considerations and statements within the category.

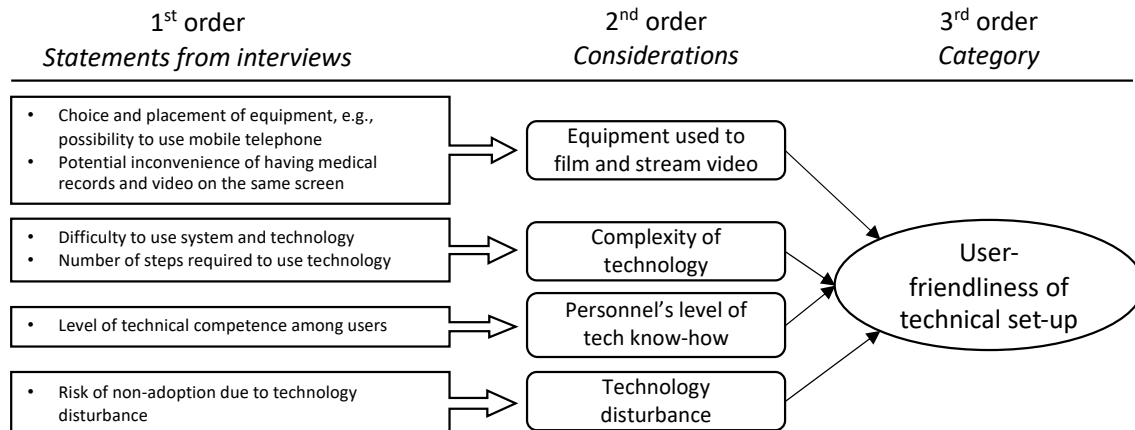


Figure 4.5. Statements and considerations connected to user-friendliness of technical set-up (inspired by Gioia et al., 2013)

The findings advocate the consideration of an appropriate level of *complexity of technology*, e.g., in terms of the number of steps. Moreover, the technical set-up should be easy to use for all personnel, regardless of the *personnel's level of tech know-how* and previous experience of using technology in their daily work. As the working environment and situations where the VCs are intended to be used could be stressful, the importance of ensuring minimum *technological disturbance* was highlighted.

Findings also emphasize the choice of *equipment used to film and stream video*. For example, one interviewee mentioned that the responding specialist might be on call at home at certain hours, which means that the equipment needs to be portable and possible to bring home. In another project, however, the equipment was stationary as the risk of losing or forgetting the device was high. Moreover, interviewees mentioned an interest in using mobile phones, where one reflected on how easy it was to forget a tablet. Additionally, some interviewees emphasized considering the placement and the physical space needed for the equipment.

#### 4.2.5. Confidentiality and privacy

*Confidentiality and privacy* was categorized separately. The statements of the consideration and category are illustrated in Figure 4.6.

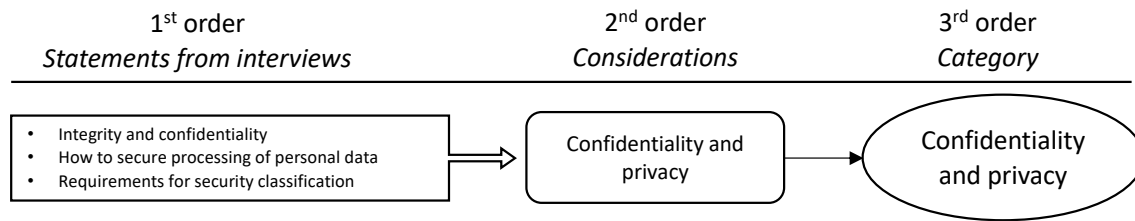


Figure 4.6. Statements and considerations connected to confidentiality and privacy of personal data (inspired by Gioia et al., 2013)

The technology needs to have appropriate security classification, and integrity, confidentiality, and secure processing of patients' personal data must be ensured. One interviewee mentioned that the integrity perspective needs to be adhered to and an agreed confidentiality level of the solution must be given by the digitalization department (*confidentiality and privacy*).

#### 4.2.6. Measurements of improvement

Another category of considerations identified was measurements of improvement. The category includes considerations regarding *performance indicators*, *follow-up of results*, and *time lag of results*, which is illustrated in Figure 4.7.

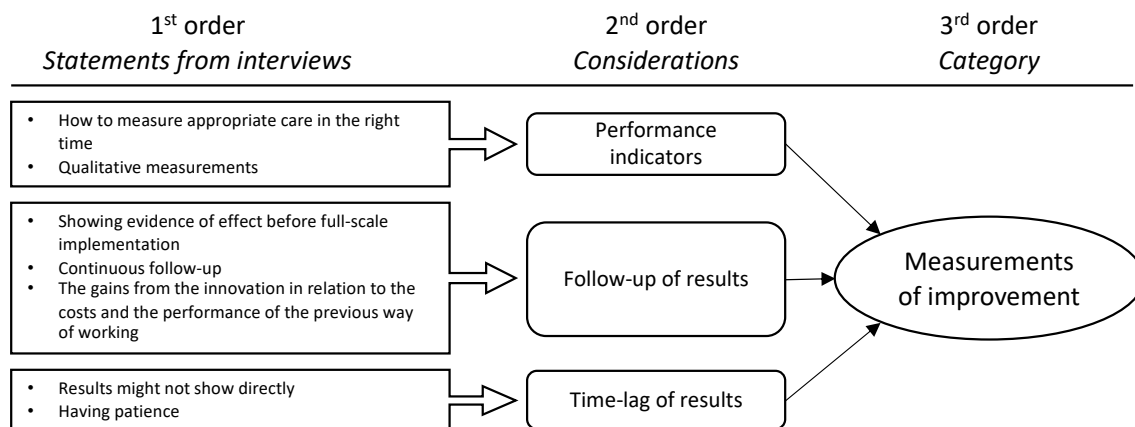


Figure 4.7. Statements and considerations connected to measurements of improvement (inspired by Gioia et al., 2013)

Before full-scale implementation, the new way of working should be evaluated and the *follow-up of results* should be considered, according to the findings of the study. The effect of the new way of working should be compared with the former and put in relation to the costs of the implementation. Based on some interviewees experiencing a time discrepancy in the effect and pointing out the necessity to have patience, a potential *time lag of results* was identified as an aspect to consider.

Several projects in which the interviewees had been involved aimed at increasing the number of patients being provided appropriate care at the right time. However, many respondents reflected on the difficulties in measuring appropriate care at the right time. Thus, before the VCs are implemented, appropriate *performance indicators* need to be reflected upon.

