# The effect of incentives on the implementation and upscaling of healthcare innovations

*Taking ZonMw's IOC subsidy as a case study*

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# Abstract

**Background**
The Dutch healthcare system faces significant pressure due to an aging population and a shortage of healthcare professionals. Innovations are essential for improving patient outcomes, efficiency, and sustainability. However, implementation and scaling face barriers such as resistance to change, financial constraints, and regulatory challenges. The ZonMw IOC subsidy program, introduced in 2020, provides up to €10,000 per application for hiring external coaches to support healthcare innovation.

**Theoretical Framework**
The study employs a conceptual model analysing relationships between independent variables (coaching characteristics), dependent variables (learning ability and organizational value creation), and context variables (perceived value, acceptance by healthcare professionals, organizational readiness, and regulatory influences). It also considers confounding variables (innovation type, number of IOC rounds, organization size, and sector) and moderating variables (goal achievement and satisfaction with support).

**Methodology**
Using a mixed-methods approach, quantitative and qualitative data were collected from organizations participating in the IOC program. The data was collected through a survey, with a total of 67 respondents. Quantitative data were analysed using statistical methods to measure the impact of coaching on learning ability and value creation. Qualitative data, obtained through open-ended survey responses, were thematically analysed.

**Results**
The findings reveal key factors in healthcare innovation. Goal achievement and diverse coaching activities significantly boost value creation and learning ability. Acceptance by healthcare professionals and organizational readiness positively affect outcomes, while regulatory content and perceived value do not. Qualitative data highlight the importance of tailored support, structured planning, and clear communication.

**Discussion**
This study provides critical recommendations for ZonMw to enhance the implementation and scaling of healthcare innovations. Emphasizing targeted, high-quality coaching sessions tailored to organizational needs can improve outcomes. Improving communication strategies by training coaches and providing standardized template are advised. Increasing healthcare professional engagement through workshops and decision-making involvement is crucial for fostering a supportive culture and enhancing innovation adoption. Policy recommendations include developing funding mechanisms for professional development, training implementation specialists, and fostering a collaborative innovation ecosystem.

**Conclusion**
The research demonstrates that financial incentives and expert coaching are pivotal for the implementation and scaling of healthcare innovations. However, their impact is heavily influenced by the quality and focus of coaching, the readiness of the organization, and the engagement of healthcare professionals. The findings suggest that the IOC subsidy program significantly impacts the implementation and scaling of healthcare innovation.

# Table of Contents

# 1. Introduction

The healthcare system of the Netherlands is under significant pressure. An aging population, which escalated from 12.8% in 1990 to 20.2% in 2022 (CBS, 2023), has led to heightened healthcare demands and an increase in chronic diseases, thereby exerting strain on the healthcare infrastructure. As of 2023, a shortage of 56,000 healthcare professionals has been identified across various sectors, including hospitals, nursing homes, youth, and disability care. Projections indicate a further increase in these shortages beyond 2026, which could result in amplified workloads and a threat to the overall quality of care (Smits, 2023). These findings underscore the urgent need for innovative approaches to ensure the sustainability and efficacy of the Dutch healthcare system.

Healthcare innovation is crucial for achieving improved patient outcomes, cost-effective care, enhanced access, and addressing global health challenges. Innovations improve efficiency, support healthcare professionals, and foster scientific advancements (Weintraub & McKee, 2018). Technological advancements and the introduction of novel healthcare practices contribute to early disease detection, personalized treatments, and improved patient management, leading to better health outcomes and increased patient satisfaction. Additionally, these innovations enhance work productivity, which is essential for the sustainability of healthcare systems (Greenhalgh et al., 2004; Rogers, 2003). Thus, healthcare innovation is vital for creating an environment that supports continuous improvement, implementation, and scale-up.

However, healthcare innovation often encounters significant hurdles in implementation and scaling, including resistance to change rooted in organizational culture and financial constraints (Greenhalgh et al., 2017; Greenhalgh et al., 2004; Savignac, 2007). Regulatory challenges, system interoperability issues, and the complexity of healthcare settings further impede effective implementation (Greenhalgh et al., 2017; Damschroder et al., 2009). Addressing these barriers requires strategic approaches such as engaging stakeholders, advocating for supportive policies, and developing adaptable technologies (Liberati et al., 2017).

Incentives, both financial and policy-driven, are essential for promoting the implementation or scaling of healthcare innovations. Financial incentives, such as grants and subsidies, reduce economic obstacles by providing the necessary funds for research, development, and initial adoption of new technologies. These incentives motivate healthcare providers to integrate advanced technologies by offsetting the initial costs and risks associated with innovation (Clemens & Gottlieb, 2012; Glaser, 2007; Flodgren et al., 2011). Policy-driven incentives, including streamlined regulatory processes and tax benefits, simplify the bureaucratic complexities that organizations often face, thereby accelerating the approval and deployment of new solutions (Johnson et al., 2017). These mechanisms create a supportive environment that encourages healthcare organizations to invest in and adopt innovative practices. Strategic utilization of these incentives enhances healthcare systems' innovation capabilities, ultimately leading to improved healthcare outcomes.

Previous research has explored both barriers to and enablers of healthcare innovation across policy, organizational, and technological domains (Desveaux et al., 2019; Lluch, 2011). Despite this, a gap remains in understanding how incentives such as coaching and financial support can effectively overcome these obstacles. While discussions have explored how theories of change guide innovation and government policies support innovation environments (Grol & Wensing, 2004; Stewart et al., 2018), there remains a need for a comprehensive evaluation of incentive effectiveness in healthcare innovation. Studies acknowledge the potential of financial incentives to change healthcare practices by providing economic motivation for adopting new technologies (Flodgren et al., 2011) and suggest their importance in scaling innovations by expanding successful projects to broader settings (Wickremasinghe et al., 2018; Scott et al., 2018), but evidence on their effectiveness and application is limited. These studies highlight the necessity for comprehensive examination of financial incentives' effectiveness in healthcare innovation implementation and scaling, informing evidence-based strategies for broader healthcare enhancement. This gap presents an opportunity for future research to optimize incentives for greater impact in healthcare innovation implementation and scalability.

The ZonMw Innovation and Implementation Coaching (IOC) subsidy, introduced in 2020, supports healthcare innovation implementation and scale-up by providing up to €10,000 per application for hiring external coaches. These coaches, chosen for their expertise, offer tailored guidance in various aspects, including formulating implementation plans and training care providers. By helping to develop comprehensive implementation strategies, coaches address organizational barriers such as lack of clear planning and direction. Training care providers directly tackles educational and skill-related barriers, ensuring that staff are well-prepared to adopt new technologies and processes. Additionally, coaches assist in selecting suitable innovations, developing business cases, and securing funding, which are crucial for overcoming financial and logistical barriers. With 713 coaching trajectories initiated across eight subsidy rounds, the IOC program has supported diverse healthcare innovations, from e-health technologies to organizational process improvements. By facilitating coaching and support, the IOC program assists organizations in navigating complexities, leading to improvements in patient care and organizational efficiency (ZonMw, 2020; ZonMw, 2021).

This research aimed to evaluate the effectiveness of the Innovation and Implementation Coaching (IOC) subsidy program, as initiated by ZonMw, in facilitating the scale-up and implementation of healthcare innovations. Effectiveness was assessed through the organization’s ability to learn and adapt (degree of learning ability), and the tangible benefits generated by the innovations (level of value creation). The degree of learning ability was measured by how well organizations integrated new knowledge and practices obtained by participating in the IOC into their organization. The level of value creation was assessed by the outcomes resulting from the innovations that were implemented or scaled up within the IOC projects, such as enhanced patient care, increased efficiency, and cost savings. The research focused on understanding how expert coaching provided by the financial support from the IOC program influenced the successful implementation and scale-up of innovations within healthcare settings. By analysing the outcomes of projects supported by the IOC program and the support provided by the coach, this research offers insights into how such incentives contribute to overcoming barriers to healthcare innovation.

The research question guiding this study was:

**"What is the impact of incentives on implementation and scaling up of healthcare innovations, taking ZonMw's Implementation and Upscaling Coaching (IOC) Subsidy Program as a case study?"**

While this research focuses on the IOC program, it acknowledges that conclusions drawn may not be generalizable to all types of financial incentives in healthcare innovation. Nonetheless, from a practical perspective, the results of this research contribute to demonstrating how financial support, such as the IOC subsidy, effectively reduces barriers for implementation and scale-up of innovations in the healthcare system. The research informs policymakers, including those working at research councils, innovation support organizations, and government health departments, about the effectiveness of financial-driven incentives in promoting healthcare innovations, aiding in the development of supportive policies.

