

# **A central place, but not center stage:** Exploring the effect of organizational culture on innovation implementation in rehabilitation care

## **Author**

Max Le Noble  
S1994042

## **Supervisors**

Dr. H.A. van Vuuren  
K. Oberschmidt, Msc

## **Second assessor**

Dr. J. Karreman

## **Date**

July 6, 2023

MASTER THESIS

ORGANIZATIONAL COMMUNICATION & REPUTATION

COMMUNICATION SCIENCE

FACULTY OF BEHAVIOURAL, MANAGEMENT AND SOCIAL SCIENCES (BMS)

UNIVERSITY OF TWENTE



**UNIVERSITY  
OF TWENTE.**

## **Abstract**

The healthcare sector faces challenges in sustainability and effectiveness due to employee shortages and an aging population. Therefore, fostering innovation becomes crucial for healthcare, including rehabilitation care. However, despite its societal importance and significant distinction from hospital care, rehabilitation care has received limited attention in scientific research.

Literature suggests that organizational culture plays a vital role in effectively implementing innovations in the workplace. Hence, this study focuses on investigating how the organizational culture at the rehabilitation center Roessingh (RCR) influences the implementation of innovations by practitioners.

The study follows a two-phase approach, starting with a pre-study to gain initial insights into RCR's organizational culture and to gain contextual understanding. This serves as input for the second phase, the main study, which utilizes go-along interviews with practitioners to further explore and map out the organizational culture.

Through reflexive thematic analysis, four themes were developed that together provide valuable insights into how the organizational culture impacts innovation implementation in the workplace.

The combination of heavy workloads, time constraints, organizational passivity, and practitioners' views on innovative technology in healthcare contributes to an organizational culture where the engagement with and utilization of innovative technology is given low priority.

Consequently, a set of recommendations is proposed, applicable to both RCR and the broader rehabilitation care sector. Lastly, given the exploratory nature of this study, several promising avenues for future research, related to policy-making and practitioner involvement, for example, are uncovered and discussed.

## **Keywords**

Organizational culture, innovation implementation, rehabilitation care, healthcare, go-along interviews, reflexive thematic analysis.

## Preface

With this thesis, I conclude my master's course 'Organizational Communication & Reputation' within the master's study of 'Communication Science' at the University of Twente. I was given the opportunity to execute my thesis at the Roessingh Concern and for that I would like to thank Rehabilitation Center Roessingh and Roessingh Research and Development. While there were challenges along the way, I found my time at Roessingh to be very enjoyable, and I am satisfied with the outcome of my research. One of my main personal objectives was to make a meaningful impact by offering practical relevance to the organization, and I believe I have achieved that. However, this accomplishment was not solely on my own; it was made possible through the guidance and feedback I received during the course of my research.

I would therefore like to thank Mark van Vuuren, my supervisor at the University of Twente. Your professional yet personal supervision improved my academic skills, and directed me towards conducting a sound research. Furthermore, I would like to extend my thanks to Joyce Karreman, my second assessor, for providing valuable feedback and positive remarks during the final stages of my research. Lastly, I want to acknowledge Kira Oberschmidt, my supervisor at Roessingh Research and Development. In our weekly meetings and on many other occasions you were a great sparring partner, provided valuable feedback and ideas, and were a source of motivation and confidence. You greatly contributed to the overall positive experience I had during my research, and I am sincerely grateful for that.

During my time at Roessingh, I have learned a lot and gained valuable insights, both academically and personally. Due to the design of the study, I gained close insight into the work of the practitioners and the care they provide. I "assisted" during treatments and played with child patients. I got to see how they, despite their conditions, are able to live with joy. This made a deep impression on me and, despite being heart-wrenching at times, was beautiful to witness. Therefore, I would like to express my sincere gratitude to the practitioners who participated in the go-along interviews for making this research possible and allowing me to have these inspiring experiences.

When writing a master thesis, it can be challenging to leave mental space for activities other than doing research. Therefore, I would like to thank my friends for making it (at times too) easy to find distraction from working on my thesis. You may not have realized it, but you all have helped me finish my studies.

Moreover, I would like to thank my family for their unconditional support throughout my entire educational journey and life in general. In particular, I am deeply grateful to my parents. Finishing this thesis marks the end of a series of significant chapters in my life, chapters in which you have played an immense role. Your support, in so many ways, has enabled me to be who, where, and how I am today. Finally, to my girlfriend Hester, thank you for your constant support and for simply being there. You have been a supporting pillar for me when you were and were not trying to be one. Your words of encouragement but also your everyday presence have had a big positive impact on me and have helped me through.

## Table of contents

Abstract .....	2
Preface .....	3
Introduction .....	5
1 - Theoretical framework .....	8
Innovative employee behavior .....	8
Organizational culture.....	8
2 - Pre-study: Context familiarization.....	11
Communication channels.....	11
Innovation lab.....	12
Introduction event .....	13
Results .....	13
3 - Main study: Go-along interviews.....	14
Method.....	14
Results .....	17
4 - Discussion.....	27
Discussion of the results .....	28
Practical recommendations.....	31
Discussion of the study .....	32
5 - Conclusion.....	34
References.....	35
Appendix A. Semi-structured interview scheme .....	38
Appendix B. Coding-scheme .....	39

## Introduction

Rising costs, employee shortages and an aging population put pressure on the sustainability of the healthcare sector in many parts of the world (World Health Organization, 2023). Therefore, innovation, with its potential to provide more efficient and effective products and processes, is of particular relevance in the healthcare sector. Historically, implementation and diffusion of innovation in this sector have been known to be very slow (Aarons et al., 2014; Berwick, 2003; Shelton et al., 2018). Despite billions of dollars being spent annually worldwide on evidence-based health innovations, the implementation of innovative technologies still proves to be a big challenge for the healthcare sector (Chaudoir et al., 2013; Moullin et al., 2019; Shelton et al., 2018). At first glance, based on the number of published studies, innovation in healthcare does not seem to be an underexposed area of research, and that is true. The majority of these studies, however, are related to hospital care and many focus on the development or evaluation of one specific innovation, like wearables or telehealth products. Moreover, studies related to innovation within other areas of the healthcare sector, like rehabilitation care, are scarce.

As it is vital for a healthy aging society, rehabilitation care is an essential and significant area within the healthcare sector. It is estimated that, globally, 2.4 billion people are living with health conditions that could benefit from rehabilitation care (World Health Organization, 2023). Despite its significance, rehabilitation care, an area within healthcare that is distinctly different from hospital care, is underexposed in scientific research regarding innovation implementation in healthcare. Therefore, it is relevant to get a better understanding of innovation implementation in rehabilitation care, which will be the focus of this study.

Innovation is critical to the success of many organizations as it can help to create or maintain competitive advantages. Through the improvement of products and services or the introduction of more efficient or effective processes and methods, innovation can enable organizations to anticipate and be adaptive to changes in their operational landscape (Brem et al., 2019; Wallace et al., 2013). However, successfully implementing innovations has proven to be and remains a challenge for many industries (Berwick, 2003; Klein & Sorra, 1996; Moullin et al., 2019; Shelton et al., 2018).

Innovation consists of adoption and implementation (Dorenbosch et al., 2005). Innovation adoption, as opposed to implementation, refers to the decision of an organization that an innovation will be used by its employees (Klein & Sorra, 1996). Therefore, in practice, it mostly refers to the decision to purchase an innovation. Innovation implementation, on the other hand, refers to "the transition period during which targeted organizational members ideally become increasingly skillful, consistent, and committed in their use of an innovation" (Klein & Sorra, 1996, p. 1057). To provide a simple, recognizable example: innovation adoption is buying a blender, and innovation implementation is learning how to use it, learning recipes, and using it consistently. As innovation adoption usually is easier than implementation, in general, the challenge of successful innovation originates from the latter (Klein & Knight, 2005). Therefore, innovation failure or lack of innovativeness, in general, is often not caused by the ineffectiveness of the innovation(s) in question, but rather by the ineffectiveness of the innovation implementation (Klein & Sorra, 1996).

Activities associated with innovation implementation correspond with activities that, according to De Jong & Den Hartog (2007), define innovative employee behavior. Previous research has demonstrated the importance of innovative employee behavior for the success of organizations. According to Janssen (2001), innovative employee behavior positively impacts organizational performance and the effectiveness of processes. Although an individual's traits may predispose some employees to perform more innovative behavior than others, innovative employee behavior largely depends on the organizational culture that is present (Hartmann, 2006; Spreitzer et al., 2005; Wallace et al., 2013). This is because organizational culture functions as a criterion that has to be met in order for these personal traits to take effect (Wallace et al., 2013). Therefore, by affecting innovative employee behavior in this way, organizational culture is of great importance to the successfulness of innovation implementation. Previous studies have shown that stimulating certain types of

organizational cultures within healthcare organizations can result in positive outcomes, such as improvements in overall service quality, employee attitude, behavior and engagement, and job satisfaction (Slåtten, Lien, Lupina, et al., 2019; Slåtten, Lien, & Svenkerud, 2019; Zachariadou et al., 2013). Therefore, organizational culture is seen as vital for healthcare organizations (Slåtten, Lien, & Svenkerud, 2019; Zachariadou et al., 2013).

The culture of an organization consists of many different components. In literature, components of organizational culture that are related to innovation have been identified. Components that are regularly mentioned are job autonomy, corporate support, innovation trust, information availability, and leadership (Bysted, 2013; De Jong & Den Hartog, 2007; Du & Wang, 2022; Sarros et al., 2008; Wallace et al., 2013;). The importance and influence of these components on an organization's innovativeness have been studied before, however, mainly solely with one or two components studied in isolation (Wallace et al., 2013). Researches that study the interaction between multiple components in concert and the effect they have on the innovativeness of an organization's culture are less common and N. Anderson et al. (2014) and Wallace et al. (2013) have called for the broadening of our understanding in this area rather than focusing on (a set of) individual features in isolation.

To get a better understanding of organizational cultures in rehabilitation care and their relation to innovation implementation, this case study about the organizational culture at 'Revalidatiecentrum Roessingh' (RCR) was initiated.

RCR is a specialized rehabilitation centre for people with functional disabilities, located in the city of Enschede, in The Netherlands. The goal of RCR is to help people that suffer from injuries, illnesses and conditions to (re)find their place in society by teaching them to live, both physically and psychologically, with their limitations as well as possible (Revalidatiecentrum Roessingh, n.d.). RCR does so by working with a so called 'care request ('hulp vraag'). Instead of aiming for full recovery, which is most often impossible, besides training basic everyday skills, the aim of the provided care is for patients to again be able to perform activities important to them. For one patient that can mean being able to do woodworking, for others being able to paint or play an instrument. This means that for every patient not only the condition and its severity can differ, but also the desired goal of the provided care. RCR is able to provide expertise for many different diagnosis groups, both mild and severe, visible and invisible and has departments for both adults and children, and one specifically for those suffering from pain. RCR provides clinical and outpatient care and weekly sees roughly 350 children and 500 adults (Wikipedia, 2023).

One of the core values of RCR is being innovative (Revalidatiecentrum Roessingh, n.d.). This shows as RCR has a dedicated space called 'the innovation lab' in which all kinds of innovative technologies are present that can be used for treating patients. However, although RCR portrays itself as a beacon for innovativeness and is also seen as such by the public, it recognizes that, despite its efforts, a substantial gap still exists between what RCR wants to be, states to be, and is seen to be, and what RCR actually is in reality. RCR recognizes that in the workplace, innovation is not as prominent as it is made out to be, with low usage rates of innovative products and low involvement of employees. To improve this, RCR wants to strengthen its innovation culture within the organization.

It is important to note that the existence of this gap between RCR's talk and RCR's actions is not an indicator of deceit or hypocrisy. As Christensen et al. (2013, p.376) describe: "Organizational statements are not just descriptions [...], but prescriptions with performative qualities, which commit the organization to act in a certain manner." They refer to these kinds of organizational statements as 'aspirational talk'. And although deceit and pretense can be the result of aspirational talk, Christensen et al. (2013) argue that it has the potential to result in positive developments when decisions and actions follow. Therefore, RCR identifying a gap between their words and their actions and following up on it by finding solutions through research can be seen as an indication of aspiration, instead of deceit.