Regarding performance indicators, findings also highlight the importance of qualitative metrics.

#### 4.2.7. *Information, education, and support to personnel*

Information, education, and support to personnel summarize the two considerations illustrated in Figure 4.8. The considerations are *education and implementation support* and *information about new work instructions*.

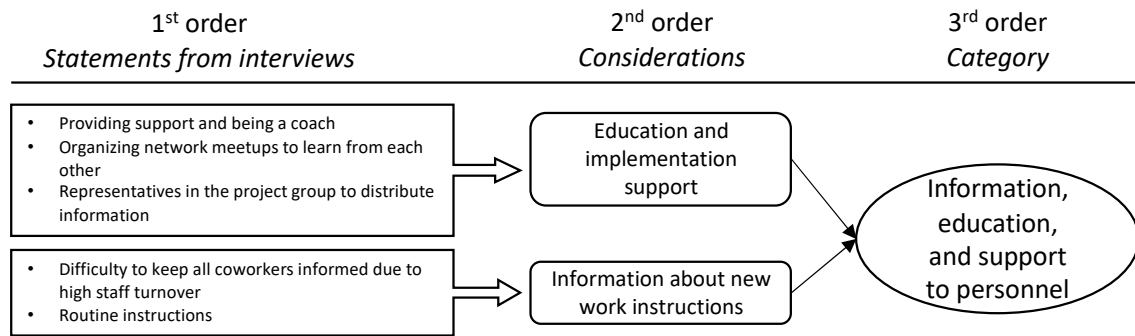


Figure 4.8. Statements and considerations connected to information, education, and support to personnel (inspired by Gioia et al., 2013)

The first consideration, *education, and implementation support*, focus on spreading information about the initiative to the parties involved, and leaders of the implementation are suggested to consider how to educate and support employees throughout the process, e.g., by having network meetups to share knowledge or offer technical support.

The second consideration regards the distribution of *information about new work instructions* to personnel within a department or unit. In several cases, ensuring that all employees were aware of the work instructions proved to be difficult, for instance, due to high staff turnover and the rare usage of the VCs.

#### 4.2.8. *Project scale-up*

Considerations regarding project scale-up included *pace of scale-up, early-stage evaluation and testing, learnings from similar projects*, and *context and current state*. The considerations and corresponding statements to the category project scale-up are illustrated in Figure 4.9.

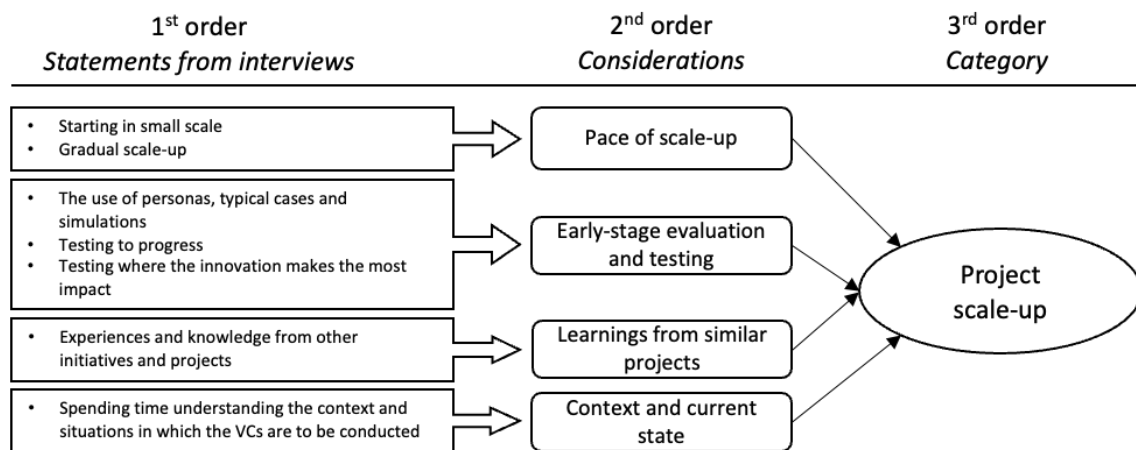


Figure 4.9. Statements and considerations connected to project scale-up (inspired by Gioia et al., 2013)

Evaluation and testing in the early phases of the implementation should be considered, according to the findings (*early-stage evaluation and testing*). Several approaches and tools were mentioned by interviewees, for example, the use of personas, typical cases, and simulations. Moreover, findings advocate testing where the VCs are expected to have the largest impact.

Further, *learnings from similar projects* and initiatives were brought up as helpful and should be done in a pilot study. Regarding the *pace of scale-up*, results point out that starting on a small scale and gradually scaling in a controlled fashion are valuable aspects. Contextual comprehension was also emphasized, meaning that the *context and current state* of the video consultations need to be understood.

#### 4.2.9. Financials

Financial considerations were also identified from the results of the study. The financial category includes both cost and reimbursement considerations of the VCs which are illustrated in Figure 4.10.

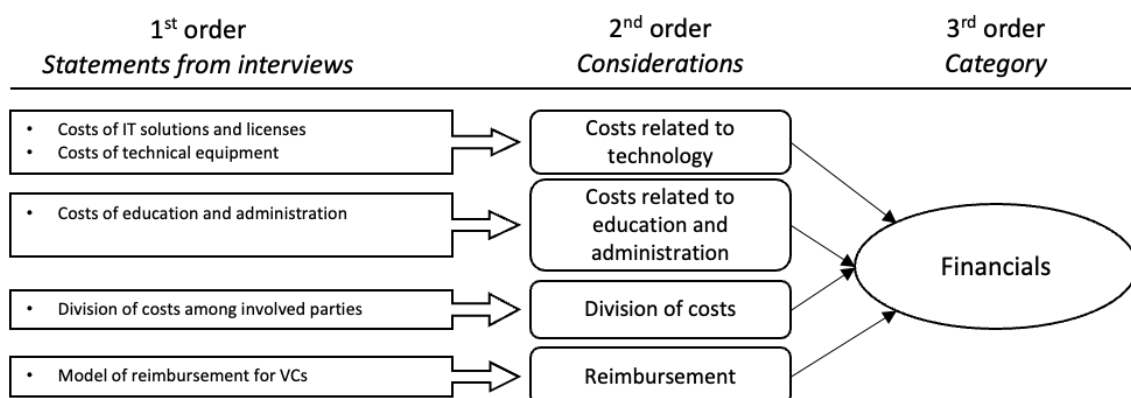


Figure 4.10. Statements and considerations connected to financials (inspired by Gioia et al., 2013)

On the cost side, the need to consider *costs related to technology*, *costs related to education and administration*, and how to *divide the costs* among involved parties was raised and

identified as a consideration. Some interviewees also stated that IT solutions and licenses can be rather expensive. If several healthcare providers are involved, the question regarding if and how to split costs could emerge. As for the considerations regarding compensation, findings stress that the *reimbursement* model for the VCs for involved parties should be considered.