To address the research question, this thesis incorporates the following chapters. Chapter 2 introduces the theoretical framework. It starts with the conceptual model, where the dependent variables 'Learning Ability' and 'Level of Value Creation' are explained. Next, the independent variables “Number of Sessions with Coach”, “Type of Activities Engaged with the Coach”, “Type of Coach”, and “Type of Content Contributed by the Coach” are introduced, followed by context variables from the NASSS framework by Greenhalgh et al. (2017). Chapter 3 details the methodology, explaining data sources, and methods. Chapter 4 presents the results, where the quantitative and qualitative results are presented. Chapter 5 discusses the theoretical and practical contribution of this research, and gives an overview on the research’s limitations and presents suggestions for further research. Finally, in chapter 6, conclusions are drawn regarding the results and analysis.

# 2. Theory

This research addresses the gap in the literature concerning the impact of incentives on the implementation and scaling of healthcare innovations. It evaluates the effectiveness of the ZonMw Innovation and Implementation Coaching (IOC) subsidy program, which supports healthcare innovation by providing financial incentives and expert coaching. The conceptual model presented below, which is grounded in relevant theoretical frameworks, summarizes the relationships between various variables analysed during the study.

Figure 1 provides a visual representation of the conceptual model used in this research. The model illustrates the relationships between independent variables, dependent variables, context variables, confounding variables, and moderating variables. This model is not only a summary of the research design but also a tool to explain the theoretical support of each variable and their interactions based on existing literature.

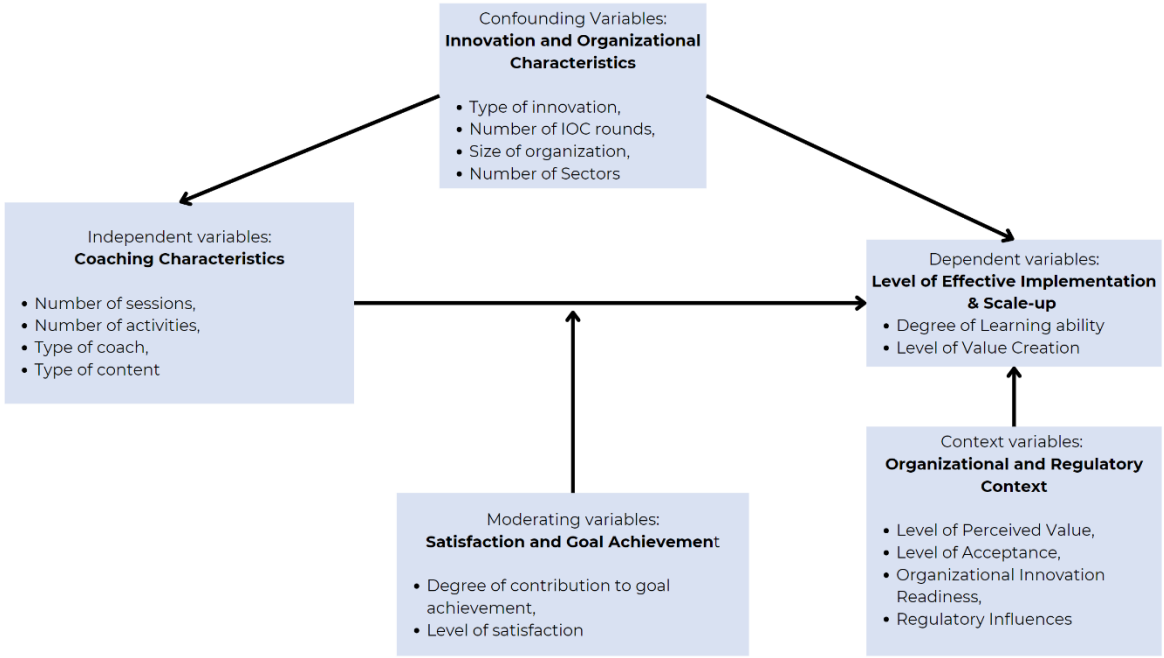


**Figure 1: Conceptual Model of the Research**

Since this study investigates a complex phenomenon, it involves many variables. To structure and reduce complexity, related variables were grouped together into broader dimensions. In this model, the independent variable, Coaching Characteristics, includes dimensions such as coaching session frequency, activity diversity, type of coach, and coach contributions, which directly influence the dependent variables. The dependent variable, effective implementation and scale-up, encompasses dimensions such as learning ability and organizational value creation.

Context variables from the NASSS framework (e.g., perceived value, acceptance by healthcare professionals, organizational innovation readiness, and regulatory influences) provide context on how the independent variables impact the dependent variables. The confounding variable, Innovation and Organizational Characteristics, includes dimensions like

innovation type, the number of IOC rounds, organization size, and sector of the organization, which are considered to control for external factors that might skew the observed relationships. The moderating variable, with dimensions such as goal achievement and satisfaction with support, affect the strength or direction of the relationship between the independent and dependent variables. Specifically, high goal achievement and satisfaction with support can enhance the positive effects of coaching characteristics on learning ability and value creation, while low goal achievement and satisfaction might weaken these effects.

## 2.1 Variables Overview

This chapter is organized to provide a detailed explanation of the conceptual model and the theoretical underpinnings of the research variables. The dependent variables in section 2.2 explain how the IOC program enhances the learning ability and value creation of healthcare organizations, supported by theoretical insights. The 2.3 section details the independent variables, such as the number of sessions with the coach, number of activities engaged in with the coach, the type of coach, and the type of content contributed by the coach, and their theoretical foundations. Following this in section 2.4, the context variables introduced by the NASSS framework are discussed, explaining their impact on the research. The chapter then identifies and explains four confounding variables and their potential influence on the observed relationships in section 2.5. Finally, the moderating variables, such as goal achievement and satisfaction with support, are explained in section 2.6 to show how they alter the impact of coaching on learning and value creation outcomes.

## 2.2 Dependent variables

Within the projects funded by the IOC subsidy, organizations collaborate with a coach. This coach serves as a key asset in addressing implementation or scale-up challenges encountered by the organizations. This is particularly significant in the current healthcare landscape, characterized by escalating pressure on healthcare systems to adopt innovative solutions that enhance patient care, streamline processes, and reduce costs (Keown et al, 2014; Marjanovic et al., 2020, Herzlinger, 2006). The IOC program operationalizes implementation and scale-up through a dual effect: firstly, by enhancing the learning capacity of innovators and organizations. This involves equipping them with the skills and knowledge necessary to effectively integrate and expand new technologies or practices within their organizational contexts. As organizations engage in the IOC program, they accrue valuable experience and insights, facilitating easier future innovations through applied learning from the project.

Secondly, the IOC program increases the level of value creation, signifying that the innovation significantly enhances organizational outcomes. By participating in an IOC project, innovations are better integrated and supported, thereby amplifying their impact and value within the organization. This approach ensures that organizations not only implement innovations effectively but also sustain and scale them, thereby fostering systemic improvements in healthcare delivery.

### 2.2.1 Degree of Learning Ability

The learning ability in the domain of healthcare innovations is multifaceted, encompassing the capacity to develop, implement, and scale innovative solutions effectively (Maddox et al., 2017; Carpenter et al., 2018; Berta et al., 2005). The IOC enhances this ability by providing innovators with access to specialized knowledge, networks, and resources through collaboration with a coach (ZonMW, 2020). According to Bessant and Tidd (2015), learning in innovation is a critical determinant of success, where the ability to adapt and evolve ideas in response to feedback and challenges significantly enhances the innovation's viability and impact. The IOC subsidy, by facilitating tailored coaching sessions, workshops, and networking opportunities, has the possibility to act as a driver for this adaptive learning process.