Accordingly, the aims of this research are, on the one hand, to contribute to a better understanding of organizational culture and innovation implementation within rehabilitation care and the relation between them. On the other hand, the aim is to specifically help RCR realize its aspiration to be more innovative as an organization, by providing useful insight regarding its organizational culture, and by providing recommendations for potential ways in which a more innovative organization can be cultivated.

To do this, the following research question will be answered:

*How does the current organizational culture at RCR affect innovation implementation by practitioners in rehabilitation care?*

To answer this research question, first an orienting theoretical framework was made to get a better understanding of innovative employee behavior and organizational culture, and the effect different components of an organizational culture can have on innovative employee behavior. This gave insight into these topics and provided some guidance regarding what to focus on or pay attention to during the next steps. Followingly, during the pre-study, I familiarized myself with different elements of RCR. I held personal conversations with employees who were related to the innovation lab, was present for several days at the innovation lab to observe its use and speak with practitioners, studied the content of RCR's communication channels, and participated in the introduction event for the ReaTouch, an innovative product recently purchased by RCR mainly aimed for arm, hand, and shoulder training. Besides becoming more familiar with the organization and becoming more knowledgeable about its context, products, and people, this phase also served as a means for the organization, especially its practitioners, to become more familiar with me. This may have benefitted the research, as this familiarization would likely increase the practitioners' willingness to cooperate in future research activities. The pre-study already gave a glimpse of RCR's organizational culture and, most importantly, provided useful context-specific knowledge. Together, the theoretical framework and pre-study served as a base on which the subsequent go-along interviews with practitioners could be prepared. By including the perspectives of the practitioners, these go-along interviews provided insightful information about the current organizational culture at RCR. Consequently, the interviews were analyzed using a reflexive thematic analysis method. This analysis resulted in the development of four themes describing the current organizational culture at RCR and the limiting effect it may have on the innovation implementation at RCR. Finally, the implications of the findings for both RCR and (rehabilitative) healthcare in general are thoroughly discussed, followed up by suggestions for future studies.

Because this research was phased in nature, with one research activity being the foundation for the ones that followed, the chronology is important for the readability of this report. Therefore, to retain the chronology and the phased nature of this research, instead of one overarching method and result section, where relevant, the method and result will be discussed per phase. Additionally, since the value of this study lies in the experiences of the researcher, this report will, where relevant, describe activities from the personal perspective of the researcher.

## **1 - Theoretical framework**

### ***Innovative employee behavior***

Innovative employee behavior refers to the initiation, modification and application of new ideas, products, or processes (Bysted, 2013; De Jong & Den Hartog, 2007; Scott & Bruce, 1994). Innovative employee behavior can be very beneficial for organizations, especially those that operate in a dynamic environment (Yuan & Woodman, 2010). This is because, as shown in previous research, innovative employee behavior can positively impact the performance of organizations and ensure process effectiveness (Janssen, 2001). Employees can play this vital role because of their position in the organization. By operating in the actual workplace, employees have a firsthand perspective on the challenges and outright problems that occur in said workplace. Therefore, in theory, they are more able to identify possibilities for improvements in the workplace in terms of products or processes than members of the organization that do not have this firsthand experience (Wallace et al., 2013). Innovative employee behavior, which emphasizes the implementation of ideas and products, differs from employee creativity, as that solely refers to the generation of new ideas (De Jong & Den Hartog, 2010). This emphasis on implementation is why innovative employee behavior is so closely related to innovation implementation. Since innovation implementation is the part of innovation that forms the most challenges, innovative employee behavior is of great significance to innovation.

The personal characteristics of employees play a significant role in the probability of them performing innovative behavior (Wallace et al., 2013). Traits such as creativity, openness to change, and motivation make some employees more likely to perform innovative behavior than others (Bysted, 2013; Wallace et al., 2013). However, there exists a vast agreement regarding the important role of organizational culture in fostering innovative employee behavior (Hartmann, 2006; Naranjo-Valencia et al., 2011; Martins & Martins, 2002; Spreitzer et al., 2005; Von Treuer & McMurray, 2012; Wallace et al., 2013). Wallace et al. (2013) argue that personal traits only affect innovative behavior in a significant way if the organizational culture that is present consists of the right conditions that allow innovative behavior to be performed. To give a recognizable example of this relationship between organizational culture and innovative employee behavior, it can be compared to team sports, like football. No matter the skill (personal traits) of the striker on a football team (an employee), if the team surrounding the striker (organizational culture) is unable to get the ball to the striker (wrong conditions), the striker is unable to use its skills to perform to its potential (innovative behavior).

As organizational culture is of such importance to innovative employee behavior and therefore to innovation implementation, it is important to get a better understanding of it.

### ***Organizational culture***

Organizational culture can be defined as a, often unconsciously, shared set of assumptions, values and beliefs among members of an organization, developed over a period of time (Deshpandé & Webster, 1989; Hartmann, 2006; Naranjo-Valencia et al., 2011; Schein, 1990). The development of a culture occurs as a result of the interaction and learning of individual members of an organization as they adapt to their external environment and develop methods for solving problems and doing day-to-day activities (Schein, 1990). An organizational culture enables the functioning of an organization to be understood by its members and can shape the behavior of its employees (Deshpandé & Webster, 1989). An organizational culture that is innovative in nature therefore stimulates innovative employee behavior as it benefits the acceptance of innovation and innovative efforts as a basic value of the organization and fosters commitment to innovation-related activities, norms and values (Hartmann, 2006). However, as an organizational culture is able to shape employee behavior, it also has the ability to be an obstacle to innovative behavior to be performed (Martins & Martins, 2002).

The nature of an organizational culture, which within the context of this research means the amount of the stimulating or limiting effect an organizational culture has on innovative behavior, is the result of the interplay between different components that make up the organizational culture (Martins & Martins, 2002; Wallace et al., 2013). Numerous studies have been dedicated to the identification of



important components for an innovative organizational culture. In their study, Wallace et al. (2013) suggest that for an organizational culture to stimulate innovation, the culture should foster what they call a 'high employee involvement climate' as it facilitates a deep cognitive understanding of the workplace while providing the ability to operate autonomously. This climate exists when employees "(a) possess the power to make decisions and act on them, (b) may access and share the informational resources needed to undertake those actions effectively, (c) have opportunities to update their knowledge in order to continually develop their effectiveness, and (d) are rewarded for improving the effectiveness of their work unit and organization" (Wallace et al., 2013, p. 988). Central components that are prevalent in this description are job autonomy (a), information availability (b,c), and corporate support (d). These components are recognized as important in many studies (De Jong & Den Hartog, 2007; Hartmann, 2006; Martins & Martins, 2002; Mutonyi et al., 2022; Naranjo-Valencia et al., 2011). Other studies have identified more, mostly niche and overlapping, components. However, in addition to the three mentioned above, there are two more components that have been identified as important as well, and that are not niche or overlapping. These two additional components are 'innovation trust' and 'leadership' (Bysted, 2013; De Jong & Den Hartog, 2007; Du & Wang, 2022; Pieterse et al., 2010; Sarros et al., 2008). Together, job autonomy, corporate support, innovation trust, information availability, and leadership provide, without overly overlapping each other, a sufficient amount of coverage of the different areas of organizational culture components for the purpose of this orienting theoretical framework. Therefore, these five components will be discussed in more detail in the following segments.

#### *Job autonomy*

Job autonomy has been identified by numerous studies as a significant component of an innovative organizational culture (De Jong & Den Hartog, 2007; Martins & Martins, 2002; Mutonyi et al., 2022). A high degree of autonomy provides the employee freedom and independence in determining how to fulfill the duties of their jobs (Slåtten & Mehmetoglu, 2011). It allows the employee to dedicate time and effort to activities that are related to innovative behavior, such as the generation of new ideas, and the development and implementation of them (Bysted, 2013). Additionally, employees with autonomous jobs perceive a higher sense of responsibility and have higher levels of engagement (De Jong & Den Hartog, 2010; Frischer, 1993). The heightened sense of responsibility as a result of more autonomy also results in increased motivation to partake in additional work-related efforts; to go the extra mile (Wallace et al., 2013). In an organization in which an innovative culture exists, this extra mile is likely to result in additional innovative efforts. However, autonomy can also go at the cost of efficiency, as not all innovation-related efforts will turn out beneficial and leaders are less able to monitor the activities of their employees (Bysted, 2013). This suggests the existence of an optimal level of autonomy, which strikes a balance between innovativeness and effectiveness. It is interesting to research how other components, like leadership and corporate support, play a role in this balancing act.

#### *Corporate support*

Within the context of organizational culture and innovation, corporate support refers to the various actions, resources, and initiatives provided by an organization to foster and encourage a culture of innovation within its workforce (De Jong & Den Hartog, 2010; Du & Wang, 2022; Slåtten, Lien, Lupina, et al., 2019). Job autonomy and innovation in general can be beneficial, but can also have negative consequences. It comes as no surprise that when employees are given more freedom and authority to experiment with new ideas, a certain amount of time and resources will be lost on ineffective attempts. For an organizational culture to be innovative, these 'failed' attempts should not be punished. Punishing an employee will discourage future engagement in innovative behavior (De Jong & Den Hartog, 2007). Moreover, it sends a signal to other employees that innovative behavior is only desirable if it results in success. To avoid reprimands, employees will be more likely to perform 'safe' behavior, severely limiting the potential for future innovations (Naranjo-Valencia et al., 2011). Instead, failed attempts at innovation should be recognized as opportunities for learning and further development (De Jong & Den Hartog, 2007; Hartmann, 2006). Additionally, successful attempts

should, of course, also be recognized as such and should be praised and possibly rewarded (Wallace et al., 2013). This motivates the employee in question to continue their innovative efforts and it creates a climate in which other employees are indirectly encouraged to participate in innovative efforts. In addition, Finding the right level of corporate support that strikes a balance in providing sufficient job autonomy while nudging employees in a certain desired direction remains an area of interest.

#### *Innovation trust*

Corporate support for innovation can signal to the entire workforce that innovative behavior is desired and that (effective) innovation-related efforts will be rewarded (De Jong & Den Hartog, 2007; Wallace et al., 2013). An innovation-minded workforce is beneficial due to the simple fact that more innovative employees should result in more innovative efforts, but this is not the only benefit. According to Bysted (2013), a workforce characterized by 'innovation trust', "the positive view and acceptance of innovation", also propels individual innovative behavior further. Employees operating within an environment characterized by innovation trust know their co-workers will respond positively to their efforts. This allows them to experiment with innovative ideas more freely as they feel confident and comfortable pitching new ideas and discussing possibilities for improvement (Clegg et al., 2002). Moreover, an organization with a lack of innovation trust is divided into groups of employees that hold favorable and unfavorable attitudes toward innovation, which likely results in conflict (Shih & Susanto, 2011). Potential rewards and changes associated with successful innovations cause uncertainty for the employees that hold unfavorable attitudes toward innovation. Additionally, this group of employees will likely emphasize the losses (time, money, or resources) resulting from innovative efforts, creating tensions within the workforce and discouraging employees from performing innovative behavior (Bysted, 2013). It is emphasized that a free flow of information and knowledge is essential for innovation trust to exist, as this ensures understanding of the ongoing innovative efforts among employees, allowing them to engage in these efforts and discuss possibilities for improvement (Janssen, 2004).

#### *Information availability*

Information availability refers to the accessibility and transparency of relevant knowledge and resources within an organization. Complexity and uncertainty are inherent in innovative environments (Hartmann, 2006). This can lead to misunderstanding and distrust. Ensuring that knowledge is readily available and that information flows freely, can prevent uncertainty and misunderstanding from occurring and can promote acceptance (Hartmann, 2006). Ensuring that knowledge is readily available can be done through workshops and manuals for example. Additionally, open communication allows knowledge gaps to be filled and reduces the costs of information gathering (Hartmann, 2006). The positive effect of open communication on innovation is supported by numerous studies (Martins & Martins, 2002), and is part of the criteria for a high employee involvement climate as discussed by Wallace et al. (2013). A free flow of information can contribute not only to acceptance and understanding of innovative efforts made by others but can also lead to more success and efficiency through input and discussion.