#### 4.2.10. Process design

Finally, multiple considerations regarding process design were found. The consideration includes several perspectives, such as *process steps*, *roles and work assignments*, and *scalability*. All nine considerations are presented in Figure 4.11.

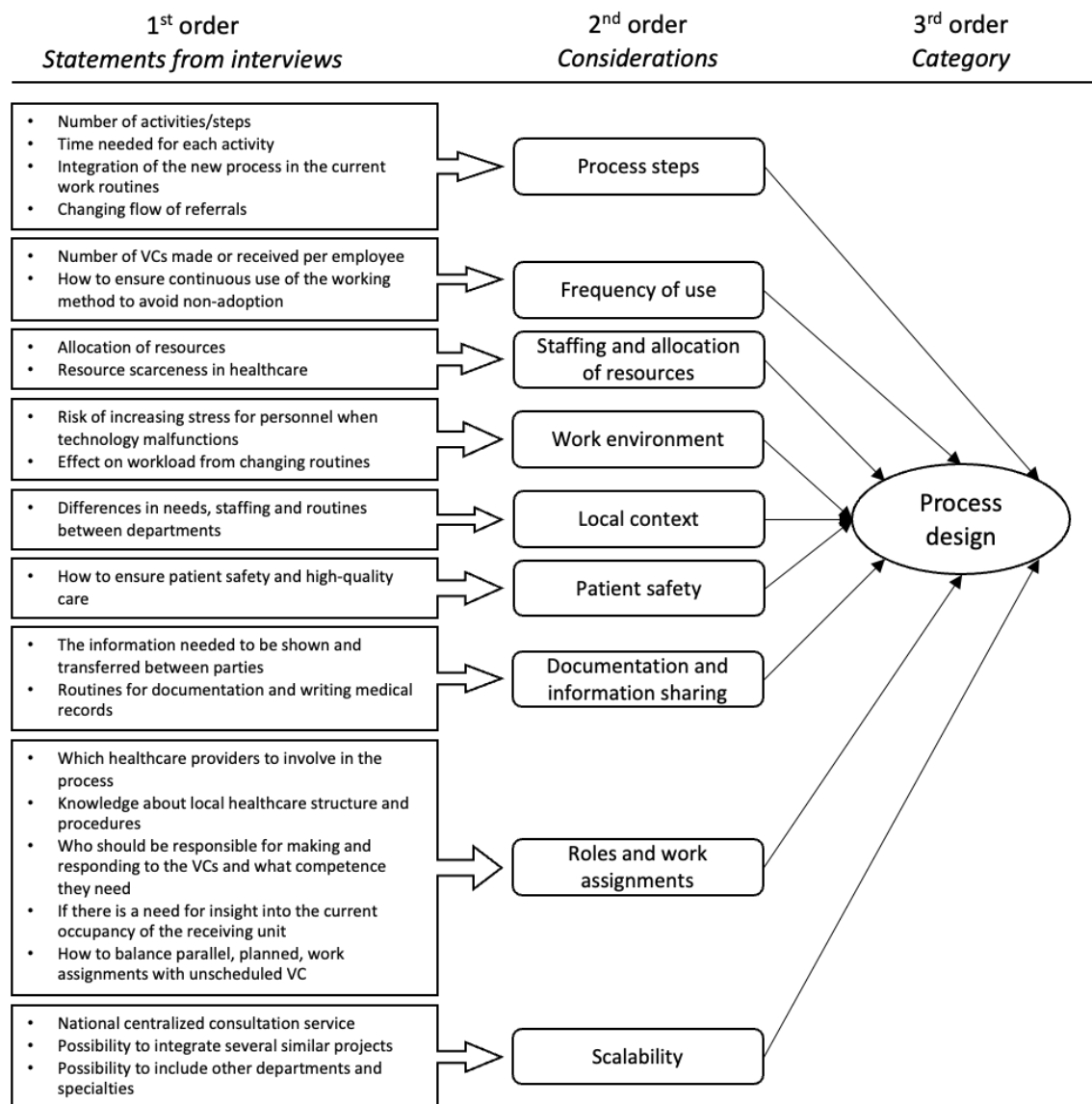


Figure 4.11. Statements and considerations connected to process design (inspired by Gioia et al., 2013)

According to the findings, an important part of the implementation process is determining how the VC should function in practice, which *process steps* to include, and how long time each activity should take. Many interviewees advocated limiting the number of activities in the process to reduce complexity. There was also an emphasis on making sure the new process and

the steps are integrated into the current way of working, which includes clearly defining when the VCs should be made and not. *Patient safety* must be secured in the new process, and potential changes in the *work environment* for involved employees need to be considered, according to the results. Some projects had experienced issues with the *frequency of use* of VCs in relation to the amount of personnel connected to the process. This resulted in personnel being inexperienced and not used to the new method, which hampered the establishment of the new way of working, and is hence a detail to be taken into consideration. In some cases, the cause seemed to be explained by a too specific and unusual setting where the total number of consultations was low, in others there was more emphasis on the fact that physicians rarely performed the VCs.

Moreover, findings identify *scalability* of the process as a factor to consider in the designing of the process, for instance by including other departments or specialists as well as integrating several similar projects. One interviewee even mentioned a future potential usage of VC with a national centralized consultation service. It was also declared that the healthcare system has limited resources and that *staffing and allocation of resources* need to be considered in the project. As stressed by several interviewees, high staff turnover and understaffing can have a significant impact on the success of the implementation.

Regarding the *roles and work assignments*, interviewees stressed the importance of defining the parties in the VCs. Findings include considering which care actors to involve, who should initiate the VC and who should perform the VC, and that the employees have knowledge of the local care structure. Further, when considering roles and work assignments, the other parallel planned work assignments need to be balanced in cases where the VCs are not scheduled.