Moreover, the coaching element of the IOC could help foster a culture of continuous learning and improvement. Coaches with expertise in implementation and scale-up could guide organizations through the complexities of the healthcare ecosystem, regulatory compliance, and market adoption strategies. This guidance is invaluable, as noted by Edmondson (2019), who emphasizes the role of expert coaching in accelerating the learning cycles of innovation teams, thereby reducing the time to market and increasing the chances of successful implementation. This leads to the following operationalization:

**Organizations that participate in the IOC subsidy program and receive coaching are expected to exhibit a higher learning capability. This learning capability can be measured by the extent to which they effectively integrate new knowledge and practices, adapt to feedback, and demonstrate improved innovation outcomes, such as successful implementation and scaling of healthcare innovations.**

### 2.2.2 Level of Value Creation

The level of value creation refers to the tangible and intangible benefits that healthcare innovations deliver to patients, providers, and the healthcare system at large (Lee, 2018; Fjeldstad et al., 2019). The IOC impacts this variable by ensuring that innovations are not only technically sound but also aligned with the needs and expectations of the healthcare market.

Value creation is further amplified through the strategic guidance provided by IOC coaches. This guidance helps innovators refine their value propositions, making their solutions more attractive to healthcare providers, insurers, and patients. According to Osterwalder and Pigneur (2010), a compelling value proposition is essential for securing the adoption and diffusion of innovations in competitive markets. The IOC supports this by assisting innovators in identifying the benefits of their solutions, thus facilitating broader acceptance and integration into healthcare practices. This leads to the following operationalization:

**Organizations that participate in the IOC subsidy program and receive coaching are expected to demonstrate a higher level of realized value creation. This value creation can be measured by improved patient outcomes, enhanced operational efficiency, and other tangible benefits. By participating in the IOC program, organizations are better equipped to implement and scale healthcare innovations effectively, as the coaching and resources provided help to maximize the tangible benefits of these innovations.**

## 2.3 Independent Variables Impacting Learning Ability and Level of Value Creation

To explore the impact of the IOC on learning ability and value creation in healthcare innovations, the analysis will include additional independent variables. These encompass sessions with the coach, activities engaged, coach type, and contributed content by the coach.

### 2.3.1 Number of Direct Sessions with Coach

The frequency of direct interaction with a coach can significantly influence the depth and breadth of learning for healthcare innovators. More direct sessions allow for a more thorough exploration of the innovation's challenges, opportunities for refinement, and strategies for implementation and scale-up (Jones et al., 2015; Deiorio et al., 2016; Thom et al., 2014). According to a study by Kozlowski and Ilgen (2006), iterative feedback and sustained engagement in learning activities lead to higher performance outcomes in complex tasks. In the context of healthcare innovation, increased direct coaching sessions enable innovators to adapt more effectively to feedback, refine their approach, and navigate the complexities of healthcare systems, thereby enhancing the learning ability and potentially increasing the innovation's value creation by ensuring more tailored and effective solutions (Lyng et al., 2021). This leads to the following hypothesis:

**The higher direct of sessions with the coach the higher the innovators' learning ability and the extent of value creation, because increased interaction with the coach allows comprehensive problem exploration, refining opportunities, and strategy development, it aligns with the advantages of iterative feedback and continuous involvement in intricate tasks.**

### 2.3.2 Number of Activities Engaged with the Coach

The type of activities undertaken with the coach—ranging from brainstorming sessions, training, to stakeholder engagement strategies—plays a crucial role in shaping the innovation's implementation and scale-up. Engaging in a diverse set of activities can foster a comprehensive understanding of the innovation process (Storbacka & Nenonen, 2015). Diverse activities expose participants to a wide range of perspectives and skills, enhancing their ability to tackle complex problems. As Hargadon and Sutton (1997) highlight, bridging disparate pieces of knowledge through diverse activities can lead to innovative breakthroughs. This diversity activities equip organizations with a variety of tools and approaches, enhancing their understanding and ability to implement innovations successfully.

Examples of coach activities (ZonMw, 2022):

- Selecting suitable innovations and setting implementation conditions
- Developing implementation plans
- Training healthcare providers in new methods
- Creating scaling protocols for healthcare innovations
- Helping finding a relevant network
- Understanding laws and regulations
- Addressing system barriers
- Developing business cases and securing funding

This leads to the following hypothesis:

**The higher variety of activities engaged with the coach the higher the innovators' learning capacity and the extent of value creation, because engaging in a varied range of activities fosters a more comprehensive understanding of the innovation process.**

### 2.3.3 Type of Coach

The coach's background—whether in consulting, healthcare, innovation development, implementation specialization, or change management—can significantly influence the direction and success of the innovation. A coach with a strong healthcare background may offer invaluable insights into patient needs and healthcare system intricacies, while an innovation developer-focused coach might emphasize innovation's technical aspects and integration with existing systems. The alignment between the coach's expertise and the specific innovation barriers faced by the organization is critical for maximizing learning and value creation. Bingham and Eisenhardt (2011) discuss how the match between advisor expertise and venture needs is crucial for startup success. In healthcare innovation, the right match can accelerate the development process, enhance the innovation's relevance, and increase its potential impact on the healthcare system (Rousseau et al., 2013; Boyce et al., 2010). Therefore, the background of the coach can directly influence how effectively these barriers are addressed, ultimately shaping the innovation process. This leads to the following hypothesis:

**The type of coach can directly impact the learning ability of the innovators and the level of value creation, because the coach's background and expertise are crucially aligned with the specific needs and challenges of the healthcare innovation, bringing diverse skills and perspectives to the process.**

### 2.3.4 Type of Content Contributed by the Coach

The content contributed by the coach, encompassing knowledge about the innovation process—such as industry insights, technical knowledge, regulatory guidance, or market strategies—adds another layer of complexity and potential impact on the innovation process. The specificity and relevance of this content can significantly enhance the learning ability of the organization by providing targeted knowledge and strategies that are immediately applicable to their challenges (Rousseau et al., 2013; Marvel et al., 2020).

This transfer of knowledge from the coach to the organization helps with the successful implementation and scale-up of innovations during the IOC project. By equipping the organization with industry insights, technical knowledge, regulatory guidance, and market strategies, the coach ensures that the organization is better prepared to navigate the complexities of the innovation process. This content can directly influence the level of value creation by ensuring that the innovation not only meets regulatory standards and integrates smoothly into healthcare practices but also effectively addresses unmet market needs (Henwood et al., 2020). As noted by Clark et al. (2004), content that is closely aligned with the learner's needs and context can significantly enhance learning outcomes and performance. This leads to the following hypothesis:

**The type of content contributed by the coach directly influence the learning ability of the innovators and the level of value creation because tailored content not only complicates the innovation process but also boosts its success through immediate relevance, ensuring regulatory compliance, smooth integration into healthcare practices, and effective market needs addressing.**

## 2.4 Context variables

Developed by Greenhalgh et al. (2017), the NASSS framework addresses healthcare technology implementation challenges. It evaluates the interplay between technological, social, organizational, and environmental factors, aiming to enhance adoption, sustained use, and scalability. By identifying barriers and facilitators, the framework improves understanding of implementation stages. The framework is particularly adept at identifying context variables due to its multi-dimensional analysis, focus on complexity. This makes NASSS ideal for examining the specific contexts influencing healthcare innovation adoption, scalability, and sustainability. Figure 2 shows seven domains, but not all may be relevant. Hence, four variables will be selected from "Value Proposition," "Adopters System," "Organization," and "Wider System" domains.