#### *Leadership*

As previously discussed, leadership plays an interesting role in the interplay among the different components of organizational culture. While the presence or absence of other components may be more straightforward (oversimplified), leadership is not such a simple black-and-white concept as it is always present in some shape or form. It encompasses diverse activities that contribute to innovation while also involving the balancing act between other components of organizational culture. Examples of specific leadership activities associated with fostering innovative behavior include setting examples and expectations, championing, and encouraging knowledge diffusion (De Jong & Den Hartog, 2007). The transformational leadership style is often considered the most suitable for establishing and nurturing innovative organizational cultures. This style encompasses numerous activities closely linked to the balancing of the aforementioned components (De Jong & Den Hartog,

2007; Du & Wang, 2022; Pieterse et al., 2010; Sarros et al., 2008). Since leadership plays this directing role, it holds significant importance in shaping and sustaining organizational culture.

To summarize, by affecting innovative employee behavior, organizational culture plays an important role in the effective implementation of innovations. An organizational culture is formed by the interplay of many different components. In literature, different components that contribute to an innovative organizational culture have been identified. Some of the most mentioned and most distinctive ones are job autonomy, corporate support, innovation trust, information availability, and leadership. These components together provide a vast coverage of the different aspects of what makes an innovative organizational culture and therefore serve as an orienting starting point for this study.

## **2 - Pre-study: Context familiarization**

The theoretical framework was an orientation into the concepts of innovative employee behavior and organizational culture. The framework provides a fitting 'lens' through which to view the information that arises during the pre-study and other research activities following later. In the pre-study, I studied the content of RCR's communication channels, was present for several days at the innovation lab to observe its use and introduce myself to practitioners, and participated in the introduction event for an innovative product recently purchased by RCR.

The purpose of these activities was threefold. Firstly, the main goal was to get insight into the role of innovation within the organization. Secondly, it served me, the researcher, as a means to become familiar with the organization, its service, its employees, and its innovations. This helped increase my understanding of the environment in which this study took place, increasing my ability to make sense of the information that was and would be gathered during the various activities of this study. Lastly, it was an effective way of letting the organization, mainly its practitioners, become familiar with me. This may have helped increase the willingness of practitioners to participate in future research activities. The findings and experiences of the activities are shortly reported and discussed in the following segments.

### ***Communication channels***

To become more familiar with the way RCR portrays itself to outsiders and potential employees, with a specific focus towards innovation, I studied the contents of the public website of RCR, its LinkedIn page and its vacancy messages.

#### *Website*

Most of the content of the website of RCR is aimed at patients, but the website as a whole is aimed at both patients and professionals in the field of healthcare. An important part of the website, the 'about us' section, contains a mission and vision statement from the organization. Innovation and technology are vividly present in these statements and are also emphasized in parts about RCR's strategy and core values. Moreover, there is a dedicated webpage about 'innovation & research' in which cooperation with Roessingh Research & Development (RRD) and the use of technological innovations are shortly discussed. This prominent role of innovation is reinforced in the news and stories section of the website. Here, news articles, annual magazines, and stories from patients and professionals are shared. Several articles are about specific innovative technologies that are being used at RCR or that are in a trial phase. Additionally, innovation occupies a central place in the annual magazine 'Ronduit Roessingh', as the magazine includes several articles and stories about innovative technology and the cover of the magazine portrays 'Scotty', a social robot used to support rehabilitation training. However, the webpage dedicated to what it is like 'working at Roessingh' does not mention anything related to innovativeness or technology. Overall, innovativeness and technology are clearly visible on the website of RCR and are used to indicate the innovative nature of the organization to the public.

### *LinkedIn*

Naturally, the LinkedIn page of RCR is mainly targeted at professionals in the field of healthcare. The 'info' section about the organization does not mention innovation or technology anywhere. However, the posts, which contain information about vacancies, events, cooperations, and news articles, do show similarities with the news articles that are posted on the RCR website in the sense that innovation and technology are frequent topics here, and pictures of innovations are often used as cover images. Here again, despite not being mentioned in the info section, innovation and technology are frequently presented and used to frame the innovative character of the organization.

### *Vacancies*

Numerous vacancies are posted on the various communication channels of RCR. Due to the removal of filled-in vacancies, I was only able to look at the vacancies that were new or still available. For these vacancies, I only included those for the positions that are relevant to this study, such as practitioners or team leaders. The content of the vacancy messages is rather straightforward as it includes a short job description, desired profile of the applicant, salary and other benefits, and a description of the organization. None of the vacancy messages that I looked at had any mention of the innovative nature of the organization or the use of innovative technologies. Innovativeness or skill/interest in innovative technologies was also not mentioned in the description of the desired applicant profile.

### **Innovation lab**

After having looked at the communication channels of RCR I decided to focus my research on the innovation lab. The innovation lab is a dedicated room, located in the heart of the RCR building, in which several innovative technologies are present. Most of the technologies present in the room are aimed at arm, hand and/or shoulder therapy, though some of them also provide cognitive training capabilities. Additionally, the room is located close to the adult occupational therapy department and adult physiotherapy department, and most if not all of the practitioners that used the innovation lab were from one of these two departments. The technologies in this room range from well-known consumer-grade devices such as the Nintendo Wii and Xbox Kinect, to cutting-edge healthcare technologies such as the ArmeoPower, a robot used for arm and hand therapy for patients with moderate to severe impairments. Over the span of two weeks, I was present in the innovation lab for several days to observe the frequency and nature of its use and to introduce myself to practitioners that visited the room.

During my presence, the frequency of treatment sessions in the innovation lab varied heavily. On some days, at least one treatment group (mostly 2-4 patients) would be present in the innovation lab throughout the whole day. However, most days the innovation lab had very infrequent use. During these days, periods where one or two groups would be present were followed by several hours of emptiness. During the moments when the innovation lab was being used, the actual use also varied drastically in nature. As previously mentioned, the innovation lab contains several innovative technologies, ranging from consumer electronics to state-of-the-art healthcare technologies, most of which are aimed at arm and/or hand therapy. However, roughly half of the time the room was in use, the practitioner was sitting with their patients at a meeting table, either making use of 'regular' therapy tools, like pencils, or having conversations with patients. The available technologies were also used, of course, however, there seemed to be a preference for certain products over others.

Although every technology was used at least once during my presence, I witnessed a large difference between the amounts in which different products were used. Those that were used most often were the ones that were the most 'plug-and-play' ready for the practitioners. To my surprise, these were not the consumer electronics like the Nintendo Wii or Xbox Kinect, which were used every now and then. Although these are of course very easy to use, they were usually powered off and connected to a TV that was powered off as well. In combination with remotes that were often insufficiently charged, these conditions proved to be too much hassle for frequent use. The healthcare-focused device 'SaeboReJoyce', a lever-like input device to play games aimed for training the hand and/or upper

extremities with, saw the most use (at least once a day), despite being known to be somewhat challenging to set up. What may have contributed to its high use rate is the fact that at the beginning of each day, it would be powered on and set up ready for use by one of the employees at RCR. The thing that surprised me the most was the incredibly infrequent use of the ArmeoPower. With a price tag of a small apartment, the fact I only saw it being used once somewhat shocked me. It became apparent that in order to use the ArmeoPower, special training was required, which at the time of my research only four practitioners had received.

From conversations with practitioners, three things became clear. 1) Not all available technologies were easy or quick to set up and use. 2) Speaking with patients was an important element of the treatment process as it helped build and maintain a relationship between patient and practitioner, and the innovation lab, with its blindable windows and large meeting table, provided a fitting space for that. 3) Making use of innovative technologies was not seen as a priority by the practitioners or something that was expected of them by the organization. Two times during the pre-study, I witnessed a small tour through the innovation lab given to some external visitors, who appeared to be impressed by the room and its contents. Despite the innovation lab being centrally located in the building and being featured on RCR's communication channels often, its use by practitioners was rather infrequent and not always as innovative as its name would suggest. To me, this came as a surprise, as even I was aware of RCR's innovation lab prior to this study and therefore expected it to be somewhat the center of RCR's daily operations.

### ***Introduction event***

During the pre-study, a new innovative technology in the form of the ReaTouch was purchased and, after a period located in the children's department, was placed in the innovation lab. The ReaTouch is an interactive table. It has a large touchscreen as a tabletop and its height and inclination can be adjusted. On the device, one can play games that are aimed at training the hand and upper extremities and keep track of personal progress. In an effort to ensure practitioners would be able and willing to use this new product in the future, an intern at RCR organized a three-day introduction event. During these three days, the ReaTouch was placed in the main hall, right outside the innovation lab accompanied by the intern who invited passing-by practitioners to come and try it out. I was also present during these three days and assisted in showing and discussing the possibilities of the device.

After an initial phase of awkwardness, the practitioners became more used to seeing the device be present in the main hall. The intern was able to invite several dozens of practitioners over the span of three days. Despite some skeptical looks from afar, nearly all of the practitioners that got to try the ReaTouch showed very positive responses. Some practitioners also tried out the ReaTouch with their patients, which no matter their age, often, if not always, were very positive as well and stated to favor using the ReaTouch in their future treatment sessions. Both the functionality and ease of use were praised, the latter of which was especially emphasized by practitioners as important for the success of the ReaTouch. In addition, the effort that was made to introduce the ReaTouch was also valued by the practitioners, who claimed that these kinds of accessible 'workshops' really benefitted their confidence and ability to use novel products. Compared to the encounters I had in the innovation lab, this introduction event acquired the interest of much more practitioners from more different departments. The success of the introduction event for the ReaTouch indicated that there was at least some level of interest in innovative technologies from practitioners, despite the infrequent use of the technologies in the innovation lab.

### ***Results***

During and after the pre-study phase, I tried to make sense of all the information that had been presented to me in order to prepare for the go-along interviews that would follow. There were two first big things that I noticed during this phase. Firstly, innovative technology use, inside and outside of the innovation lab, was significantly lower and less prioritized by practitioners than I expected.

Secondly, although RCR expresses a lot about innovativeness and innovative technologies outwardly, inwardly innovation does not seem to have this central role.

The first statement I believe is due to two reasons. On the one hand, the use of innovative technologies within RCR simply has not nearly reached its maximum yet and is actually lower than one might reasonably expect. In addition, I believe that my expectations were set too high, to a large extent due to what I had previously read and seen online, and what I had heard about the organization from the community. This relates to the second statement. I noticed that innovation plays an important role in RCR's image to external stakeholders, as it is vividly present throughout different external communication channels and the innovation lab hosts outsider visitors now and then. Due to this, RCR is a well-known institute in the wider region and is associated with innovativeness. However, inwards, innovativeness, with for example the innovation lab, is not used as the core value of RCR as much. Vacancy messages and other messages meant for professionals, like the webpage 'Working at Roessingh', did not mention anything related to innovativeness or technology. In addition, statements from practitioners indicated that they did not prioritize the use of innovative technologies in treatments and did not feel as if they were expected to do so by the organization. This of course does not mean no innovative technology is used in RCR. Innovations are absolutely being used and, from what I have heard from practitioners, to a higher degree than in other rehabilitation centers. This is complemented by the success of the introduction event for the ReaTouch, which indicated the existence of an interest in innovative technologies from practitioners. The fact that a simple and accessible workshop like this received such positive feedback sparked my interest as well, as I wondered to what extent workshops and other innovation usage stimulating efforts had been made by the organization previously.

After the pre-study, I was aware of the interesting case that was in front of me and was excited to find out more about the culture at RCR. By doing go-along interviews with practitioners at RCR, I aimed to identify the ways in which the current culture at RCR affects innovation use and in which way more innovation use can be cultivated.