To plan for documentation, medical records, and which information needs to be transferred during the VCs summarize the consideration called *documentation and information sharing*. The consideration specifically focuses on vital information needed to be sent between the parties of VCs to diagnose as well as how documentation should be managed for the process. Lastly, in the VCs, several parties may be involved in the process, all with different *local contexts* such as work routines and ways of staffing, which needs to be taken into consideration.

## 5. Comparison of the empirical findings with CFIR

This chapter combines the empirical material and theory and consists of a comparison of the empirical findings with the Consolidated Framework for Implementation Research. The connections are illustrated in Table 5.1. In the comparison, the innovation being implemented includes both the new work process and routine related to the video consultations, as well as the technical solution.

Most of the considerations identified from the empirical material in this study showed similarities and could be connected to the determinants in the CFIR, with a many-to-many relationship. Due to differences in terminology and dissection and grouping of elements, connections were not always obvious between the empirical findings and the determinants of the CFIR. However, when comparing the detailed descriptions of the determinants provided by Damschroder et al. (2022) to the statements from the interviews, similarities and connections between the content could often be found. The resemblance validates the empirical findings since the CFIR is a widely applied framework in the healthcare context. Additionally, the resemblance supports the applicability of the CFIR in the implementation of video consultations between healthcare providers.

In some cases, no corresponding determinant could be identified. Out of the 47 determinants in the CFIR, 42 were connected to one or more considerations. Meanwhile, 34 of the 38 considerations were connected to one or more determinants in the CFIR. Examining the differences might highlight important considerations disregarded in the projects included in the study. It is particularly interesting if the considerations can explain the reason behind some projects' failure, which is further elaborated on in the discussion chapter.

The comparison of the empirical findings with CFIR is presented in Table 5.1. In the first column the empirical findings are presented, while in the second column, corresponding determinants from the CFIR are presented.

Table 5.1. Comparison of the empirical findings with CFIR

<b>Considerations from empirical findings</b>	<b>Related determinants from CFIR</b>
Organizational inertia	Structural characteristics (inner setting); culture (inner setting)
Fear of exposing gaps of knowledge	Capability (individuals)
People's will to change	Culture (inner setting)
Incentives and motivation of personnel	Motivation (individuals); engaging (implementation process); mission alignment (inner setting); culture (inner setting); incentive systems (inner setting)
Key personnel and enthusiasts	Engaging (implementation process); teaming (implementation process); implementation team members (individuals); implementation facilitators (individuals); implementation leads (individuals); mission alignment (inner setting); opinion leaders (individuals)

Views, opinions, and knowledge of the personnel	Need (individuals); assessing needs (implementation process)
Communication and cooperation within the organization	Communications (inner setting); relational connections (inner setting); culture (inner setting)
Coordination and spread of improvement initiatives	
Stakeholders in the organization	Relational connections (inner setting); mid-level leaders (individuals); high-level leaders (individuals); implementation team members (individuals)
Complexity of the healthcare system	Partnerships & connections (outer setting); assessing context (implementation process); planning (implementation process)
Decision-making and support	Innovation source (innovation); local condition (outer setting); available resources (inner setting); high-level leaders (individuals)
Personnel's level of tech know-how	Capability (individuals)
Complexity of technology	Innovation design (innovation); Innovation complexity (innovation)
Equipment used to film and stream video	Structural characteristics (inner setting); available resources (inner setting)
Technology disturbance	Innovation design (innovation)
Confidentiality and privacy	Policies & laws (outer setting)
Performance indicators	Planning (implementation process)
Follow-up of results	Innovation relative advantage (innovation); innovation evidence base (innovation); reflecting & evaluating (implementation process); planning (implementation process)
Time-lag of results	
Education and implementation support	Access to knowledge & information (inner setting)
Information about new work instructions	Communications (inner setting); access to knowledge & information (inner setting)
Pace of scale-up	Innovation trialability (innovation); doing (implementation process)
Early-stage evaluation and testing	Doing (implementation process); reflecting & evaluating (implementation process)
Learnings from similar projects	Innovation evidence base (innovation)
Context and current state	Assessing context (implementation process)
Costs related to technology	Innovation costs (innovation)
Costs related to education and administration	Innovation costs (innovation)
Division of costs	Innovation costs (innovation)
Reimbursement	Financing (outer setting); incentives systems (inner setting)
Process steps	Innovation complexity (innovation); compatibility (inner setting); adapting (implementation process)
Frequency of use	
Work environment	Need (individuals); culture (inner setting)
Patient safety	Policies & laws (outer setting)
Staffing and allocation of resources	Structural characteristics (inner setting); available resources (inner setting); opportunity (individuals)
Scalability	Innovation adaptability (innovation)

Roles and work assignments	Structural characteristics (inner setting); innovation deliverers (individuals); innovation recipients (individuals); capability (individuals); planning (implementation process)
Documentation and information sharing	
Local context	Innovation adaptability (innovation); compatibility (inner setting); assessing context (implementation process); tailoring strategies (implementation process); adapting (implementation process)

## 6. Discussion

*In the chapter, the findings of the study will be discussed. A discussion of the first research question regarding the effect on Good quality, local healthcare of video consultations will be presented, followed by a discussion of the second research question and the considerations before, during, and after implementing video consultation.*

### 6.1. Discussion of VCs' influence on Good quality, local healthcare

In general, the findings indicate that healthcare personnel, project leaders, and experts in the field from academia consider that the studied video consultations positively influence *Good quality, local healthcare*. Considering the inquiries and decisions made by the government regarding the transformation of the Swedish healthcare system, an implication of these findings might be that the interest in and use of VCs will increase. Thus, healthcare providers should investigate the potential benefits and opportunities to introduce VCs in their specific context. Also, healthcare providers should explore possible synergies that could derive from integrating several actors into the same VC project. An example of this could be a primary care unit using the same system and equipment to consult two or more specialist units with a similar procedure. Greater frequency of use could allow users to obtain more experience in using the system as well as higher utilization of the invested equipment.

Even though findings generally indicate a positive influence, the focus and terminology to describe the impact on *Good quality, local healthcare* varied between individual projects and interviewees. There are several possible explanations for this. First, the term is broad and lacks a clear definition, as stated by NBHW. Second, there is a heterogeneity of roles and experiences that the group of interviewees represents, everyone with their perspective and bias. Interviewees may have based their answers on different aspects, such as measurements, the goals of the project, or personal views and perceptions. Third, even though all projects aimed at implementing VCs between specialists and other healthcare providers, a possible explanation is the differences in for example setting and purpose of the projects. For example, VCs implemented with the main purpose to manage referrals and improve the referral process might put a heavier emphasis on efficiency or timeliness. Similarly, projects aiming at providing specialist consulting services might focus on effectiveness or safety.