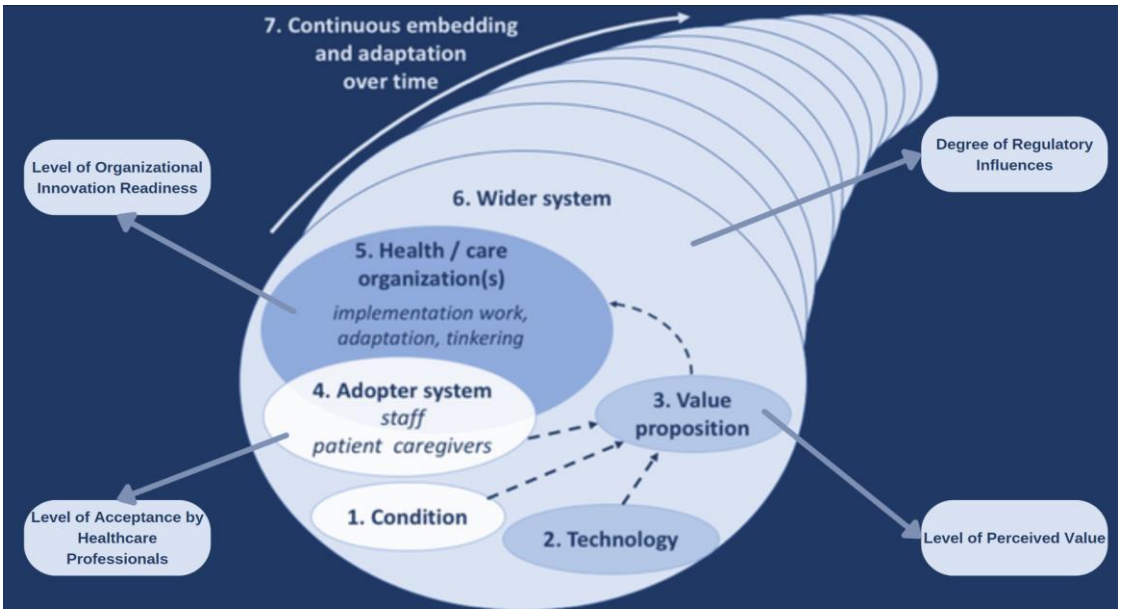


**Figure 2**

*Context variables adopted from the NASSS framework by Greenhalgh et al. (2017)*

### 2.4.1 Level of Perceived Value

For care providers and healthcare developers, establishing value is vital. This includes financial and non-financial gains (Greenhalgh et al., 2017). However, the immediate recognition of healthcare innovations is uncertain (Greenhalgh et al., 2004). Understanding innovation's added value can improve adoption and integration into healthcare (Greenhalgh et al., 2017).

The context variable "Level of Perceived Value" will be selected to identify how various stakeholder groups, such as patients, healthcare providers, organizations, and suppliers, perceive the value of healthcare innovations. This variable captures stakeholders' perceptions regarding the financial, quality, and efficiency benefits of the innovation. For example, healthcare providers may value innovations for their efficiency and improved patient care coordination, while patients might prioritize the security and accessibility of their health information. Greenhalgh et al. (2017) highlight that the desirability, efficacy, safety, and cost-effectiveness of technology can be perceived differently by different stakeholders, influencing their acceptance and support for the innovation.

By including this variable, the research aims to capture variations in stakeholders' perceptions that may influence the implementation and scale-up of healthcare innovations. This is distinct from the dependent variable "Level of Value Creation," which measures the actual realized benefits and impacts of the innovations after participating in the IOC project. The perceived value is about how stakeholders subjectively evaluate the potential benefits before they are fully realized, considering aspects such as desirability, efficacy, safety, and cost-effectiveness (Greenhalgh et al., 2017). In contrast, value creation assesses the concrete outcomes and advantages once the innovations are implemented, following the support and guidance provided by the IOC program. The mechanism hinges on how stakeholders perceive potential benefits, which in turn motivates and encourages their engagement and support for the innovation, ultimately impacting its successful implementation and scaling. This leads to the following hypothesis:

**The level of perceived value influences the learning ability of the innovators and the level of value creation because higher perceived value motivates stakeholders to engage more actively with the innovation, enhancing its adoption and integration.**

### 2.4.2 Level of Acceptance by Healthcare Professionals

As highlighted by Greenhalgh et al. (2017), "acceptance by professional staff may be the single most important determinant of whether a new technology-supported service succeeds or fails at a local level" (Greenhalgh et al., 2017, p. e367). The acceptance by adopters is crucial for the successful implementation of innovations, particularly as new technologies often impact staff identity, professional commitments, and scope of practice.

Facilitating a successful innovation implementation requires factors like a supportive culture, training, education, knowledge, and recognition of added value (Thijssen et al., 2021). Despite the necessity for active stakeholder engagement, challenges often arise, particularly when healthcare professionals need to acquire new knowledge or when their existing norms clash with healthcare technology implementation. High acceptance accelerates implementation and

scaling, while low acceptance hampers progress. Understanding and managing this variable informs strategies for successful implementation of healthcare innovations. In the context of this model, acceptance by healthcare professionals is an important factor between coaching effectiveness and innovation success. The mechanism involves healthcare professionals' acceptance influencing their engagement and cooperation with the innovation process. Effective coaching can enhance acceptance by addressing concerns, providing necessary training, and demonstrating the innovation's benefits, thereby facilitating smoother implementation and scaling. This leads to the following hypothesis:

**The level of acceptance by healthcare professionals influences the learning ability of the innovators and the level of value creation because higher acceptance leads to greater engagement and cooperation, enhancing the implementation and scaling of innovations.**

### 2.4.3 Level of Organizational Innovation Readiness

Healthcare organizations like hospitals, general practitioners, and municipal health departments (GGDs), present complexity in innovation due to the organization's innovation capability, readiness to adopt technology, and financial support (Greenhalgh & Amimbola, 2019). It encompasses factors such as the organization's innovation capability, financial support, and willingness to embrace innovations (Greenhalgh et al., 2017). Understanding the facilitating and hindering conditions within the organization is crucial. Facilitating conditions, such as clear vision and adequate training and hindering conditions, such as lack of information and resistance to change influence the level of organizational innovation readiness (Niemeijer et al., 2014).

Jacob et al. (2022) highlight organizational culture and values' significance in technology implementation, emphasizing alignment with local workflows and policies. Organizational Innovation Readiness significantly impacts healthcare innovation adoption. High readiness facilitates prompt implementation and scaling, while low readiness slows development. Understanding and managing this variable inform strategies for successful implementation, addressing factors like culture, vision, and resources across diverse organizational contexts. In this model, organizational innovation readiness acts as a context variable that can strenghten or reduce the effectiveness of coaching interventions. The mechanism involves the organization's readiness determining its ability to respond to and implement the strategies and knowledge provided by the coach. High readiness means the organization can quickly adapt and integrate new innovations, while low readiness can impede these processes, regardless of the coaching quality. This leads to the following hypothesis:

**The level of organizational innovation readiness influences the learning ability of the innovators and the level of value creation because higher readiness enables quicker adaptation and integration of new innovations, enhancing the outcomes of coaching interventions.**

### 2.4.4 Degree of Regulatory Influences

Healthcare faces challenges due to high regulation, potentially hindering successful implementation of innovation (Hoogstraaten et al., 2023). The wider system delves into the broader system's influence on innovation implementation, considering factors like the regulatory environment and organizational dynamics (Greenhalgh et al., 2017).

Two types of regulation are identified: formal regulations with established rules, and informal regulations guided by norms and values, often filling gaps left by formal regulations (Blind et al., 2017; Sutter et al., 2017; Morand, 1995). Informal regulations are exemplified by connections between organizations, where networking and knowledge-sharing enhance innovation adoption (Chuah et al., 2016). Weak interactions between hospitals, as highlighted by Cunha et al. (2016), represent informal regulatory challenges, hindering communication and knowledge diffusion. Formal regulations can facilitate innovation with clear guidelines or hinder it with inconvenient processes. Informal regulations, like organizational norms and networks, also affect adoption. Controlling for this variable allows to assess how the regulatory environment shapes the innovation process and the relationship between coaching and successful implementation. The mechanism involves regulatory influences either enabling or constraining the strategies provided by the coach. For instance, clear and supportive regulations can facilitate the implementation of coached strategies, while restrictive regulations can pose significant barriers, thus affecting the overall success of innovation implementation and scaling. This leads to the following hypothesis:

**The degree of regulatory influences affects the learning ability of the innovators and the level of value creation because supportive regulations enable smoother implementation of coached strategies, while restrictive regulations hinder the process.**

## 2.5 Confounding variables

Four confounding variables are identified that could influence the relationship between the independent and dependent variables. First, the "Type of Healthcare Innovation" impacts the research because different types of innovations require distinct kinds of support and coaching expertise. This variation can affect the effectiveness of coaching and, consequently, the success of the innovation's implementation and scaling. For example, e-health innovation might necessitate a coach with a strong technical background, which would affect the coaching effectiveness and, subsequently, the innovation's value creation and learning ability. The "Type of Healthcare Innovation" variable can be categorized into multiple types such as Telemonitoring & Communication, Technological Innovation and Process Innovation. Each innovation would require specific coaching expertise and support strategies, highlighting the importance of aligning coach expertise with innovation types to optimize outcomes. This leads to the following hypothesis:

**The type of healthcare innovation affects the learning ability of the innovators and the level of value creation because different types of innovations require distinct kinds of support and coaching expertise.**