### **3 - Main study: Go-along interviews**

#### ***Method***

Through the insight into practitioners' experiences, thoughts and attitudes, go-along interviews were used to provide a qualitative analysis from an 'insider' perspective, ultimately to identify how the current culture at RCR affects innovation use and in which way more innovation use can be cultivated. The researcher went along with practitioners at RCR during their regular working hours. Based on the theoretical framework and the pre-study, several questions for the semi-structured interviews were prepared. Although video or audio recordings provide a rich data collection, due to privacy considerations regarding patients, no video or audio recordings were made during the go-along sessions. Instead, pen and paper were used to write down answers and to make notes of observations and other relevant information. To ensure that the collected data accurately reflected the opinions of the practitioners, the practitioners were consulted again once all data was collected to verify the accuracy of their data. All practitioners agreed with their transcripts.

Go-along interviewing is a research method in which the researcher literally 'goes along' with the participant during their daily work activities, making observations and asking questions throughout the day. This method allows the researcher to step into the world of the participant and, by being able to place statements of events and experiences into a spatial context, enable them to better understand the information presented to them (Clark & Emmel, 2010). In addition, being present in the environment to which the interview questions are related can improve the recollection and articulation of important information, enabling the participants to provide more detailed answers than when sitting in an interview room. Moreover, with the go-along method, the researcher is able to make observations and formulate questions that pick up on events or other relevant matters that occur during the day (J. Anderson, 2004; Clark & Emmel, 2010). Another benefit of the go-along

method is that it mitigates the time costs for the participant. Instead of freeing up time to answer questions in an interview room, the participant is able to simply go about their day as long as the researcher does not interrupt their activities too much. A drawback of this is that, depending on the nature of the environment in which the go-along interviews take place, the participant can be interrupted by working matters in the middle of an answer. Scheduling enough margin for interruption ensures that the impact of these potential interruptions on the data collection is mitigated. At last, the go-along method can also increase the openness of the participants. As the participants take the researcher with them in the environment in which they are the expert, it is likely that the participant will feel more comfortable and will be more open in the provision of information (Clark & Emmel, 2010). However, this may depend on the environment in which the interviews are held, as the presence of managers or customers, for example, may limit a participant's openness.

### *Procedure*

During the pre-study phase, practitioners were approached by the researcher, informed about the study, and asked to participate in the go-along interviews. In some cases, practitioners approached the researcher to participate after hearing about the study from colleagues. Appointments for the date and time of day (morning or afternoon) were made with participating practitioners in advance. The data collection took place during working hours at RCR. One participant was interviewed per go-along session and one go-along session was scheduled per day. Go-along sessions were scheduled for roughly four-hour periods, from the beginning of the working day until lunch or from lunch until the end of the working day. This was to ensure the researcher had time left after each session to organize and, where necessary, enrich the data when the go-along session was still fresh in memory. Prior to each go-along session, the participants were informed of their rights, and the procedure and purpose of the study, both written and verbally. After this, each participant signed an informed consent. Unsurprisingly, as this study took place in a rehabilitation center, patients of RCR were present quite often. In agreement with RCR's scientific council, it was decided that it was not required to also obtain informed consent from the patients because the study did not record any video or audio and was not interested in anything related to patients. Nonetheless, every patient that was present during the go-along interviews was informed about the nature of the study and was verbally asked permission for the session to continue. During the go-along session, the prepared questions were asked, supplemented by questions or topics of discussion that arose throughout the day. As the value of this study lies in the experience of the researcher, which these go-along interviews are part of, and because data saturation was reached after five four-hour sessions, five participants was deemed as sufficient for this study.

### *Instrument*

The go-along sessions consisted of semi-structured interview questions (see Appendix A) supplemented by questions and conversations that arose throughout the session and observations and notes made by the researcher. In general, the subjects of the prepared questions were related to the organization itself, the organizational culture, the participant's experience with innovative technologies within the organization, and the participant's attitude to innovative technologies in healthcare. Other topics were also discussed of course, as the nature of this method provided the participant and researcher with sufficient leeway to discuss other relevant matters that were not included in the prepared questions. When practitioners were occupied with treating patients, questions were not asked unless or until the practitioner made clear it was allowed to continue. After each session, when it was still fresh in memory, the written answers and notes were digitized, organized, and enriched with, for example, additional notes or explanations.

### *Participants*

For practitioners to be eligible to participate in the study, they had to not be part of the innovation lab work group, a group of various RCR employees responsible for the innovation lab and other innovative technologies within RCR. This criterion was made because practitioners that were part of this group were likely more innovation-minded and more involved than the average practitioner and

therefore may provide a view that does not represent the broader workforce. The number of participants was not determined beforehand but would be determined by feasibility and data saturation. Participants were recruited by sending emails, handing out pamphlets, and by personal conversations. In two cases, practitioners approached the researcher after they had heard about the study from others. The eventual sample size consisted of five participants. All participants (N=5) were practitioners at RCR, two of which were from the adults occupational therapy department and three of which were from the children's physiotherapy department. The participants had between 4 and 14 years of experience at RCR.

### *Analysis*

The data collection and analysis was performed by the author. The digitized data from the go-along interviews was analyzed using a reflexive thematic analysis.

Reflexive thematic analysis is widely used for analyzing qualitative data across social, behavioral and applied sciences (*Understanding TA*, n.d.). The reflexive thematic analysis method aims to establish thematic patterns within a dataset that correspond to the research question. These themes are derived by the researcher through a meticulous sequence of activities, including data familiarization, data coding, and theme development and revision (*Understanding TA*, n.d.). In this type of analysis, the role of the researcher is central to the approach. The coding is not used to passively lead to the formation of themes, instead, the coding is used as a tool for making sense of the data, after which the researcher actively develops the themes based on an interplay between theoretical assumptions, personal experience, analytical skills, and the data itself (Braun & Clarke, 2019).

As the value of this analysis relies on the researcher's subjectivity, based on reflective and thoughtful engagement with the data, coding reliability is not required or even desired. In order to perform the analysis, the digitized data was imported to the software program Atlas.ti. Within Atlas.ti, all the data from the go-along interviews was coded. After multiple rounds of coding, a coding scheme was developed that I was satisfied with and which was used to code all the data (see Appendix B). During coding and especially after all the data was coded, initial themes were developed. Numerous revisions lead to the development of four final main themes, each consisting of subthemes. These themes describe the current organizational culture at RCR and the limiting effect it may have on the innovation implementation at RCR.



## Results

Based on the information gathered from the theoretical framework, the pre-study, and the go-along interviews, I developed and formulated four main themes that, together, describe the current organizational culture at RCR and the limiting effect it may have on the innovation implementation at RCR. The four themes are formulated as follows:

- Time constraints hamper the ability to become familiar and experienced with innovative technology and to use it
- The organization creates an environment of non-obligation for practitioners to use innovative technology
- Practitioners do not view innovative technology as a central element of their work
- Certain available innovative technologies are mediocre in ease of use, reliability, and/or continuity

The themes are not arranged based on significance. Instead, they are arranged based on the levels at which they foremostly play, merely to provide the themes in a clear, predictable order. These levels are: healthcare level, organizational level, workforce level, product level. An overview of these main themes, including their subthemes with descriptions and examples, is presented in Table 1 through 4. In the sections that follow, the themes will be discussed in detail.

*Theme 1: Time constraints hamper the ability to become familiar and experienced with innovative technology and to use it*

This first theme captures the way in which the high workload of the healthcare environment impacts the practitioners' ability to spend time on familiarizing themselves with the innovations that are present at the organization and get experienced in using them.

**Table 1**

*Overview of theme 1: Time constraints hamper the ability to become familiar and experienced with innovative technology and to use it*

<b>Subthemes</b>	<b>Description</b>	<b>Examples</b>
Familiarization hampered by time constraints	Time constraints limit the ability of practitioners to get familiar and experienced with the available innovative technology	<i>"A lot of money is put into the innovation lab, and therefore also in the products. That's not the issue. There is of course time pressure. The lack of time means that there is a limited opportunity to acquire information and knowledge."</i>
Use hampered by time constraints	Time constraints limit the ability to go to, setup and/or use the available innovative technology	<i>"Here [at the children's department], you are reliant on yourself or on your colleagues. So if something is empty or not working, the next step is to come up with an alternative approach for what you want to do with the client because there is no time to troubleshoot during a treatment."</i>

Time constraints were often stated to lead to decisions that were unfavorable for innovation use. Participants made many statements similar to the following:

*"...If often takes a lot of time to familiarize oneself with new innovative technologies. Usually, there is not enough time available, or people are not willing to invest the time because there is a high demand for production (doing treatments)..."*

Healthcare is notorious for its shortage in staff and full schedules. The rehabilitation sector is no different. I personally witnessed the schedules of the practitioners at RCR and can only confirm that their schedules are tightly packed. However, one would argue that even without specifically dedicating time to familiarization with innovations, over time, practitioners should be able to build up experience during time dedicated to treatments. This is correct, but two aspects should not be overlooked. The first is that besides treating patients, a practitioner also spends a significant amount of time doing other activities that do not allow for innovation familiarization to occur as a side effect.

Besides the expected administrative duties and keeping up with their email, practitioners also spend time assisting patients in other important matters, such as the acquisition of financial and/or material arrangements with the municipality, or making complex casts used to make orthotics. During one of the go-along interviews, I was present during an appointment with a patient who needed to prove their need for a specialized wheelchair to the municipality by filming the difference between their ease of movement with and without said wheelchair. The whole appointment roughly took 1,5 hours. Later during that go-along, I was present at the making of a complex cast. Again, this appointment took close to 1,5 hours. During these three hours, the practitioner had no opportunity to become any more experienced in using innovative technology.

The second aspect that should not be overlooked is that time that is actually spent treating patients also has little room for familiarization or building experience with innovative technology. Treatment sessions typically take half an hour. Some technologies present in the innovation lab can, sometimes unexpectedly, take quite some time to set up or get working. During my presence in the innovation lab as part of the pre-study, I witnessed one dedicated practitioner spend fifteen minutes trying to get the product they wanted their patient to use to get to work. This was merely possible because instead of half an hour, a full hour was scheduled for that particular treatment session, and the practitioner showed particular dedication to using that technology. For regular treatment sessions, the second statement in Table 1 is more accurate. It indicates that due to time constraints, practitioners are often forced to come up with other activities that are reliable and quick, which often are the more traditional methods such as simply using household objects.

In addition, despite the innovation lab being so centrally located, some departments are still too distanced from it to make effective use of it. Especially for the children's department, traveling to and from the innovation lab takes up too much time or even energy in most cases. This problem is clearly reflected by the following two statements:

*"The innovation lab is located at a considerable distance from the pediatric ward. Therefore, it is very challenging to bring clients to the innovation lab as it consumes a significant portion of the treatment time and requires a lot of energy."*

*"It is also not always clear in advance whether the device is available or not, so sometimes it's a guessing game. It is quite a distance to the room where the device is located, so if it turns out to be unavailable upon arrival, a significant amount of treatment time is lost."*

This of course does not mean that using new technologies is impossible; practitioners are using innovations regularly as well after all. Practitioners are even allowed to spend a certain amount of dedicated time to familiarize themselves or become experienced with the innovative technologies. However, in practice, it is often unfeasible to make use of this time due to time constraints and the importance of treating patients. Familiarizing with innovative technologies and becoming experienced with them despite the severe time constraints is possible. However, currently, this requires a significant amount of dedication and active decision-making from the practitioners, which in practice naturally leads to a low degree of innovative technology use.

*Theme 2: The organization creates an environment of non-obligation for practitioners to use innovative technology*

This second theme refers to the way in which the organization's actions lead to a suboptimal environment to use innovative technology, with a lot of initiative required from practitioners. The actions of the organization, or lack thereof, create an environment of non-obligation for practitioners to make use of the available technologies.