Despite the spread in roles and projects among the interviewees, all have in common that they are directly involved in projects aiming at implementing VC which might also be reflected in the findings. If we assume that people involved in the projects are positive about trying new ways of working in general, believe in the concept of VCs, and see their potential positive impact, it is not strange that findings point in the same direction. A broader sampling including people not directly involved but affected by the implementation might have also captured the people more skeptical of the innovation.

Assuming that the variation at least partially can be explained by the differences in settings, purposes, and goals of the projects, the findings might imply that it is relevant for implementation teams to consider the limitations and opportunities to achieve a certain effect

in their specific setting. If the design of the VCs is not in line with the goals, the desired effect on the dimensions of *Good quality, local healthcare* might not be reached.

There are several potential benefits of understanding the VCs' influence on the dimensions of *Good quality, local healthcare* in a specific setting. Showing that the VCs have a positive influence on the ability to deliver *Good quality, local healthcare* might increase the chances to receive funding and support for the project from higher levels in the organization. Another benefit is the ability to indicate the innovation's relative advantage compared to other solutions and the current way of working. In other words, understanding the influence can help demonstrate the relative advantage and receive higher relative priority within the organization, which is mentioned by Damschroder et al (2022) in the CFIR as two determinants of successful implementation.

Moreover, the understanding of the effect on the dimensions could be used as a basis for determining the purpose, setting the goals, and finding appropriate metrics for the implementation of VCs. Subsequently, the implementation effort could be evaluated from a perspective of *Good quality, local healthcare* based on the defined goals. Knowledge about specific dimensions of *Good quality, local healthcare* that could be improved might also facilitate implementation by underlining the quality of care from the patient's perspective. Several interviewees support this by stating that improvements for the patients work as a strong motivator for change among healthcare personnel.

## 6.2. Discussion of identified considerations when implementing VCs

Given the fact that implementations of technological interventions within the healthcare sector often fail, identifying considerations that might prove critical for the success of the VC implementation can help personnel involved in implementation projects. The findings could support the choice of implementation strategy by personnel utilizing the considerations as a checklist. Even if the findings should not be considered a complete guide, the considerations might help discover what determines the success of the intended project and decrease the risk of disregarding important perspectives of implementation. Furthermore, the considerations could be used when evaluating past initiatives to gain further insights regarding what influenced the success or failure of a specific project.

Apart from the findings helping personnel by identifying additional VC contextual considerations, the considerations can also offer an alternative language to the CFIR. When managing particular implementation initiatives, it is important to choose the most relevant terminology and considerations that apply to the context in which the implementation is intended, consistent with what is said by Damschroder et al. (2022). Therefore, the considerations could be used to facilitate discussions among personnel in future initiatives.

The similarities identified during the comparison of the considerations and the CFIR, support the relevance of the findings from this study. Regarding which of the two sets of considerations (or determinants) has more utility, the findings in the thesis and the CFIR can be seen to complement each other. Even if the findings provide a more specific understanding of VC

implementations, the CFIR can contribute to the understanding of VC implementations through its more elaborative descriptions of how to manage generic determinants. The result from the comparison can therefore provide a path to more detailed information and theory for managing the issues. For instance, if *organizational inertia* is deemed important in a specific project, detailed information on the determinants of structural characteristics and culture can aid personnel to understand organizational inertia and possible ways to manage it according to theory.

The differences between the findings from this study and the CFIR can be explained by CFIR being a general framework, while the considerations are developed with a narrower scope, specifically for video consultation. Another aspect shaping the findings, as highlighted by Braun and Clarke (2006), is that the thematic analysis and process of coding can be done in multiple ways, and the result will be influenced by the researchers' chosen approach and how they decide to define the themes.

Examining the differences might highlight important considerations disregarded in the projects included in the study. It is particularly interesting if the considerations can explain the reason behind some projects' failure. For personnel aiming to implement VCs the considerations and determinants that did not indicate similarities in the comparison might therefore contain central insights. One example of this is illustrated by an interviewee's experienced difficulty to sustain the implementation due to issues with staffing and allocating of resources as the covid-19 pandemic restrictions were relieved. The interviewee put emphasis was put on issues of insufficient allocated resources, but it could be argued that the disruption of going back to a "normal state" post-covid-19 is the root cause behind the failure to sustain the VCs. Such large disruptive events are covered in the determinant 'critical incidents' but were not found in the considerations.

Another determinant lacking similarity to the findings is 'tension for change'. Perhaps could another explanation for difficulties in implementing or maintaining VC projects be that there was too little tension for change felt by the employees, effectively resulting in demotivation. This suggests that it might be crucial to create a sense of urgency and increased tension for change among the involved personnel to increase the likelihood of implementation success. Even if not stated as a deliberate consideration, the project at Mölndal did derive from issues with wrongly referred patients, which could generate tension for change.

Likewise, considerations that do not correspond to any determinants might indicate potential causes of failure and therefore prominent considerations for the VC context. For instance, the issues experienced with low *frequency of use* of the VCs among employees could be one explanation for the projects not reaching full scale or not being continued over a long period. Another explanation could be that the lack of efficient *coordination and spread of improvement initiatives* meant that the organizations failed to share best practices and learnings, which potentially hindered successful implementation.

Even though this study provides a new perspective and potential insights in a specific (VC) context compared to the CFIR, the analysis of interrelations between the considerations was

limited. Damschroder et al. (2022) proposed in the updated version of CFIR that future research should focus on understanding relationships between considerations (determinants). Although understanding interrelations was not a part of the scope of the study, the comparison of the considerations with the determinants of the CFIR reveals some potential interrelationships between the identified considerations. For example, both the *scalability* and the *local context* within the process design category are related to the determinant ‘innovation adaptability’. Consequently, considering the local context of other units and users could potentially impact the scalability of the innovation.

The studied VCs varied in the design of the innovation and process, but also in the purpose for which the innovation was intended. Defining video consultations based on a set of recurring characteristics, such as scheduled or unscheduled and excluding or including the patient, could help researchers by offering a common language and definition of VCs. According to Laufer (2017) establishing a taxonomy can aid in the development of a unified theory. A taxonomy of VCs would possibly enable researchers to systematically determine specific considerations that are more applicable to VCs with particular characteristics. For instance, the consideration *roles and work assignments* might be of great importance for unscheduled VCs due to the increased requirement to manage and balance planned activities with unscheduled consultations, as the findings indicate. Further, a categorization of video consultations could be beneficial for future studies that aim to understand how to manage specific considerations.