The second confounding variable, the "Number of the IOC Round," accounts for the evolving clarity and refinement of coaching requirements over time. Initial rounds of innovation grants might have had ambiguous expectations for coaches, potentially affecting the quality of coaching and, therefore the learning ability and value creation. In contrast, later rounds with more defined expectations could lead to better coaching alignments and improved innovation outcomes. This evolution in coaching effectiveness across grant cycles may influence the analysis of coaching's impact, making it crucial to consider the number of the IOC round when evaluating the results. This leads to the following hypothesis:

**The number of the IOC round affects the learning ability of the innovators and the level of value creation because the evolving clarity and refinement of coaching requirements over time can lead to variations in coaching quality.**

Third, "Organization Size" is considered a confounding variable because it inherently affects an organization's ability to adopt and implement innovations. As noted by Vijande et al. (2012), larger organizations may have more resources but face challenges in agility and innovation compared to smaller entities, which might be more flexible but resource-constrained. This size dynamic can influence how innovations are adopted and integrated, affecting both the type of coaching needed and the value creation and learning ability. This leads to the following hypothesis:

**Organization size affects the learning ability of the innovators and the level of value creation because larger organizations may have more resources but face challenges in agility and innovation, whereas smaller entities might be more flexible but resource-constrained.**

Lastly, “Number of Sectors” is a confounding variable. Organizations involved in multiple sectors within healthcare, such as hospitals and specialized care, require distinct kinds of support and coaching expertise due to the diverse patient needs, varied implementation strategies, and the significant impact of organizational context. Different patient populations necessitate tailored coaching approaches, as evidenced by health coaching in primary care improving control of specific conditions but not others, highlighting the necessity for targeted interventions (Willard-Grace et al., 2015). Implementation varies based on organizational structures and patient readiness, significantly affecting effectiveness (Liddy et al., 2014). Organizational context, including resources and leadership, is crucial for the successful implementation of evidence-based practices (Bergström et al., 2015). Therefore, tailored support and coaching are essential to effectively manage the complexities and requirements of different healthcare sectors. This leads to the following hypothesis:

**The number of sectors affects the learning ability of the innovators and the level of value creation because organizations involved in multiple healthcare sectors require distinct kinds of support and coaching expertise.**

## 2.6 Moderating variables

Moderating variables, such as the degree of goal achievement and satisfaction with support, alter the impact of coaching on learning and value creation outcomes. These variables, sourced from ZonMw's data, are assessed via IOC applicants' evaluations. After a six-month coaching period, the applicants evaluate the coach's effectiveness in goal achievement and overall coaching satisfaction. These questions are revisited in the survey to provide consistent data.

The identified moderating variables are "Degree of Contribution to Goal Achievement" and "Level of Satisfaction with Support." Understanding these effects is crucial because coaching experiences can significantly impact outcomes, influencing the overall effectiveness of the coaching provided during the IOC projects. This leads to the following hypotheses:

**The higher the degree of contribution to goal achievement, the higher the innovators' learning capacity and the extent of value creation, because achieving goals indicates effective coaching and resource utilization.**

**The higher the level of satisfaction with support, the higher the innovators' learning capacity and the extent of value creation, because satisfied participants are more likely to engage fully and benefit from the coaching process.**

# 3. Methodology

## 3.1 Case selection – ZonMw's Implementation and Scaling-Up Coaching (IOC)

Research on health innovation systems often focuses on individual countries due to unique local complexities in cognitive landscapes, regulations, and governance systems (De Matos et al., 2016). This study will specifically examine the Netherlands, a country known for its progressive healthcare policies and innovative approaches. The Netherlands presents a unique case with its structured healthcare system and strong emphasis on research and development (Oortwijn et al., 2008). ZonMw, the Netherlands Organisation for Health Research and Development, plays a central role in addressing healthcare challenges by promoting and supporting innovations (Wensing et al., 2011). ZonMw funds health research and innovation initiatives in health, healthcare, and well-being, while actively directing programs to promote the utilization of generated knowledge and identify critical knowledge gaps. (ZonMw, n.d.). With a commitment to rapidly implement and scale up these innovations, ZonMw's initiatives provide an ideal context to explore the effectiveness of coaching and other interventions in healthcare innovation.

In 2020, ZonMw introduced the IOC subsidy program to facilitate the implementation and scale-up of healthcare innovations. The program provides a maximum of €10,000 per applicant to enlist an external coach for aid in the implementation and/or scale-up of innovation. This coach advises the applicant on the implementation or scale-up issue. They offer tailored guidance for developing implementation plans, training healthcare providers in new methods, creating scaling protocols for healthcare innovations, and networking. In addition, they assist in overcoming regulatory barriers, addressing system barriers, and developing business cases and securing funding. Coaches are selected by the applicant and are employed, for example, at healthcare and innovation agencies, consultancy firms, knowledge, and research institutions. The selected coaches should have demonstrable expertise in providing coaching to companies. Across eight subsidy rounds, 713 coaching trajectories were initiated through this program (ZonMw, 2022).

**Healthcare innovations involved in the IOC subsidy cover a wide spectrum, with a focus on e-health and medical technology.** These innovations aim to enhance clients' quality of life, simplify informal care, prevent diseases, enable early diagnosis, minimize treatment side effects, and support monitoring and treatment at home. Examples include telemonitoring, sensor technologies, self-measuring devices, imaging technologies, home automation, and robotics. Additionally, coaching trajectories have been initiated for process innovations, which involve improving organizational workflows in healthcare institutions to enhance the quality of care and labor productivity. An instance of this is enhancing care pathways.

The IOC aims to implement or scale up a healthcare innovation that is graded at TRL 6 – Technology Readiness Level 6 – which signifies that the technology has been demonstrated in a relevant environment. The TRL scale is a method of estimating the maturity of technologies during the acquisition phase of a program. It ranges from TRL 1, which indicates basic principles have been observed and reported, to TRL 9, where the technology has been proven through successful mission operations (European Commission, 2017). In addition, innovations are graded on:

- Results in a labour saving
- Results in a cost saving
- Improves the quality of care
- Improves the quality of life of patients and clients

Eligible applicants for the IOC include care providers seeking subsidies for coaching services to refine or scale innovations and developers collaborating with care providers on advancing innovations. The IOC targets innovators such as, healthcare providers, municipalities, GGDs, and healthcare innovation developers across various domains, including hospitals, mental health care, general practitioners, nursing, disability care, youth care, and oral care. Additionally, the program indirectly benefits other organizations not utilizing the IOC by providing a model for scaling healthcare innovations, fostering collaboration, and offering insights into effective innovation scaling and regulatory navigation, thus contributing to the broader healthcare ecosystem's advancement.

## 3.2 Research Design

This research examines the impact of the IOC subsidy program on innovation within the Dutch healthcare sector. Adopting a deductive approach, the study leverages a mixed-methods design to test hypotheses related to barriers and facilitators of innovation. The research focuses on the complex relationships among various variables in healthcare innovation, including the coaching received, learning ability, and value creation. Context variables from the NASSS framework, covering "Value Proposition," "Adopters System," "Organization," and "Wider System" domains, capture contextual influences on implementation and scalability.

Primary data collection was conducted through a survey including both closed and open questions. The closed questions facilitated quantitative analysis by examining the effects of independent variables on dependent variables, providing measurable and statistically significant insights. Additionally, the open questions provided qualitative data, offering deeper insights into the context and outcomes, capturing the nuanced experiences and perspectives of participants.

The use of secondary data from grey literature provided by ZonMw was an element of this research. This data included all eight subsidy calls, previous reports on initial analyses of the IOC, and Excel files where all projects were tracked. Analysing this grey literature provided context and background information on the IOC subsidy program, which was essential for developing the survey used to collect primary data. The insights gained from the secondary data informed the survey questions, ensuring they were relevant and captured all the needed data.

The integration of secondary and primary data occurred through several steps. First, the secondary data analysis highlighted key areas of interest and potential challenges within the IOC subsidy program. This information was used to design the survey questions, ensuring they addressed relevant issues and captured necessary details. Furthermore, combining secondary data insights with primary data findings enabled triangulation, integrating insights from various data sources (Mathison, 1988; Lawlor et al., 2017), enhancing the validity and reliability of the research conclusions. The secondary data provided a foundational understanding, while the primary data offered current, firsthand perspectives. By combining these two types of data, the research was able to develop a comprehensive understanding of the IOC subsidy program's impact on innovation within the Dutch healthcare sector.