**Table 2**

*Overview of theme 2: The organization creates an environment of non-obligation for practitioners to use innovative technology*

<b>Subthemes</b>	<b>Description</b>	<b>Examples</b>
Lack of innovation focus in training period	The training period for new employees does not specifically include the available innovative technologies	<i>"Lack of specific focus on innovations within Roessingh. The onboarding program primarily focuses on practical aspects to get started and smoothly navigate working at Roessingh. However, besides the general tour of the entire building, including the innovation lab, there is no specific attention given to this area."</i>
Lack of sustained proactivity	The organization shows little proactivity in the support of innovative technology use after its initial installment (i.e. informing/reminding, providing guides, continuous workshops and technical support)	<i>"A more active role can be taken in the so-called aftercare of the products. As mentioned earlier, everything is very optional. After the introductory phase of a new product, it becomes quiet again regarding that product. There are no recurring workshops or similar activities, and there is no reminder of the presence and possibilities of the product."</i>
Irregular and inconvenient workshops	Workshops are organized irregularly and outside of working hours (during breaks or weekends)	<i>"Often, when a new product is purchased, there are 1 or 2 occasions where you can receive tutorials on how it works. However, if for any reason you cannot attend those sessions, you are out of luck, so to speak. These kinds of moments are almost always outside of working hours, either during breaks, in the evenings, or on weekends."</i>
Innovation-avoiding policy	The '80% production'-policy actively discourages familiarization and gaining experience with innovative technology	<i>"In principle, there are also hours that can be allocated for practicing with innovative technology, but no matter what, it is mandatory to meet the 80% productivity rate. If you are tight on time, you are unlikely to choose to allocate hours for figuring out new techniques when you can use those hours to treat patients."</i>
Lack of expectations and/or pressure	The organization conveys little to no expectation or pressure towards its practitioners to use innovative technologies	<i>"Indirectly, there may be a certain expectation. For example, if you look at certain appointed positions like an innovation manager, you can sense a particular aspiration that indirectly implies certain expectations. However, not in any direct way whatsoever."</i>

This environment of non-obligation to use innovative technology is already created at the very start of every practitioner's career at RCR. As discussed in the pre-study section, there is no mention of anything related to innovativeness or technology in the job offerings posted by RCR, or on the webpages of the RCR website discussing what it is like to work at the organization. This trend continues once practitioners have been hired, as during the training period of new practitioners innovation has no significant role, as indicated by the following statement:

*"I was fortunate. At that time, I received one hour of explanation about the innovation lab from a colleague who was familiar with it, but that is not the case for everyone. The onboarding manual does not have a specific section on the innovation lab or the innovative products within Roessingh. Interest in the products must come from the practitioner themselves, and they have to approach the right people to learn more. For new practitioners, it is very easy to get caught up in the daily routine of others, so if the rest of the team is not heavily involved in innovative technology, the new colleague is unlikely to engage in it either.."*

While external visitors are given a distinct tour through the innovation lab, as discussed in the pre-study, newly hired practitioners do not receive such a tour or other specific focus on innovation. Besides making it more difficult for any new practitioner to start using the available technologies, the absence of focus on the innovativeness at RCR is also an immediate signal about the priorities of the organization. Consequently, 'regular' new practitioners are likely to make minimal or no use of the available technology. Those who do have an internal interest in the innovations at RCR will need to proactively make decisions and take initiative in expressing their interest to others in order to become informed about and experienced with the innovations. For employees on their first day(s), typically focused on acclimating and going along with the existing workflow, this may be too much to ask.

Additionally, the organization shows little initiative in the implementation of the available technologies for a longer period. Although the organization is acknowledged for its proactivity in the phases prior to the implementation phase (researching potential new products, purchasing new products, arranging an introductory workshop), it is clear that after this period, things come to a standstill and sustained proactivity is lacking. This is described in the following statement:

*"The organization demonstrates a lot of proactivity when acquiring new innovations. Sometimes, this proactivity extends to the initial promotion of the new product, but afterward, there is no repetition. Once that phase is over, everything becomes optional, and there is no further push to ensure that individuals learn about and use the product. From that point on, the active role falls on the practitioners."*

According to the practitioners, the organization lacks proactivity after the introduction period of a new product and possibilities for improvement exist:

*"There are often no concrete plans, both in terms of general innovation and on an individual product level. As a result, a significant portion of the responsibility lies with the practitioners to make something out of it and take action."*

*"But there are more opportunities to trigger people to engage more with innovative technology. Returning more frequently and "bothering" people (jokingly) instead of mentioning it once and then letting it go. There are more chances for proactivity in that regard."*

*"A more active role can be taken in the so-called aftercare of the products. [...] There are no recurring workshops or similar activities, and there is no reminder of the presence and possibilities of the product."*

Currently, the organization does not sufficiently mediate successful implementation of the new innovative technologies. Although they do provide information, workshops and guides, these efforts discontinue rather quickly. With workshops occurring once a year, new practitioners or those who want to update their knowledge and ability often have to wait months before a workshop is given again. Additionally, guides for the products do exist, but often times practitioners have to look for them online, either on RCR's intranet or on the webpage of the product's supplier. This, again, requires initiative from the practitioners.

*"Information is available, but it requires a lot of personal initiative. You need to have a basic level of interest yourself in order to access the manuals and instructions."*

In addition, communicative efforts also come to a standstill shortly after the introduction of a new technology. Especially in the period when a product is losing its 'newness', the organization should make efforts to keep it relevant for longer by informing practitioners about its existence and its usefulness. As it is currently, the discontinuation of this sort of marketing campaign for the innovations after their introduction indicates to the practitioners that it does not actually matter whether the products are implemented or not.

Furthermore, there is little to no on-site technical support for the innovative technologies. There is one diligent employee who currently is the makeshift, unofficial technical support for most of the technologies present and who has been very useful. However, they are of course not always present and do not always have the time or knowledge to help. The importance of the presence of technical support is indicated by this statement:

*"The technical department of Roessingh is not responsible for the devices in the innovation lab. Occasionally, there is someone available who can assist with startup and troubleshooting certain issues, but not always. Most colleagues are aware of this, but it is not official. The lack of technical support is discouraging."*

*"It is important to have [technical support] as it can lower the barrier to getting started. Knowing that there is someone readily available to assist when something is not working or if you encounter difficulties."*

The statements above clearly show the importance of having technical support present, as its absence may lead to practitioners avoiding the use of the innovations. It also implies the importance of the skill and confidence of practitioners, and therefore the importance of workshops. As mentioned previously, workshops are usually given right at the introduction of a product and are usually repeated once a year. New practitioners and those who miss the workshop need to wait up to a year to be able to attend one again. Moreover, the workshops that are given are almost always outside of working hours, such as lunch breaks, evenings, or weekends. This is a great inconvenience for the practitioners, making them more likely to miss one of the few workshops.

*"Regarding workshops, they are indeed provided, such as the one for Zero-G. However, if for any reason you cannot attend that workshop, you're out of luck. Sometimes, an email is sent with information about the opportunity to practice with a specific product, but it always requires your own time."*

Besides insufficiently training practitioners, the irregularity and inconvenience of the workshops have another downside. The few workshops and the fact that they are almost always outside working hours indicate to the workforce that using the innovative technologies in treatments is not seen as a core activity of practitioners. The sense that innovation use is not part of the core tasks of practitioners is enhanced by the '80% production' policy. This policy is in place due to rough times for rehabilitation centers, including RCR, and it entails that 80% of practitioners' time should be spent treating patients. As the implementation of innovative technologies relies heavily on the initiative of the practitioners, the '80% production' policy negatively affects activities that are related to innovation use, such as familiarization.

*"80% of your time should be dedicated to production (doing treatments). If this is not met, you will be called in for a discussion."*

Finally, there exists a general lack of expectation or pressure from the organization towards its practitioners with regards to the use of innovative technology.

*"There are no specific requirements or instructions. There are no consequences or anything of the sort when using so-called traditional methods. They are more like optional expectations, so to speak.."*

As discussed previously, the actions of the organization reflect its priorities and send a signal to the workforce regarding the valuation of using innovative technologies. These implied expectations have not been favorable for innovation use. In addition, the organization does not actively state any expectation, let alone impose a certain pressure, regarding the working behavior of their practitioners. It is stated that one *might* feel some sense of expectation based on the fact that RCR is known for its innovativeness, the existence of the innovation lab, and because RCR has appointed positions in the organization such as 'innovation manager'. However, it is also stated, as can be read in the statement above, that this potential sense of expectation is not actually felt. Instead, there exists a sense of non-obligation among the practitioners.

All in all, the lack of proactivity of the organization results in a lack of the necessary tools and skills for practitioners to successfully implement innovative technologies without barriers. Currently, the road to the successful implementation of innovative technology consists of too many small barriers and relies too heavily on the initiative of the practitioners. Combining this road to implementation with the previously discussed signals sent by the organization's actions creates an environment in which successful innovation implementation is too unlikely to occur.

To close, the following statement provides a concise but fitting description of this theme:

*"Roessingh is actively involved in articulating its mission and vision and implementing innovative technologies. There is a department dedicated to the innovation lab, and new products are occasionally acquired. Upon the arrival of a new product, the organization often pays attention to it through emails, intranet communications, and small workshop/explanation sessions. Therefore, the organization is proactive during the introduction phase, and it also reflects the mission and vision externally. However, when it comes to the actual long-term implementation in the workplace, the responsibility is largely passed on to the practitioners themselves. It becomes more of an optional approach. Perhaps more attention could be given to reduce this sense of optional implementation, to encourage the long-term usage of products and exert a bit more push in that regard."*

### Theme 3: Practitioners do not view innovative technology as a central element of their work

The third theme captures the sentiment of practitioners regarding the use of innovative technology. It describes how they do not view using innovative technology as a central element of their work and therefore make little extra effort towards the implementation of innovation.

**Table 3**

Overview of theme 3: Practitioners do not view innovative technology as a central element of their work

<b>Subthemes</b>	<b>Description</b>	<b>Examples</b>
Prioritization of care provision	Providing care is highly valued by practitioners and is prioritized over other activities (i.e. familiarizing themselves with innovative technology)	<i>"That's what the profession is about, treating patients. Sometimes it can feel like you're letting your patients down when you spend time on other activities, even though those activities may be beneficial."</i>
Skepticism towards innovative technology	Practitioners are skeptical regarding the usefulness of innovative technology and believe it has a limited, mainly supportive role in healthcare	<i>"The role of innovative technology is to serve as an extension of the treatment. It should provide opportunities that were previously unavailable or had to be approached differently. It should not replace the treatment itself because the technology is often not capable or user-friendly enough for that purpose."</i>
Lack of peer expectation and/or pressure	Practitioners do not expect/demand colleagues to use innovative technology	<i>"There is no specific pressure or expectation among colleagues to make use of the available innovations. If there is any pressure or expectation, it is more likely to come from within oneself."</i>
Lack of ownership	Practitioners have little to no sense of involvement or ownership in/with the available innovative technologies	<i>"No, not really. Just a little bit. Sometimes it feels like "we need to have innovative things, so we'll buy those products." There are representatives from the department, hence the "little bit," but personally not involved. But this is not perceived as negative either."</i>

For a large part, this view originates from the practitioners' preferences or prioritization regarding the division of their work. All practitioners got into their profession for their love of providing care for others. Especially in the fields of physiotherapy and occupational therapy, a very hands-on healthcare profession, practitioners like to spend their time caring for their patients and making a difference for them. It is therefore that the provision of care is prioritized over other activities, such as spending time learning about and practicing with innovative technologies.

Besides their preference for providing care, some practitioners also indicate that they lack the necessary active interest (not disinterest) in innovative technology to spend their time familiarizing themselves with it. They acknowledge that while it is possible to spend at least some time on familiarization and practice, they simply do not have enough interest in doing so for them to overcome the feeling that they are letting their patients or colleagues down when they are not spending time treating patients.

*"If I had that interest [in technology], I think there would be a lot of potential. However, I feel reluctant to actually take the time for it because there are children on the waiting list whom I would then be neglecting and/or because colleagues would have to take over my work."*

This prioritization of providing care over other activities is paired with a certain level of skepticism regarding the usefulness of innovative technology in healthcare. Most practitioners do highlight the possibility that innovative technology can provide added value to healthcare for certain cases.