The fact that none of the projects in which the interviewees were involved have been implemented at full scale or maintained might be reflected in the findings. For example, the considerations regarding financial aspects were scarcely mentioned, which could be explained by the fact that costs and issues with reimbursement systems might increase with volumes and scale-up.

Another aspect of the sample of the study that might have influenced the findings is the fact that merely one interviewee had a technical background. When addressing technical aspects of VCs, the considerations discussed by the interviewees had a lot of emphasis on the solution being simple and easy to use, and more detailed considerations about the technical solution were not extensively covered. This may partially be explained by the fact that the equipment for video consultation might not be considered advanced, and partially by the fact that there was only one interviewee with a technical background.

## 7. Conclusion

*The purpose of this thesis is to increase the understanding of efforts to implement video consultation between specialists and other healthcare providers. To fulfill the purpose, the two research questions will be answered in the chapter separately. Finally, suggestions for future research are presented.*

### 7.1. In what way do video consultations between specialists and other healthcare providers influence Good quality, local healthcare?

In conclusion, the findings indicate that VCs positively influence healthcare providers' ability to deliver *Good quality, local healthcare*. Bearing in mind the ongoing transformation of the Swedish healthcare system, the interest in and use of VCs between healthcare providers might increase in the coming years. Although suggesting a positive influence, the findings indicate difficulty in specifying in detail which dimensions of *Good quality, local healthcare* that VC implementation fulfills. This difficulty could be explained by the interviewees basing their answers on different aspects, the lack of a clear definition of the term, and differences in the projects' settings and purposes.

Understanding the effect on the dimensions of *Good quality, local healthcare* of a specific VC implementation could facilitate receiving funding and support, proving the relative advantage of the implementation, determining purpose and metrics, and motivating personnel by demonstrating the benefits.

### 7.2. What should be considered before, during, and after implementing video consultations between specialists and other healthcare providers?

The findings conclude 38 considerations before, during, and after implementing video consultation (VC) between specialists and other healthcare providers. Ten categories summarize all the considerations, namely: *resistance to change; motivation and engagement; organizational design; user-friendliness of technical set-up; confidentiality and privacy; measurement of improvement; information, education, and support to personnel; project scale-up; financials; and process design.*

Personnel aiming to implement VCs can use the set of considerations as a checklist to help identify potentially critical aspects of the implementation of VCs between specialists and other healthcare providers. The result can help guide language and illuminate considerations specific to VC implementation projects, acting as a complement to the robust CFIR. In the comparison between the considerations and the CFIR, determinants and considerations that were not connected might provide critical insights explaining issues of projects not being maintained or reaching full-scale implementation. The connections between the considerations and the determinants can be used to deepen the understanding of considerations and how to manage them. Nevertheless, a contextual standpoint and focus are more important than adhering to a framework or a set of predefined considerations.

### 7.3. Future research

Additional research on implementation considerations in the context of VC between specialists and healthcare providers is recommended. In detail, the authors advocate widening the set of interviewees, to include further roles and perspectives. In detail, the authors advocate studying a wider set of roles and perspectives among the interviewees. In addition to this, the authors suggest including projects that have reached full-scale and maintained implementation, in Sweden or internationally. Yet there is a lot to learn from ongoing or less successful projects.

Further research is recommended to deepen the understanding by quantifying the effect of VCs on the dimensions of *Good quality, local healthcare*. Additionally, as the patient's experience is central to evaluating *Good quality, local healthcare*, the authors recommend including the patient's perspective in additional studies in the field.

Moreover, complementing studies, both quantitative and qualitative, to increase the understanding of the most prominent considerations when implementing VCs are also encouraged. Studies with this purpose could offer a more applicable guide and directions to healthcare personnel engaged in similar projects. An additional next step could be a closer investigation of how to manage specific considerations regarding VC implementation, especially the most prominent ones.

Even if some indications of interrelationships between considerations appear from the comparison with determinants of CFIR, there is still a gap of knowledge to fill regarding the interaction of considerations. Further, a taxonomy that characterizes video consultations between specialists and healthcare providers could be beneficial to create a common language to describe VCs and the context where it is used.

### 7.4. Recommendations

The findings of the study have several practical implications. Healthcare providers involved in implementation projects are recommended to:

- Investigate the potential benefits and opportunities to introduce VCs in their specific context;
- Explore possible synergies that could derive from integrating several actors into the same VC project;
- Consider the opportunities and limitations to achieve a certain effect on the dimensions of *Good quality, local healthcare* given the specific setting, purpose, and goals of the consultation;
- Understand the VCs' contribution to *Good quality local healthcare* in order to
  - Receive funding and support;
  - Demonstrate the consultations' relative advantage;
  - Determine the purpose of the project;
  - Motivate personnel;

- Use the considerations as a checklist to identify context-specific considerations that could determine the outcome before attempting to implement similar consultations;
- Apply the considerations during and after implementation to identify critical success factors or reasons for failure;
- If needed complement with knowledge from the CFIR; and
- Establish a contextual terminology based on the considerations

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## Appendix A – Interview guide

### Interview guide (translated from Swedish)

#### **Background:**

The study investigates the usage of digital meetings between healthcare providers for expert consultation and decision support aiming to steer patients to the right care level and specialty. More specifically, important aspects to consider during the implementation of digital meetings between healthcare providers are mapped as well as investigation regarding how these meetings can be used to achieve high quality of care and accessibility, called *Good quality, local healthcare*. *Good quality care* is in the study defined according to the National Board of Health and Welfare's description of the term, i.e., care that is effective, safe, patient-centered, efficient, equitable, and timely. *Local care* refers, among other things, to geographical proximity, proximity in the relationship between patient and professionals, proximity in the form of continuity, security, and coordination, as well as various aspects of accessibility. In the interview, we are interested in hearing about your experiences and thoughts about how these digital meetings affect the quality of care and accessibility, what is important when implementing such a new way of working, and what main difficulties you see with the implementation.

#### **Recording:**

To ensure that we accurately represent your perspective, we would like to record the interview. The recording is handled confidentially and is therefore not shared with third parties. All responses will be anonymized in the published report and the recording will be removed by January 15, 2023, at the latest.