The survey targeted innovators in healthcare organizations who are involved in the IOC program with an innovation project. This diversity ensured that the collected data reflected a wide range of experiences and perspectives, enhancing the study's robustness and relevance. For a comprehensive analysis, this study utilized triangulation, integrating insights from various data sources (Mathison, 1988; Lawlor et al., 2017), including pre-existing IOC applicant data, to enhance reliability and validity. Triangulation involves using multiple data sources and analytical methods to cross-verify the findings, reducing the likelihood of bias and increasing the credibility of the results.

## 3.3 Data collection

The survey was designed to assess the effects of several independent variables—such as coaching received, types of activities engaged with the coach, type of coach, and content contributed by the coach—on the dependent variables of learning ability and value creation. This design aimed to understand the impact of incentives on the implementation and scaling up of healthcare innovation. The survey included 25 questions, including multiple-choice questions, Likert scale, statements, and open-ended questions to ensure comprehensive data collection. The Likert scale questions and statements, based on the variables, will be rated on a five-point scale for comparability. This scale is chosen for its ease of use, balanced response options, and predictive utility (Wyatt & Meyers, 1987; Dawes, 2008). All the survey questions can be found in Appendix A. Table 1 provides an operationalization of the dependent, independent, context, confounding, and moderating variables.

**Table 1: Operationalization table of the research**

| Variable Category | Variable Name | Indicator | Scale | Sample Question |
|---|---|---|---|---|
| **Dependent Variables** | Learning Ability | Effectiveness in developing and implementing innovation | Ordinal (Likert scale) | My organization was effective in developing and scaling an innovation after participating in the IOC scheme. |
| | Value Creation | Value created by innovation | Ordinal (Likert scale) | The innovation has created a lot of value for our organization after participating in the IOC scheme. |
| **Independent Variables** | Number of Sessions with Coach | Hours spent in direct coaching sessions | Ratio (0-100 scale) | Provide a breakdown of the total number of hours spent on the IOC project. |
| | Number of Activities with Coach | Types of activities engaged with coach | Nominal (Multiple selections) | Which of the following activities have you done with the coach? |
| | Type of Coach | Background of the coach | Nominal | What is the background of your coach? (Consultant, Implementation specialist, etc.) |
| | Content Contributed by Coach | Type of content provided by the coach | Nominal (Multiple selections) | What type of content has your coach primarily contributed to your project? |
| **Context Variables** | Level of Perceived Value | Perceived value of innovation | Ordinal (Likert scale) | The healthcare innovation is very valuable to the primary user. |
| | Acceptance by Healthcare Prof. | Acceptance level by healthcare professionals | Ordinal (Likert scale) | The healthcare professionals have fully adopted the healthcare innovation. |
| | Organizational Innovation Readiness | Readiness of the organization for innovation | Ordinal (Likert scale) | The organization had all the resources and infrastructure to adopt and implement new healthcare innovations before the IOC scheme. |
| | Regulatory Influences | Influence of regulations | Ordinal (Likert scale) | Regulations in the healthcare sector have influenced the implementation and/or scaling of healthcare innovations in my context. |
| **Confounding Variables** | Number of IOC rounds | Specific rounds participated | Nominal (Multiple selections) | Which IOC round(s) did your innovation project participate in? (Round 1, Round 2, etc.) |

| | | | | |
|---|---|---|---|---|
| | Type of Innovation | Category of healthcare innovation | Nominal | What category or type of healthcare innovation was implemented during the IOC project? |
| | Size of Organization | Number of employees | Ordinal | How would you categorize the size of your organization, excluding the founder? (Micro-enterprise, etc.) |
| | Number of Sectors | Active sectors | Nominal (Multiple selections) | In which sector(s) is your organization active? (Hospitals, Mental healthcare, etc.) |
| **Moderating Variables** | Contribution to Goal Achievement | Contribution of coaching to project goals | Ordinal (Likert scale) | To what extent do you think the coaching has contributed to achieving the goals of your project? |
| | Satisfaction with Support | Satisfaction with coaching support | Ordinal (Likert scale) | To what extent are you satisfied with the support received from the coach? |

The survey was distributed online using Qualtrics under the Utrecht University license. It targeted main applicants of the Innovation in Healthcare (IOC) subsidy program, spanning eight rounds from 2020 to 2022. The survey was disseminated via email using a ZonMw mail account with official letterhead, ensuring clarity and authenticity for respondents. The use of an official letterhead was intended to increase the response rate by reinforcing the survey's legitimacy (Eggleston, 2024). Additionally, respondents were informed that their participation in the survey would enter them into a draw to win a gift voucher, a common practice to enhance response rates (Conn et al., 2019).

Upon granting the IOC subsidy, healthcare providers and developers consented to the use of their project information and opinions for research purposes. This consent also included potential participation in further studies. To participate in the IOC program, a project leader must be selected by the organization. The project leader provides an email address when applying. ZonMw records these email addresses in an Excel file, which tracks all projects across different rounds, including the final responsible party and the contact person for correspondence during and after the project. These email addresses were ultimately used to reach the respondents, making the distribution of the survey via email feasible and well-targeted.

The population consisted of respondents from the eight rounds of IOC subsidy applications. Across these rounds, 713 projects were initiated, although some applicants participated in multiple rounds. This resulted in 649 unique IOC subsidy applicants being initially contacted. However, it was soon discovered that many email addresses were no longer valid, with responses indicating expired addresses or automatic replies noting that recipients were no longer employed or had retired. Ultimately, 484 applicants with valid email addresses were identified and included in the final mailing group. Data collection occurred over a four-week period, from April 15, 2024, to June 12, 2024. To encourage participation, four reminder emails were sent out. Participants were assured of anonymity and confidentiality to promote honest and candid responses.

The overall response rate was assessed to determine the representativeness of the sample. Out of 484 surveys distributed, 67 completed surveys were received. The required sample size for a 90% confidence level with a 10% margin of error was calculated to be 61 responses. With 67 responses, the sample size was sufficient to meet this requirement, ensuring statistical validity and reliability. Although 153 respondents started the survey, many dropped out early. During the data collection process, several respondents emailed, indicating they could not remember their project details and were therefore unable to complete the survey. This item non-response led to incomplete surveys (Bryman, 2016). Table 2 shows the sample selection of the research with the response rate per round. The overall response rate across all rounds was approximately 17.98%.

**Table 2: Sample selection of the research**

| Year of round | IOC round | Total number of IOC projects | Respondent mailed | Respondent answered | Response rate |
|---|---|---|---|---|---|
| 2020 | Round 1 | 41 | 26 | 14 | 53.85% |
| 2021 | Round 2 | 102 | 67 | 20 | 29.85% |
| 2021 | Round 3 | 126 | 92 | 7 | 7.61% |
| 2021 | Round 4 | 91 | 73 | 10 | 13.70% |
| 2021 | Round 5 | 119 | 98 | 8 | 8.16% |
| 2021 | Round 6 | 37 | 28 | 6 | 21.43% |
| 2022 | Round 7 | 53 | 37 | 9 | 24.32% |
| 2022 | Round 8 | 81 | 63 | 13 | 20.63% |
| | **Total** | 649 | 484 | 67 | 17.98% |

To further assess the representativeness of the sample, additional characteristics of the respondents were analysed, including the type of innovation, size of the organization, and sector of the organization. The types of innovation as can be seen in figure 3, showed considerable variability, with "Process innovation" being the most frequent, appearing 17 times. Other common types included "Monitored care & communication platform" and "Medical technology," while less frequent types were "Telealarm" and "Technological innovation for medication." This diversity highlights the range of innovations implemented and scaled up in the projects. The variety in types of innovation within the sample mirrors the overall population, supporting the representativeness of the sample.