*"Technology provides added value when it offers new options. It should offer new options that were not or hardly possible before. For example, think of a speech computer. Thanks to that technology, a client can make themselves heard and communicate in their own way."*

*"Innovative technology plays a supportive role in rehabilitation care. It is not a replacement for existing methods but contributes most to the quality of care when the innovation offers new possibilities that were not or difficult to achieve with traditional methods. Innovative technologies do not have a central role; they should not be an end in themselves."*

However, the general consensus is that while there are opportunities for added value in certain situations, most of the innovative technologies do not provide real benefits to the care that is provided. Reasons for this sentiment that are often given are the ease of use of the technology, its limited functionalities, and its overlap with more traditional methods which are often quicker and sometimes better.

*"Innovative technology can certainly contribute to the children's department, but it can be just as easy to grab physical objects and practice with them. That is faster and sometimes works better."*

*"It is shared when someone has had a positive experience or something similar. However, there is some negativity hanging around, like "It doesn't work anyway." But of course, nobody is looked upon for using it.."*

During the well-received introduction event for the ReaTouch, the newly purchased product, practitioners often mentioned that one of the main benefits was not related to the technological side of the product, but rather the setting in which it could be used. The product could be used by two persons at a time, enabling practitioners to either participate in the exercises with their patients or let two patients use the machine at the same time. Many of the exercises could be replicated using regular physical objects, but the ReaTouch provided a more engaging form of these exercises for the patients. In this way, the technology supported the traditional method and added value to it without replacing it. The fact that out of all the possibilities of the device, this was one of the most mentioned benefits describes the view of practitioners regarding the role and potential benefits of innovative technology in healthcare.

Although there was at least some level of skepticism among all practitioners, one practitioner stated that there was some difference between the attitudes of the 'old guard' and the younger practitioners, with the older practitioners having less positive attitudes towards technology in healthcare. Reasons for this discrepancy were believed to be related to the curiosity and open-mindedness of the younger practitioners, but also because they are better able to use the technology, decreasing the barrier to start using it or at least giving it a try. This again highlights the importance of skills and confidence, and therefore, as discussed previously, the importance of workshops.

The sentiment of the practitioners regarding innovative technology in healthcare is reflected by the inexistence of 'peer pressure' or rather 'peer expectation' to make use of the technologies that RCR has to offer. As practitioners do not view the usage of innovative technology as a central element of their job, they also do not expect from their colleagues that they make use of it. All practitioners indicated the same when asked about the existence of expectations or demands from peers, with most answers being as clear as a simple 'No'.

*"No, there isn't really any pressure or expectation among colleagues to make use of the available innovations. If there is any pressure or expectation, it is more likely coming from yourself."*

The potential for someone to feel a sense of expectation from within themselves was stated to stem from the fact that RCR is known for its innovative character and because 'we live in modern times'. However, it must be noted that this was mainly stated as a hypothesized possibility, as only one practitioner stated to actually feel a little bit of this sense of expectation towards themselves.

Despite the lack of peer expectation, there is one innovation that practitioners expect others to make use of. This is the online telerehabilitation portal. According to practitioners, this portal is expected to be used by colleagues because, during the implementation, its use had been pushed by the organization for a long period of time.

*"For example, with the tele-rehabilitation portal, there has been a strong push [by the organization] for its use and the expectation is that everyone should utilize it. There is a mutual expectation among individuals regarding its usage. However, with other products, this expectation is less prevalent."*

Despite being a different type of innovation than the physical products at the innovation lab, the portal can still be used as a clear indicator of the possibility for practitioners to shift their view regarding an innovation. Because the organization clearly expected its practitioners to make use of this product, and because the value of this product relies on all practitioners to make use of it, practitioners now expect each other to use the portal. In this case, the common expectation of practitioners towards each other does not necessarily stem from their prior personal views regarding this technology. Rather, it mostly originates from the continued efforts of the organization to emphasize the importance of using the technology. This stimulated the initial use of the portal, and once the portal was used by practitioners and they experienced its usefulness, resulted in the organization-wide, long-term implementation. The case of the telerehabilitation portal therefore emphasizes the importance of the continuation of efforts by the organization to stimulate innovation use. In addition, it indicates that despite their view of innovative technology in healthcare, it is possible to let practitioners view certain technologies as a central element of their work and for them to expect colleagues to do so as well.

At last, practitioners stated to have little to no sense of ownership for the innovative technologies that are currently present at RCR. They described that they do receive some information when a product is purchased and will be placed in the organization, but emphasized that they are solely receivers of information and do not have active involvement in most of the innovations.

*"There is some level of involvement in implementing a product in the workplace, but not much involvement in the procurement of products. There is a lack of ownership for the products. "Involvement" here refers more to being informed about the process rather than actively participating in it."*

*"No, personally I'm not. However, there are representatives from the department who do that, and I feel represented by them. It doesn't feel like products are being imposed, but rather I simply don't feel involved, both actively and passively, in the process and the products. There is no sense of ownership."*

There is one product however for which some practitioners do feel a sense of involvement and ownership, which is the ArmeoPower. Despite its low usage, which is largely due to the small number of practitioners with the required skill, practitioners state that the sense of involvement and ownership is because practitioners got more actively involved in the purchase of this product. Because the product was quite expensive and would require some training, practitioners were involved in several meetings and discussions prior to the purchase of the product. Based on these meetings, it was decided that the ArmeoPower would be purchased. Because of their involvement in this process, practitioners mention some sense of ownership for the device.

To continue, these statements clearly mention an almost complete lack of ownership among practitioners, while also describing the contentness of the practitioners in this regard. These statements reflect the view of practitioners that using innovative technologies is not a central element of their work, because if they did see it as such, the practitioners would most likely not be as content with their lack of involvement as they currently are.



At last, the second statement mentions the feeling that certain products are purchased because the organization believes it simply has to have innovative technology. The idea that the innovativeness of the organization for a large part is done for the identity of the organization is shared among some practitioners:

*"Innovative technology plays a significant role in the identity of Roessingh; it is central and positioned as a focal point. Innovative technology takes higher priority at Roessingh compared to innovative methods. Technology is more tangible and visible."*

*"...there are instances where a product that is functioning well and is actively used in a department gets removed and taken to the innovation lab for greater visibility. This goes against the intended purpose because now that it is in the innovation lab, the product is hardly used.."*

This sentiment also came forward during the pre-study. For practitioners, this feeling can both be the antecedent to the lack of ownership, as well as the result of the lack of ownership. Nonetheless, it paints a picture of the practitioner's skeptical view of innovative technology in the organization. As practitioners prioritize providing care to patients over other activities, are skeptical regarding innovative technologies in healthcare, show no expectation towards colleagues to make use of the innovations, and have little to no sense of ownership in the technologies present at RCR, it becomes clear that practitioners do not view innovative technologies as a central element of their profession.

*Theme 4: Certain available innovative technologies are mediocre in use, reliability and/or continuity*

The last theme describes the way in which certain innovative technologies that are currently present have limited possibilities for long-term implementation due to their suboptimal ease of use, reliability and continued support by the supplier.

**Table 4**

*Overview of theme 4: Certain available innovative technologies are mediocre in use, reliability and/or continuity*

<b>Subthemes</b>	<b>Description</b>	<b>Examples</b>
Ease of use and reliability mediocrity	Certain available innovative technologies can be challenging to setup and use reliably	<i>"Often, things are simply just placed in the innovation lab. There may be a brief workshop or explanation (usually during free time like lunch break), but that doesn't necessarily make you capable of using the product flawlessly, especially when the product itself doesn't always work flawlessly. Sometimes there is a manual available, but you have to actively seek it out yourself."</i>
Continuous support mediocrity	Certain available innovative technologies do not have sufficient support from the supplier/manufacturer (i.e. replacement parts, software updates)	<i>"And sometimes things are purchased that raise some questions. Money could be better spent on commercial products with long-term support after the purchase, rather than on prototypes, for example, from students. There is no network behind them that guarantees updates, improvements, or replacement parts for an extended period of time."</i>

Practitioners have stated that due to the mediocre ease of use and reliability of certain products, they do not feel comfortable making use of them, even after having participated in a workshop. This is in part because, as previously discussed, there is no official technical support available and treatment sessions do not grant sufficient room for practitioners to troubleshoot for themselves once a problem occurs. The first statement also reflects elements of the second theme, as it highlights the required initiative of the practitioners to gather informational resources in order to educate themselves when needed.

Additionally, practitioners have stated the importance of having products that are commercially available, as those tend to have reliable supply networks and long-term support in terms of software and replacement parts. Because RCR often cooperates with students from the University of Twente, they often receive or purchase prototype products. The students responsible for these products often are unable to provide continued support for these products. This results in a short lifespan of said products, which of course, limits the possibility for long-term implementation in treatments.

Because of the mediocrity of the ease of use, reliability, and continued support of certain innovative technologies at RCR, practitioners are unlikely to successfully implement these technologies into their work.

## Summary

Due to the high workload prevalent in the healthcare sector, there is limited opportunity for practitioners to familiarize themselves with innovative technology and practice using it. Additionally, practitioners generally do not have a strong focus on innovation and technology, as their primary motivation for practicing their profession is caring for people.

The organization could play a supportive role by removing or reducing barriers that hinder the use of innovative technology as much as possible. However, the organization primarily demonstrates proactivity in the preliminary research and procurement phases of products but lacks proactivity in the long-term implementation in the workplace. This includes ongoing communication about the possibilities and added value of products, organizing recurring workshops, actively providing manuals, and ensuring technical support. Currently, utilizing innovative technology requires a significant degree of initiative from practitioners.

Furthermore, the organization does not ensure that practitioners actively engage with innovative technology by stating expectations or imposing requirements. On the contrary. During the training period of new practitioners, there is no emphasis on innovation. In addition, the organization articulates no expectations, schedules workshops outside working hours, and implements policies that actively discourage familiarization and practice with innovative technology. Besides not lowering barriers, these actions convey the message that the use of innovative technology is not considered a core responsibility, which reinforces how practitioners perceive innovative technology.

At last, practitioners consider some of the products at RCR not sufficiently effective for sustained use. Consequently, practitioners often adopt a skeptical attitude towards the usefulness of innovative technology in healthcare and envision a limited role for it. As practitioners do not particularly possess the inherent motivation to use innovative technology and are not encouraged by the organization, they also do not encourage each other to embrace innovative technology. New practitioners who did not receive encouragement to use innovative technology during their training period are therefore unlikely to receive it from their colleagues.

## 4 - Discussion

This study contributes to research on organizational culture and innovation implementation in rehabilitation care. It does so by exploring how various aspects of organizational culture together can affect innovation implementation. The research question this study aimed to answer was:

*How does the current organizational culture at RCR affect innovation implementation by practitioners in rehabilitation care?*

Although it is challenging to concisely formulate an answer to such a complex question, the research question is answered as follows: The organization effectively leverages external communication to establish a strong association with innovation by the public. It demonstrates its innovative intentions by actively exploring and acquiring additional innovative technologies. As a result, the practitioners are aware of the organization's innovative image and acknowledge its commitment to fostering innovation. However, the organization demonstrates insufficient proactivity in the implementation phase of innovative technology, placing a significant portion of responsibility on the practitioners themselves. The combination of a high workload, a lack of proactivity by the organization, and practitioners' views on innovative technology in healthcare contributes to an organizational culture where the engagement with and use of innovative technology is given low priority.

The following chapter will further discuss the implications of the results and provide practical recommendations for RCR and rehabilitation care in general. In addition, the limitations of this study, a reflection on the used methods, and avenues for future studies will be discussed.

## ***Discussion of the results***

One of the things that came forward during this study was the impact of time constraints on the practitioners' ability to engage with innovative technology. As practitioners' time is limited, the choice to invest time in engaging with innovative technology requires a lot of commitment from their side. Time constraints are not limited to rehabilitation care, but are prevalent throughout the whole healthcare sector (World Health Organization, 2023). Since this is a sector-wide problem, for a single organization like RCR, there is limited potential for actions that are directly aimed at solving this problem.