#### Interview questions

##### **1. Background of the interviewee**

- What is your academic and professional background?
- What is your current job role and how would you describe your duties?
- Have you worked on any project linked to digital meetings between healthcare providers for expert consultation and decision support?

##### **2. Digital meetings between healthcare providers for expert consultation and decision support and their impact on healthcare quality and accessibility**

- Based on the description in the **background above**, which aspects of *Good quality, local healthcare* do you think digital meetings between healthcare providers for expert consultation and decision support can affect?
- Can you give an example of how the meetings practically can affect the possibility of offering *Good quality healthcare*?
- Can you give an example of how the meetings practically can affect the possibility of offering *Local healthcare*?

### **3. Important aspects to consider when implementing digital meetings between healthcare providers for expert consultation and decision support**

Several projects and applications for digital meetings between healthcare providers for expert consultation and decision support have been tested with varying results.

- Based on your experiences implementing and using similar digital meetings, what would you say are the most contributing factors to successful and less successful cases?
- What department-specific conditions facilitate or hinder the use of digital meetings between healthcare providers for expert consultation and decision support in the cases you have experienced?
- Do you see the possibility of applying the same kind of meetings for other specialties or between other healthcare providers and care levels? If so, what do you think are the biggest challenges?
- In your opinion, what are the biggest challenges in scaling up successful local projects?

### **4. Other information**

- Is there anything else related to the subject that you would like to share?

# Interview guide (original)

## Bakgrund:

I denna studie undersöks användningen av digitala möten mellan vårdgivare för expertkonsultation och beslutsstöd i syfte att styra patienter till rätt vårdnivå och specialitet. Mer specifikt kartläggs viktiga aspekter att ta hänsyn till vid implementering av digitala möten mellan vårdgivare, samt hur dessa möten kan användas för att uppnå hög vårdkvalitet och tillgänglighet, en så kallad *God och nära vård*. *God vård* definieras i denna studie enligt Socialstyrelsens beskrivning av begreppet, det vill säga vård som är kunskapsbaserad och ändamålsenlig, säker, patientfokuserad, effektiv, jämlik samt ges inom rimlig tid. *Nära vård* syftar bland annat till geografisk närhet, närhet i relationen mellan patient och professioner, närhet i form av kontinuitet, trygghet och samordning, samt olika aspekter av tillgänglighet. I intervjun är vi intresserade av att höra om dina erfarenheter och tankar kring hur dessa digitala möten påverkar vårdkvaliteten och tillgängligheten, vad som är viktigt när man implementerar ett sådant nytt arbetssätt, och vilka huvudsakliga svårigheter du ser med implementeringen.

## Inspelning:

För att säkerställa att vi korrekt återger ditt perspektiv skulle vi vilja spela in intervjun. Inspelningen hanteras konfidentiellt och delas därmed inte med tredje part. Alla svar kommer anonymiseras i den publicerade rapporten och inspelningen kommer tas bort senast den 15:e januari 2023.

## Intervjufrågor

### 1. Intervjupersonens bakgrund

- Vad är din akademiska och yrkesmässiga bakgrund?
- Vilken är din nuvarande arbetsroll och hur skulle du beskriva dina arbetsuppgifter?
- Har du arbetat med något projekt kopplat till digitala möten mellan vårdgivare för expertkonsultation och beslutsstöd?

### 2. Digitala möten mellan vårdgivare för expertkonsultation och beslutsstöd och deras påverkan på vårdkvaliteten och tillgängligheten

- Utifrån beskrivningen i **bakgrunden ovan**, vilka aspekter av *God och nära vård* tror du att digitala möten mellan vårdgivare för expertkonsultation och beslutsstöd kan påverka?
- Kan du exemplifiera hur mötena praktiskt kan påverka möjligheten att erbjuda *God vård*?
- Kan du exemplifiera hur mötena praktiskt kan påverka möjligheten att erbjuda *Nära vård*?

### 3. Viktiga aspekter att ta hänsyn till vid implementering av digitala möten mellan vårdgivare för expertkonsultation och beslutsstöd

Flera projekt och appliceringar för digitala möten mellan vårdgivare för expertkonsultation och beslutsstöd har testats med varierande resultat.

- Baserat på dina erfarenheter av implementering och användning av liknande digitala möten, vad skulle du säga är de mest bidragande faktorerna till lyckade respektive mindre lyckade fall?
- Vilka avdelningsspecifika förutsättningar möjliggör eller försvårar användning av digitala möten mellan vårdgivare för expertkonsultation och beslutsstöd i de fall som du sett?
- Ser du att det finns möjlighet att applicera samma sorts möten för andra specialiteter eller mellan andra vårdgivare och vårdnivåer? Vilka tror du är de största utmaningar i så fall?
- Vilka är de största utmaningarna med att skala upp framgångsrika lokala projekt enligt dig?

#### 4. **Övrig information**

- Är det något annat kopplat till det här ämnet som du vill dela med dig av?