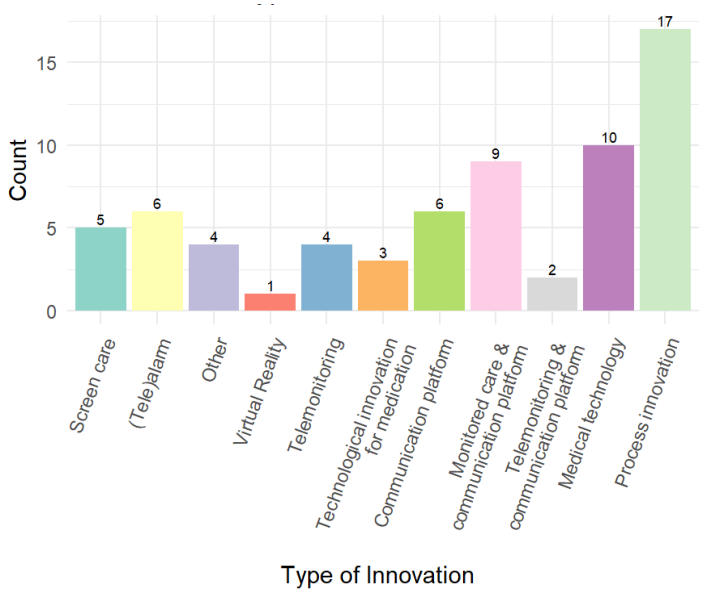


**Figure 3: Distribution of Types of Healthcare Innovation**

The size of organizations exhibited a bimodal distribution, with most organizations being either very small or very large. Categories ranged from Micro enterprises (0-3 employees) to Large enterprises (250+ employees), with the highest frequency in the Large enterprise category, indicating a skew towards larger organizations.

Regarding the sectors, "Hospitals, clinics, other specialist medical care" and "Other care and welfare" were the most common sectors, with counts of 22 and 19. Other sectors, such as "General practitioner care and health centres" and "Nursing and home care," had moderate frequencies with a count of 10. Notably, "Oral care" was not chosen by any respondents. The presence of multiple sectors within the sample aligns with the diversity of sectors in the overall applicant pool, further validating the representativeness of the sample. The analysis of these characteristics indicates that the sample is a reasonably accurate reflection of the broader population of IOC subsidy applicants. The diversity in types of innovation, the bimodal distribution in organization sizes, and the variety of sectors involved all contribute to the representativeness of the sample.

## 3.4 Data analysis

Given that the research employs a mixed-methods approach, both quantitative and qualitative data have undergone comprehensive analysis procedures. Figure 4 illustrates the detailed steps involved in the data analysis process for each method.

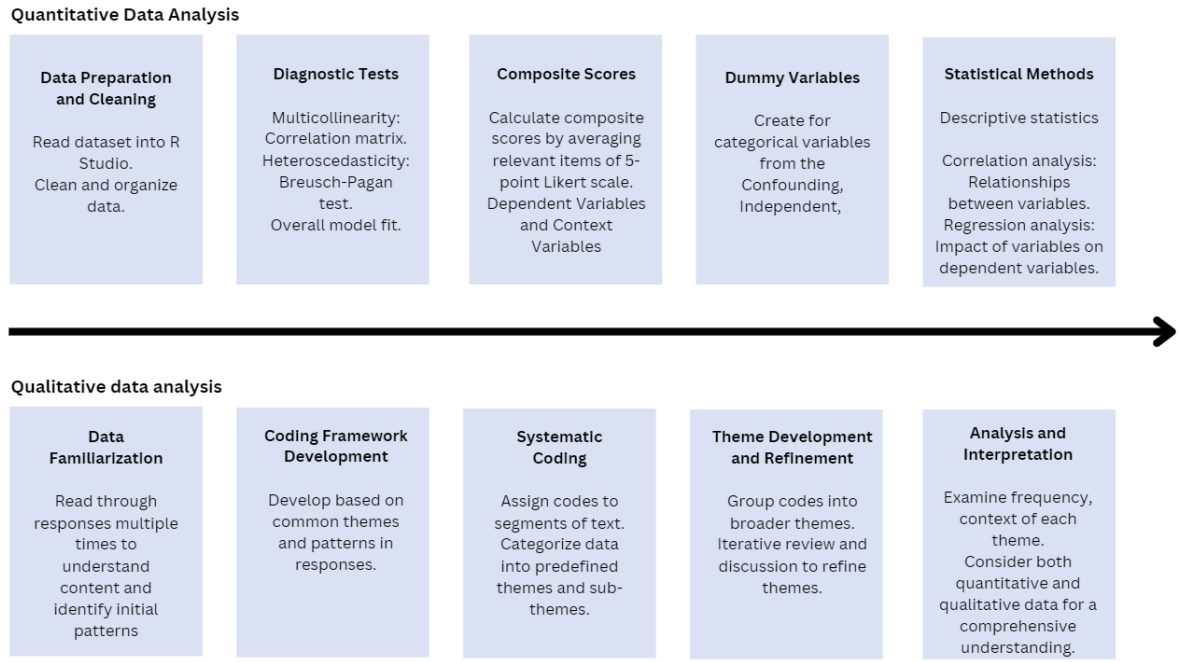


**Figure 4: Overview of Data Analysis Procedures**

### Quantitative data analysis

The data analysis for this study involved several steps to prepare, analyse, and interpret the data collected from the IOC subsidy program. The dataset was read into R studio, and initial preparations involved cleaning and organizing the data for further analysis. Two new variables were created to measure the time spent with a coach, both as a percentage and as a binary variable. The percentage of time with a coach represents the proportion of time spent in direct coaching sessions compared to the total coaching sessions (both direct and indirect). Additionally, a binary indicator was created to indicate whether more than 50% of the coaching time was direct (coded as 1) or not (coded as 0). Diagnostic tests were conducted to check for multicollinearity, heteroscedasticity, and overall model fit. These tests ensured that the regression models were robust and that the assumptions underlying the statistical analyses were met. For instance, correlation matrix was used to detect multicollinearity, while the Breusch-Pagan test was used to check for heteroscedasticity.

Composite scores were created for learning ability and value creation by combining responses to several survey questions related to each construct, measured on a 5-point Likert scale. Multiple questions were designed to test each variable, ensuring a robust measurement of learning ability and value creation. The reliability of these scales was assessed using Cronbach's alpha, with both scales showing high reliability ($\alpha = 0.903$ for learning ability and $\alpha = 0.913$ for value creation). These high reliability scores justified the creation of single composite scores representing the overall learning ability and value creation of participants. The composite scores were calculated by averaging the relevant items for each construct. To facilitate the analysis, dummy variables were created for several categorical variables. Specifically, dummy variables were created for the number of IOC rounds, type of innovation, size of the organization, sector of the organization, type of activities engaged with the coach, type of coach, type of content contributed by the coach, and type of innovation user. This step enabled the inclusion of these variables in regression analyses, allowing for the examination of their impact on the dependent variables. Dummy variables help in distinguishing between different categories within a variable, making it easier to identify and quantify their effects.

Several statistical methods were used to analyse the data. Descriptive statistics were calculated to summarize the main characteristics of the data, including the mean, median, standard deviation, and range for key variables. These statistics provided a general overview of the data and helped identify any potential outliers or anomalies. Correlation analysis was conducted to examine the relationships between variables such as time with coach, learning ability, value creation, and innovation outcomes. This analysis helped identify significant associations and the strength of these relationships, providing insights into how different factors might influence innovation outcomes.

Regression analysis was performed to investigate the impact of independent variables (e.g., time with coach, learning ability, value creation) on dependent variables (e.g., level of value creation and degree of learning ability). This method allowed for the identification of significant predictors of innovation and the quantification of their effects. The results provided evidence of the direct and indirect impacts of the coaching on innovation outcomes.

### Qualitative data analysis

To conduct the qualitative analysis, a structured approach was followed. The process began with data collection through open-ended survey responses from the participants. The initial step involved familiarizing with the data by reading through all collected responses multiple times. This was crucial for understanding the content deeply and identifying initial patterns and themes, which was feasible due to the manageable amount of data from the surveys.

After data collection, a coding framework was developed based on common themes and patterns identified in the responses. The coding framework can be seen in appendix B This framework aimed to capture the main themes and sub-themes relevant to the study, including coaching characteristics, coach contributions to goal achievement, stakeholders' views on innovation, challenges and guidance during the IOC project, coach improvements, plans to support and scale innovation post-IOC project, and suggestions for improving the IOC subsidy scheme.

Using this coding framework, the data were systematically coded. Each segment of text was assigned relevant codes to ensure consistency and thoroughness in the analysis. This step involved categorizing the data into predefined themes and sub-themes, helping to organize the responses for further examination.

After coding, the codes were grouped into broader themes that captured key aspects of the data. This iterative process involved review and discussion to refine the themes, ensuring they accurately represented the data and were relevant to the research questions. With the themes established, the next step was to analyse and interpret the findings. This involved examining the frequency and context of each theme to identify key insights and patterns.