What can be done, however, is mitigate the time costs for practitioners to familiarize themselves with, practice with, and use innovative technology. In addition, efforts can be made towards positively changing the view of practitioners regarding the role of innovative technology in their profession. Reducing the required time and effort mitigates the impact of time constraints. It also lowers the barriers that stand in the way of engagement with innovation, increasing the likeliness that practitioners will choose to familiarize themselves with, practice with, and use innovative technologies. Additionally, by positively changing the view of practitioners, it becomes even more likely that practitioners will possess sufficient motivation and commitment to overcome the remaining barriers, resulting in more frequent and sustained use of innovative technology (Hartmann, 2006; Kairy et al., 2014).

The organization can limit the amount and height of the barriers by more proactively supporting practitioners during the implementation phase (Kairy et al., 2014; Slåtten, Lien, Lupina, et al., 2019). Practitioners stated that often a significant amount of initiative is required for them to gain knowledge about an innovation. Ensuring that practitioners have quick and easy access to informational resources, like actively providing simple general instructions and detailed user manuals is a relatively simple way of lowering barriers. This not only reduces the time it takes to gather information and fill knowledge gaps, but it also reduces the psychological costs of gathering information, thereby lowering both a time-related barrier as well as an effort-related barrier (Hartmann, 2006). This can be done by ensuring the physical presence of general guides or user manuals. If, for whatever reason, online guides and manuals are preferred, using QR codes might prove to be a viable solution to ensure quick and easy access.

One practitioner also emphasized the potential benefit of repeatedly "spamming" people with reminders that included information about a product. Actively, properly and repeatedly informing practitioners about the existence and possibilities of a technology could therefore be another relatively simple way of stimulating innovation implementation. An added benefit is that practitioners being better informed may prevent misunderstanding and prejudices (Hartmann, 2006). This is in line with a previous master thesis study at RCR, where it was shown that the usage rate of a new online portal was significantly higher for practitioners that reported being informed about the possibilities of the portal, compared to practitioners that reported to lack knowledge about its possibilities (Groot Nibbelink, 2019). Furthermore, those that did not make use of the portal reported believing the portal would significantly (negatively) influence their way of working, whereas those that actually did make use of the portal reported not experiencing a significant change in their work at all (Groot Nibbelink, 2019). This indicates the importance of properly informing practitioners continuously throughout the implementation of an innovation. This can be achieved through email and intranet, but could also be accompanied by physically distributing information, for example by distributing pamphlets or posters in the innovation lab and in the departments.

Accessible informational resources are also part of what Wallace et al. (2013) describe as a high employee involvement climate, which they see as vital for an innovative organizational culture. In addition, being able to continually update knowledge and personally develop, for example by attending workshops, is also part of this climate. Ongoing workshops are critical for innovation implementation (Hartmann, 2006; Powell et al., 2011). The importance of providing continuous workshops was also stated in the study of Groot Nibbelink (2019). Since there is no specific focus on

innovativeness during training periods of new practitioners, and as workshops at RCR currently are still scarce and provided outside of working hours, there is definitely room for improvement in this regard. As workshops, especially when planned during working hours, potentially put more pressure on the schedule of practitioners, this recommendation is likely less simple to implement. Practitioners are often skeptical of the usefulness of innovative technology. Providing proper information and the ability to gain experience with the innovation, for example through workshops, may help mitigate the skepticism and improve the view of practitioners, as was shown in the previous study at RCR (Groot Nibbelink, 2019). In addition, according to practitioners, prototypes and other products that lack continuous support from manufacturers should be mostly avoided. Focusing on products with proven benefits and continuous support may help in reducing the skepticism among practitioners. Planning dedicated, recurring workshops during working hours may be difficult to implement due to time constraints. However, a compromise could be made. As the introduction of the ReaTouch was a success, the organization could organize similar events for other innovations as well. Dedicated workshops for new innovations that recur once a year and are planned outside working hours could be complemented by more accessible 'refresh' events comparable to the ReaTouch introduction, which can be organized multiple times a year and for multiple innovations at once.

As was just mentioned, besides reducing barriers, the organization can also further stimulate innovation implementation by improving the view of practitioners regarding the role of innovative technology in their work. The potential for improvement starts already before a practitioner is part of RCR. Emphasizing innovation and technology more on communication aimed at professionals, like LinkedIn, vacancy messages, and the webpage 'Working at Roessingh' are examples of changes that are simple to implement. These changes alone will most likely not yield significant results, but at the very least they reinforce RCR's image of innovativeness to future as well as current employees.

In addition, practitioners state to not experience any sense of expectation from the organization regarding the use of innovative technology. This is likely due to the lack of proactivity of the organization during the implementation phase. De Jong & Den Hartog (2007) describe 'innovative role-modeling' as the first key leadership activity for cultivating innovation, which is in line with other studies (Du & Wang, 2022; Kairy et al., 2014; Martins & Martins, 2002). Every effort the organization makes towards improving its support, for example by means as discussed previously, will therefore also serve as a signal that indicates that innovation implementation is expected and valued (Dorenbosch et al., 2005; Martins & Martins, 2002). Moreover, explicitly stating expectations can further improve the view of practitioners. Developing more concrete implementation plans, the lack of which was mentioned by one of the practitioners, and setting measurable goals and objectives are ways of explicitly stating expectations, and these activities have been shown to be effective in improving innovative behavior (Martins & Martins, 2002). However, these activities are very complex. The way and extent to which these can or even should be implemented varies from case to case, requires a different scope of the research and expertise of the researcher, and is potential for future studies.

Nudging or pushing behavior in a desired direction, for example by setting goals and objectives leads to another interesting aspect in this study, which is job autonomy. Partly due to the tailored nature of rehabilitation care, the practitioners have a lot of autonomy in the way they perform their work. In literature, job autonomy is described as having a stimulating effect on innovation (De Jong & Den Hartog, 2007; Martins & Martins, 2002; Mutonyi et al., 2022; Slåtten & Mehmetoglu, 2011). These studies, however, assume a scenario in which the workforce is inherently innovative but is restricted by the organization. In the case of this study, however, the job autonomy present at RCR is arguably part of the reason for the lack of innovation implementation. The '80% production'-policy, the only 'breach' in the autonomy at RCR, is unfavorable for engagement with innovations as it limits the time a practitioner is able to spend on engaging with innovations. By providing complete autonomy over the use (or non-use) of innovative technology while imposing a rule about the time division of practitioners, the organization creates an environment that limits engagement with innovative technology and it again sends a signal that innovative technology use is not viewed as a

core element of practitioners' work. As practitioners experience severe time constraints and do not view innovative technology use as a central element of their job, and because the organization insufficiently enables and promotes it, job autonomy at RCR allows practitioners to perform little innovation implementation. The role of job autonomy in relation to innovativeness might therefore be more double-sided than generally has been described in literature. Bysted (2013) and Yuan & Woodman (2010) do, however, mention the *limited* effect of job autonomy on innovative work behavior for certain employees. It is stated that employees with moderately unfavorable attitudes related to innovation and limited willingness to overcome the risks associated with being innovative are less able to use the freedom that is granted by job autonomy (Bysted, 2013). However, these studies limit innovative work behavior to idea generation, excluding the element of innovative employee behavior that De Jong & Den Hartog (2007) describe as application behavior. Additionally, these studies claim job autonomy's positive effect can be limited, whereas here it is argued that the job autonomy at RCR might negatively contribute to innovation implementation. Therefore, it remains interesting to find out more about the effects and role of job autonomy in relation to innovation implementation in cases with similar conditions as in this study.

At last, practitioners stated to hardly feel any sense of involvement in or ownership for the innovative technologies present at RCR. Although practitioners state to view this as fine, more actively involving them and creating a sense of ownership among practitioners may prove to be beneficial for innovation implementation, as many studies emphasize the significance of employee involvement and ownership in relation to innovative work behavior (Amabile et al., 2004; De Jong & Den Hartog 2007; Dorenbosch et al., 2005; Martins & Martins, 2002). Although not the focus of this study, to some extent this is confirmed by the findings of this study, as the results indicated that the one product some practitioners do feel a sense of ownership for is the ArmeoPower, an innovation where practitioners got more involved in early during the adoption stage. Although some studies advocate for granting employees an active role in decision-making processes (Martins & Martins, 2002), this might not be feasible, needed, or even desired in each case. Simply involving practitioners at earlier stages by actively providing information may prove to be sufficient for a shift in view regarding innovative technology. Finding the right level and method of actively involving practitioners who state to be 'fine' with not being directly involved in an environment that is characterized by time pressure makes an interesting avenue for future research.

By acknowledging the current ways in which the organizational culture affects innovation implementation and taking action accordingly, an environment with fewer and lower barriers and a culture that is more innovative can be created which, together, may result in more successful innovation implementation.

### **Practical recommendations**

In the discussion of the results, some opportunities to implement interventions were already discussed. Below, an overview of all recommendations, applicable for both RCR and rehabilitation care in general, is given.

- **Emphasize innovation in external communication aimed at professionals.** Examples of places where innovation should be emphasized (more) are vacancy messages, 'Working at Roessingh' webpage, and the RCR LinkedIn profile page.
- **Actively inform and involve practitioners throughout the adoption stage of an innovation.** Communicate about interest for potential new products, their abilities and envisioned use. Address potential questions and provide ways of giving feedback.
- **Actively and repeatedly inform practitioners about the presence and possibilities of an innovation during its implementation stage.** Examples of approaches that can be used to remind practitioners are email, intranet, and posters/pamphlets distributed in the innovation lab and in departments.
- **Ensure quick and easy access to supportive informational resources.** Examples of informational resources that should be readily available are general use guides and detailed user manuals. These can be physically available but could also be accessed digitally using QR-codes.
- **Ensure practitioners possess the skills and knowledge to use the innovations.** Firstly, dedicate specific focus to innovation during the training period of new practitioners. Secondly, offer dedicated workshops for new innovations that also recur yearly. Finally, offer accessible 'refresh' events for established innovations multiple times a year.
- **Ensure innovations have proven benefits and are reliably and continuously supported by manufacturers.** Limit the use of prototypes or experimental products made by students for example. Instead, focus on products with proven usefulness and continuous support from manufacturers in terms of software and hardware.
- **Ensure reliable internal technical support to help with setting up and solving problems.** Technology should be setup and ready to be used at the beginning of each day. Additionally, appoint one or several employees with sufficient skill and knowledge as dedicated technical support.
- **Develop concrete implementation plans for innovation.** These may include goals and objectives, and should be developed and communicated prior the implementation of the innovation.
- **Avoid policies that hinder engagement with innovation.** Although its necessity is clear, the '80% production'-policy is an example of a policy that should be avoided.

## ***Discussion of the study***

Despite offering valuable and insightful results, the study was subject to several limitations. First, the limitations of this study will be elaborated. Recommendations for researchers who intend to conduct studies that employ similar methods will be discussed as well. Followingly, avenues for future research will be provided and discussed.

### *Limitations*

Due to using go-along interviews, the usefulness of which is heavily based on the willingness of potential participants, it was difficult to establish a targeted amount and variety of participants beforehand. In the case of this study, the use of this method resulted in five participants, divided over two departments. Although this is not a large amount or varied group of participants, due to the intense qualitative nature and the length of the interview sessions, a significant amount and richness of data was collected. Additionally, there were significant differences between the two departments in terms of profession as well as location within the organization. Despite these differences, the data provided by participants of the different departments mostly corresponded with one another. Therefore, since data saturation was reached, even with two significantly different departments, the group of five participants was satisfactory for the explorative purposes of this study.

Secondly, as it was not possible to make audio or video recordings during the go-along sessions, due to privacy considerations concerned with the presence of patients, less raw data has been collected than was possible in principle. This could be considered a limitation. However, by properly preparing the go-along sessions, diligently writing as much as possible, and by working in a structured way, still as much data was collected as possible. Therefore, the amount and the richness of the collected data are not considered to be a limitation of this study. Moreover, due to writing all the data personally by hand, a lot of time and effort was saved during the data familiarization process of the thematic analysis. Furthermore, it is plausible that participants felt more comfortable and were more transparent in their answers due to the absence of recording equipment. Finally, to ensure data was formulated in a way that accurately reflected the opinions of the practitioners, practitioners were consulted again once all data was collected to confirm the validity of the data.