## Appendix B – Table of considerations from interviews (1/2)

Category	Considerations before, during, and after efforts to implement online video consultations	Examples from interviews
Resistance to change and inertia	<b>Organizational inertia</b>	<ul style="list-style-type: none"> <li>How flexible or rigid the organization is</li> <li>Level of politically governance in the organization</li> <li>The organizational ability to change</li> </ul>
	<b>Fear of exposing gaps of knowledge</b>	<ul style="list-style-type: none"> <li>The employee acceptance of being questioned by coworkers</li> </ul>
	<b>People's will to change</b>	<ul style="list-style-type: none"> <li>Difficulty to change behavior and way of working</li> <li>Resistance to change</li> <li>Skepticism</li> </ul>
Motivation and engagement	<b>Incentives and motivation of personnel</b>	<ul style="list-style-type: none"> <li>How to explain the benefit and show advantages with the project</li> <li>Getting each coworker onboard</li> </ul>
	<b>Key personnel and enthusiasts</b>	<ul style="list-style-type: none"> <li>Having local champions and committed people in the team</li> <li>Finding optimists and a mediator between departments</li> <li>Not to rely on a sole enthusiast</li> </ul>
	<b>Views, opinions, and knowledge of the personnel</b>	<ul style="list-style-type: none"> <li>How to ensure personnel feel heard and that their opinions are considered</li> <li>Involvement of personnel from the start</li> <li>Anchoring of the initiative within the organization</li> </ul>
Organizational design	<b>Communication and cooperation within the organization</b>	<ul style="list-style-type: none"> <li>Differences in culture and terminology between departments</li> <li>Large organizational silos between specialties</li> <li>Experience from working in projects involving different departments</li> <li>Distance between management and care personnel</li> </ul>
	<b>Coordination and spread of improvement initiatives</b>	<ul style="list-style-type: none"> <li>Difficulty to spread successful projects</li> <li>Number of communication channels within the region to spread successful initiatives</li> </ul>
	<b>Stakeholders in the organization</b>	<ul style="list-style-type: none"> <li>Which representatives from departments that needs to be onboard for the project, e.g., the digitalization department</li> </ul>
	<b>Complexity of the healthcare system</b>	<ul style="list-style-type: none"> <li>Number of factors influencing the outcome of the implementation</li> </ul>
	<b>Decision-making and support</b>	<ul style="list-style-type: none"> <li>Required support from top management</li> <li>Difficulty to get leverage with a local initiative</li> <li>Regional development of IT-infrastructure and digitalization</li> </ul>
User-friendliness of technical set-up	<b>Personnel's level of tech know-how</b>	<ul style="list-style-type: none"> <li>Level of technical competence among users</li> </ul>
	<b>Complexity of technology</b>	<ul style="list-style-type: none"> <li>Difficulty to use system and technology</li> <li>Number of steps required to use technology</li> </ul>
	<b>Equipment used to film and stream video</b>	<ul style="list-style-type: none"> <li>Choice and placement of equipment, e.g., possibility to use mobile telephone</li> <li>Potential inconvenience of having medical records and video on the same screen</li> </ul>
	<b>Technology disturbance</b>	<ul style="list-style-type: none"> <li>Risk of non-adoption due to technology disturbance</li> </ul>
Confidentiality and privacy	<b>Confidentiality and privacy</b>	<ul style="list-style-type: none"> <li>Integrity and confidentiality</li> <li>How to secure processing of personal data</li> <li>Requirements for security classification</li> </ul>
Measurement of improvement	<b>Performance indicators</b>	<ul style="list-style-type: none"> <li>How to measure appropriate care in the right time</li> <li>Qualitative measurements</li> </ul>
	<b>Follow-up of results</b>	<ul style="list-style-type: none"> <li>Showing evidence of effect before full-scale implementation</li> <li>Continuous follow-up</li> <li>The gains from the innovation in relation to the costs and the performance of the previous way of working</li> </ul>
	<b>Time-lag of results</b>	<ul style="list-style-type: none"> <li>Results might not show directly</li> <li>Having patience</li> </ul>

## Appendix B – Table of considerations from interviews (2/2)

Category	Considerations before, during, and after efforts to implement online video consultations	Examples from interviews
Information, education, and support to personnel	<b>Education and implementation support</b>	<ul style="list-style-type: none"> <li>• Providing support and being a coach</li> <li>• Organizing network meetups to learn from each other</li> <li>• Representatives in the project group to distribute information</li> </ul>
	<b>Information about new work instructions</b>	<ul style="list-style-type: none"> <li>• Difficulty to keep all coworkers informed due to high staff turnover</li> <li>• Routine instructions</li> </ul>
Project scale-up	<b>Pace of scale-up</b>	<ul style="list-style-type: none"> <li>• Starting in small scale</li> <li>• Gradual scale-up</li> </ul>
	<b>Early-stage evaluation and testing</b>	<ul style="list-style-type: none"> <li>• The use of personas, typical cases and simulations</li> <li>• Testing to progress</li> <li>• Testing where the innovation makes the most impact</li> </ul>
	<b>Learnings from similar projects</b>	<ul style="list-style-type: none"> <li>• Experiences and knowledge from other initiatives and projects</li> </ul>
	<b>Context and current state</b>	<ul style="list-style-type: none"> <li>• Spending time understanding the context and situations in which the VCs are to be conducted</li> </ul>
Financials	<b>Costs related to technology</b>	<ul style="list-style-type: none"> <li>• Costs of IT solutions and licenses</li> <li>• Costs of technical equipment</li> </ul>
	<b>Costs related to education and administration</b>	<ul style="list-style-type: none"> <li>• Costs of education and administration</li> </ul>
	<b>Division of costs</b>	<ul style="list-style-type: none"> <li>• Division of costs among involved parties</li> </ul>
	<b>Reimbursement</b>	<ul style="list-style-type: none"> <li>• Model of reimbursement for VCs</li> </ul>
Process design	<b>Process steps</b>	<ul style="list-style-type: none"> <li>• Number of activities/steps</li> <li>• Time needed for each activity</li> <li>• Integration of the new process in the current work routines</li> <li>• Changing flow of referrals</li> </ul>
	<b>Frequency of use</b>	<ul style="list-style-type: none"> <li>• Number of VC made or received per employee</li> <li>• How to ensure continuous use of the working method to avoid non-adoption</li> </ul>
	<b>Work environment</b>	<ul style="list-style-type: none"> <li>• Risk of increasing stress for personnel when technology malfunctions</li> <li>• Effect on workload from changing routines</li> </ul>
	<b>Patient safety</b>	<ul style="list-style-type: none"> <li>• How to ensure patient safety and high-quality care</li> </ul>
	<b>Staffing and allocation of resources</b>	<ul style="list-style-type: none"> <li>• Allocation of resources</li> <li>• Resource scarceness in healthcare</li> </ul>
	<b>Scalability</b>	<ul style="list-style-type: none"> <li>• National centralized consultation service</li> <li>• Possibility to integrate several similar projects</li> <li>• Possibility to include other departments and specialties</li> </ul>
	<b>Roles and work assignments</b>	<ul style="list-style-type: none"> <li>• Which healthcare providers to involve in the process</li> <li>• Knowledge about local healthcare structure and procedures</li> <li>• Who should be responsible for making and responding to the VCs and what competence do they need</li> <li>• If there is need for insight in the current level of occupancy of the receiving unit</li> <li>• How to balance parallel, planned, work assignments with unscheduled VC</li> </ul>
	<b>Documentation and information sharing</b>	<ul style="list-style-type: none"> <li>• The information needed to be shown and transferred between parties</li> <li>• Routines for documentation and writing medical records</li> </ul>
	<b>Local context</b>	<ul style="list-style-type: none"> <li>• Differences in needs, staffing, and routines between departments</li> </ul>

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DIVISION OF SERVICE MANAGEMENT AND LOGISTICS  
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