Finally, due to the explorative nature of this study, it was able to provide a valuable set of insights and recommendations regarding the organizational culture at RCR and the way it affects innovation implementation. However, despite being able to provide valuable insights and implications for both RCR and rehabilitation care in general, due to the relatively short duration of this study, there is no possibility to implement recommendations, even on a small scale, and investigate their potential effects.

### *Method recommendations*

The method used in this study proved to be very effective for gathering qualitative data and providing qualitative insight. For those that are interested in using a similar method of research, it is recommended that some time is scheduled dedicated to familiarization with the context and its group of potential participants. Besides being better able to interpret the provided answers and, where needed, link them to their relevant context, it also allows the context and its group of potential participants (in this study the organization and its practitioners) to become more accustomed to you as the researcher as well. It is plausible that this two-way familiarization process resulted in increased willingness of practitioners to participate in the go-along sessions, compared to if they would have been approached 'cold'.

In addition, although the use of recording equipment is not a necessity for the validity of the collected data, when the context in which the go-along sessions take place is of critical importance to the interpretation of and value of the information it is recommended to make use of video-recording equipment. In the case that recording equipment is not possible or needed, it is recommended to ensure you are able to collect data at a high tempo. I personally view using a tablet as the best option in this regard. A tablet, with a small keyboard connected to it, might allow the researcher to write



down information quicker than when using pen and paper. Additionally, it still allows the same flexibility as pen and paper when it comes to quickly drawing visual information, like graphs, models, or visual context representations.

At last, it is recommended to schedule enough time per go-along session. Due to the unpredictability of go-along sessions, periods can arise during which it is not possible to ask questions to participants. The more time is available, the more ensured you are that all prepared questions can be asked while still having space for spontaneous conversations and interactions. What constitutes as 'enough' depends on the topic and context of the study. For cases that are similar to this study (those that make use of long and in-depth interview sessions but with fewer participants; and where participants may be unable to converse with the researcher for some periods) at least 4 hours (half a working day) is recommended.

#### *Future research*

In previous sections, several avenues for future research have been mentioned. One larger general topic was the effect and role of job autonomy in the implementation of innovative technologies. Job autonomy is most often described to be a critical element for fostering innovation. However, in this study, it is argued that job autonomy can also negatively contribute to innovation implementation, as it can allow the default, non-innovative, behavior to be performed limitless. This suggests that job autonomy functions as an amplifier, with added positive effects when conditions are right for innovation implementation, but with negative effects when sub-optimal conditions for innovation implementation are present. Further research about the effect and role of job autonomy on innovation implementation in contexts with sub-optimal innovation characteristics, like time constraints and moderately unfavorable employee attitudes is recommended. As this avenue for further research is rather broad, other avenues for further research that are to some extent related, but more concrete, are recommended as well and are discussed below.

One of the recommendations emphasizes the need for greater practitioner involvement throughout the adoption and implementation phases. However, involving practitioners who express contentment with limited involvement and operate in time-constraint environments, is easier said than done. As practitioners are content with their current involvement, have other responsibilities and because their time is limited, striking a balance between adequately involving practitioners without annoying them or overly interrupting their ability to effectively perform their work is crucial. The most effective approach for practitioner involvement, for example by physical meetings versus digital communication, is also important to identify. It is therefore recommended to do further qualitative research aimed at identifying the optimal level and method of practitioner engagement. Such a study could follow a sequential approach, beginning with an exploratory qualitative study that incorporates interviews with practitioners, as well as individuals in management or leadership roles, to identify important factors and effective methods according to these professionals' perspectives. Subsequently, a larger survey study involving individuals in management and leadership positions from multiple organizations could be conducted to determine to which extent the previous findings are shared and to prioritize them. Finally, a participatory study, involving both practitioners and managers/leaders, could focus on translating the findings into practice and identifying the most effective approaches for involving practitioners.

Additionally, the results of this study highlighted a notable absence of proactivity of the organization in setting examples and stating expectations. This is reinforced by a statement of one of the practitioners, who emphasized the lack of specific and concrete implementation plans. Consequently, one of the recommendations that was put forward suggests the need to develop more concrete implementation plans prior to implementing an innovation. However, this is once again easier said than done, primarily due to the customized nature of rehabilitation care. Developing implementation plans for more standardized healthcare procedures may be less complex compared to developing plans for specialized, individually tailored rehabilitation care. Therefore, it is recommended to conduct further research aimed at identifying how effective policies and plans can be developed and

implemented that are concrete enough to properly guide innovation implementation while maintaining enough flexibility needed for the tailor-made nature of rehabilitation care. Such a study could follow a similar approach of consulting professionals, identifying commonalities and prioritizing, and developing effective approaches, as described in the previous section.

Further, it is recommended to conduct several similar studies in different rehabilitation centers to better identify recurring organizational culture elements and themes within rehabilitation care in general. Based on the findings of these studies, further research can be recommended that delves deeper into the themes or problems that were found to be prevalent.

Finally, there may be some potential for a different avenue of future research. As it was indicated that practitioners hold caring for patients in high regard, it may be interesting to explore how practitioners can be motivated to use innovative technology by means of their patients. During the introduction event of the ReaTouch, practitioners as well as patients got to experience the innovation. As patients responded positively to using the ReaTouch, practitioners may be more likely to use the ReaTouch more often. Qualitative research aimed at finding out to which extent and in which way patients can be used to nudge practitioners may therefore be very valuable.

## **5 - Conclusion**

Overall, by utilizing go-along interviews, this two-phase research was able to effectively map out the organizational culture of RCR. Following a reflexive thematic analysis, four themes were developed that together offer valuable insights into how the organizational culture affects innovation implementation by practitioners in the workplace. In doing so, it was able to answer the following research question:

*How does the current organizational culture at RCR affect innovation implementation by practitioners in rehabilitation care?*

The organization effectively leverages external communication to establish a strong association with innovation by the public. It showcases its dedication to innovation by actively exploring and procuring innovative technologies. Consequently, the practitioners are aware of the organization's image of innovativeness and acknowledge its willingness to be innovative. However, the organization demonstrates inadequate proactivity during the implementation phase of innovative technology, placing a considerable burden of responsibility on the practitioners, and creating a sub-optimal environment for innovation implementation that is characterized by non-obligation to utilize technology. A combination of heavy workloads and time constraints, organizational passivity, and practitioners' views on innovative technology in healthcare fosters an organizational culture where engagement with and utilization of innovative technology are given low priority.

Followingly, the study has been able to offer a set of valuable general recommendations applicable to both RCR and the rehabilitation care sector. Furthermore, as the purpose of this study was mainly explorative, promising avenues for future research that may also include perspectives from managers and leaders, and provide further insights and more descriptive recommendations, were offered.

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## Appendix A. Semi-structured interview scheme

- Wat is volgens jou de identiteit van het Roessingh? Waar staat het Roessingh voor?  
*Welke rol speelt innovatieve technologie in de identiteit van het Roessingh*  
*Welke rol speelt innovatieve technologie in de revalidatie zorg volgens jou?*
- In hoeverre voel je je onderdeel van of betrokken bij het Roessingh? Heb je een gevoel van verbondenheid met de organisatie; en in verhouding met je eigen afdeling?
- Innovatieve technologie hebben een belangrijke plek in de missie en visie van het Roessingh. In hoeverre vind je dat het vanuit de organisatie jou wordt mogelijk gemaakt/je wordt gestimuleerd om innovatieve technologie toe te passen in je werk, door middel van:
  - Beschikbare tijd/geld/materiaal (resources)
  - Aangeboden kennis (workshops, instructies, handleidingen, etc.)
  - Technische ondersteuning (hulp bij gebruik, aanzetten, problemen oplossen etc.)
  - Verwachtingen, eisen, instructies (..om gebruik te maken van innovaties)
  - Steun/waardering/beloning (voor het gebruiken van/tonen van interesse in innovaties)
  - Zelfstandigheid/vrijheid (om te oefenen/experimenteren met het gebruik van innovaties)
- In hoeverre vind je dat de organisatie een actieve rol heeft ingenomen bij het stimuleren van het gebruik van innovatieve technologie?
- In hoeverre vind je dat je vanuit collega's gestimuleerd wordt om innovatieve technologie toe te passen, door middel van:
  - Enthousiasme/steun (versus er op aangekeken worden)
  - Aanbevelingen ('Dit werkte goed bij mij, zou je ook eens moeten proberen')
  - Druk/verwachting
  - Aanbieden van kennis/hulp
- Hoe was de beginperiode bij het binnenkomen van het Roessingh? In hoeverre was er begeleiding en kennisverstrekking over de aanwezigheid en mogelijkheden van de technologieën bij het Roessingh en het gebruik hiervan?
- Voel je je betrokken bij de aanschaf en implementatie van nieuwe producten, waarom wel/niet?
- Kan je een voorbeeld geven van een product waarbij je je betrokken voelde/voelt? En waarbij niet?

## **Appendix B. Coding-scheme**

### **1 - Roessingh/Organisatie**

- 1.1 - Handelingen Roessingh m.b.t. innovatieve technologie
  - 1.1.1 - *Voorbereiding/aanschaf fase*
  - 1.1.2 - *Implementatiefase (korte termijn)*
  - 1.1.3 - *Implementatie fase (lange termijn)*
- 1.2 - Uitingen Roessingh m.b.t. innovatieve technologie
  - 1.2.1 - *Interne uitingen*
  - 1.2.2 - *Openbare uitingen*
- 1.3 - Identiteit van het Roessingh
  - 1.3.1 - *Specialistische zorg*
  - 1.3.2 - *Innovatieve technologie*
  - 1.3.3 - *Zorgvraag georiënteerd*
- 1.4 - Negatieve context factoren
  - 1.4.1 - *Financieel zware periode*
  - 1.4.2 - *Hoge werkdruk*

### **2 - Ondersteuning vanuit organisatie**

- 2.1 - Resources
  - 2.1.1 - *Tijd*
  - 2.1.2 - *Geld*
  - 2.1.3 - *Materiaal*
- 2.2 - Informatie
  - 2.2.1 - *Workshops/training*
  - 2.2.2 - *Instructies/handleidingen*
  - 2.2.3 - *Communicatie*
- 2.3 - Technische ondersteuning
  - 2.3.1 - *Probleem oplossen (live)*
  - 2.3.2 - *Vragen beantwoorden*
  - 2.3.3 - *Hulp bij gebruik (live)*
- 2.4 - Zelfstandigheid/Vrijheid

### **3 - Stimulering vanuit organisatie**

- 3.1 - Verwachtingen/eisen
- 3.2 - Waardering/beloning

### **4 - Ondersteuning vanuit collega's**

- 4.1 - Kennis delen
- 4.2 - Hulp bieden

### **5 - Stimulering vanuit collega's**

- 5.1 - Enthousiasme/steun
- 5.2 - Druk/verwachting

### **6 - Behandelaren**

- 6.1 - Druk/verwachting vanuit zichzelf
- 6.2 - Verbondenheid met organisatie
- 6.3 - Betrokkenheid bij organisatie
- 6.4 - Sentiment t.o.v. innovatieve technologie
  - 6.4.1 - *Gebruiksgemak*
  - 6.4.2 - *Toegevoegde waarde*
  - 6.4.3 - *Betrouwbaarheid*
  - 6.4.4 - *Rol van vaardigheid/zelfverzekerdheid*
- 6.5 - Sentiment t.o.v. revalidatiezorg

### **96 - Suggestie**

### **97 - Inwerk periode**

**98 - Actief/passief**

98.1 - Actief

98.2 - Passie

**99 - Waardering/aanwezigheid**

99.1 - Positief (aanwezig)

99.2 - Neutraal/niet aanwezig

99.3 - Negatief (aanwezig)

99.4 - Verdeeld