## 3.5 Validity, reliability, and ethical considerations

To ensure the validity, reliability, and ethical integrity of the study on the IOC subsidy program, triangulation was employed to enhance credibility by integrating various methodologies and sources (Clark et al., 2021). The research design combined theoretical and empirical rigor within a conceptual framework that examined key variables such as coaching contributions and value creation, applying the NASSS framework for a comprehensive assessment of healthcare innovation's complex dimensions in the Netherlands (Greenhalgh et al., 2017).

Quantitative analyses, informed by the NASSS framework, were conducted to accurately measure the impact of variables, with a representative sample ensuring the findings' generalizability (Bryman, 2016). Adherence to ethical standards was rigorously maintained, with GDPR-compliant procedures for data management and informed consent ensuring the ethical treatment of participants (European Union, 2019). To address potential concerns regarding data privacy, it was clearly communicated at the beginning of the survey that all responses would be anonymized. This ensured that neither the researchers nor ZonMw could identify the organizations that participated, eliminating any concerns participants might have had about their responses affecting future grant allocations. Consequently, participants were encouraged to provide honest and truthful answers, secure in the knowledge that their privacy was safeguarded. The utilization of RStudio for data analysis underpinned the study's reliability, promoting the consistent identification of patterns within the dataset (R studio, 2020). This comprehensive approach not only solidified the study on robust scientific and ethical grounds but also reaffirmed a dedication to safeguarding participant rights and privacy.

# 4. Results

## 4.1 Descriptive Statistics

Table 3 presents descriptive statistics for various continuous variables categorized into dependent variables, independent variables, context variables, and moderation variables. Each variable is summarized with its minimum, maximum, mean, median, and standard deviation. The variables were derived from the theoretical framework upon which the survey was based. Both the dependent variables and the context variables were measured using statements on a five-point Likert scale, from which composite scores were calculated for analysis. The dependent variables were treated as ratio variables. The dependent variables "Level of Value Creation" and "Degree of Learning Ability" present mean values are 3.34 and 3.478, indicating moderate levels overall. The standard deviations are relatively low (0.915 and 0.825), suggesting limited variability around the mean. The other variables in table 3 suggest that most are centred around moderate to high levels with varying degrees of variability. The consistency in standard deviations indicates a relatively stable sample, with the independent variables showing the greatest variability.

**Table 3: Descriptive statistics of the continuous variables**

| | Minimum | Maximum | Mean | Median | Std. Devation |
|---|---|---|---|---|---|
| **Dependent Variables** | | | | | |
| Level Of Value Creation | 1.00 | 5.00 | 3.340 | 3.600 | 0.915 |
| Degree Of Learning Ability | 1.00 | 5.00 | 3.478 | 3.600 | 0.825 |
| **Independent Variables** | | | | | |
| Time Spent Directly | 0.07 | 0.91 | 0.534 | 0.510 | 0.200 |
| Number of activities | 1.00 | 8.00 | 4.194 | 4.000 | 1.417 |
| **Context Variables** | | | | | |
| Perceived Value | 1.00 | 7.00 | 5.873 | 6.000 | 0.914 |
| AcceptanceHealthPro | 1.00 | 7.00 | 5.582 | 5.667 | 0.929 |
| OrgInnovationReadiness | 2.00 | 7.00 | 5.403 | 5.333 | 0.913 |
| RegulatoryInfluences | 1.00 | 7.00 | 4.940 | 5.000 | 1.163 |
| **Moderation Variables** | | | | | |
| Degree of contribution goal achievement | 1.00 | 5.00 | 3.866 | 4.000 | 0.929 |
| Level of Satisfaction Support Provided | 1.00 | 5.00 | 4.269 | 4.000 | 0.741 |

To evaluate the survey data, Shapiro-Wilk normality tests were conducted for the dependent variables "Degree of Learning Ability" and "Level of Value Creation." For the Level of Value Creation, the Shapiro-Wilk test yielded a W value of 0.928 and a p-value of 0.0008. For the Degree of Learning Ability, the Shapiro-Wilk test resulted in a W value of 0.886 and a p-value of less than 0.00002. Since the p-values are less than the significance level of 0.05, the null hypothesis of normality is rejected for both variables. Therefore, the data for Degree of Learning Ability and Level of Value Creation do not follow a normal distribution, indicating skewness in the data.

Given the non-normal distribution of the data, non-parametric statistical methods were employed, next to regressions models for the analysis. Non-parametric methods, such as the Spearman's Rank Correlation Coefficient and Kruskal-Wallis test, are suitable because they do not assume normality and are robust to deviations from this assumption. The Spearman's Rank Correlation Coefficient analysis revealed a weak positive correlation between Degree of Learning Ability and Number of Activities (rho = 0.2203). However, with a p-value of 0.0732, this correlation is not statistically significant. In contrast, the correlation between Level of Value Creation and Number of Activities showed a weak positive correlation (rho = 0.2521) with a p-value of 0.03955, indicating statistical significance.

The Kruskal-Wallis H Test results for Level of Value Creation by Type of Coach indicated no significant differences, with a chi-squared value of 7.1726 and a p-value of 0.3052. Similarly, the Degree of Learning Ability by Type of Coach analysis showed no significant differences (chi-squared = 1.0139, p-value = 0.9851). When examining Degree of Learning Ability by various content types, most content types did not show significant differences. For instance, Content 1 (chi-squared = 0.47073, p-value = 0.4927) and Content 2 (chi-squared = 0.87665, p-value = 0.3491) were not significant. However, Content 5 was marginally significant (chi-squared = 3.8254, p-value = 0.05048). Overall, most group differences examined in the study were not statistically significant.

## 4.2 Linear Regression Results Independent variables

For testing the relationship between the dependent variables and independent variables, including the frequency of direct sessions with the coach, the type of activities, type of coach, and content engaged with the coach two linear regression models were made. The models include the dependent variable and independent variables with the contextual variables such as perceived value, acceptance by healthcare professionals, organizational innovation readiness, and regulatory influences and confounding variables such as IOC round, organization size, the sector of the organization and the type of innovation. For model performance indicators, tests for multicollinearity and heteroscedasticity were performed. The correlation matrix indicated that there was no multicollinearity present between the independent variables, as all correlation scores not exceed the threshold for a "strong" correlation ($|r| \geq 0.7$). The highest correlations in the dataset are a moderate positive correlation between Number of activities and Content 5 ($r = 0.377$) and a moderate negative correlation between Content 4 and Content 8 ($r = -0.259$), indicating that increases in Number of activities are associated with increases in Content 5, while increases in Content 4 are associated with decreases in Content 8, though none of these correlations are strong ($|r| \geq 0.7$).

The Breusch-Pagan test was conducted to check for heteroscedasticity in the regression models for the dependent variables “Level of Value Creation” and “Degree of Learning Ability.” For the Level of Value Creation model, the test statistic was 35.715 with a p-value of 0.576. For the Degree of Learning Ability model, the test statistic was 41.944 with a p-value of 0.304. Since both p-values are greater than 0.05, we fail to reject the null hypothesis of constant variance. Thus, there is no significant evidence of heteroscedasticity in either model, indicating that the error variance is constant.

### 4.2.1 Model 1: Level of Value Creation

In Table 4, the results of the performed model for the dependent variable "Level of Value Creation" are presented. In this model the independent variable “Coaching characteristics” with the dimensions Time spent directly with coach, Number of Activities engaged with the coach, Type of Coach and Content Contributed by the Coach were included in the model. In addition to the confounding variables, the context variables Perceived Value, AcceptanceHealthPro, OrgInnovationReadiness, RegulatoryInfluences were also included. The linear regression model of Level of Value Creation shows an R-squared value of 0.8776, indicating that approximately 87.76% of the variability in the level of value creation is explained by the predictors included in the model. This high value suggests that the model, as a whole, captures a significant portion of the information related to the response variable. The Adjusted R-squared value of 0.7115 is lower than the R-squared, adjusting for the number of predictors in the model and providing a more accurate measure of the model's explanatory power. The difference between the Multiple R-squared and Adjusted R-squared indicates that some predictors may not be contributing meaningful information to the model or that the model might be overfitting the data. While the model explains a large portion of the variance, not all predictors may be necessary or useful. Additionally, the F-statistic of 5.282 and its corresponding p-value of 9.119e-06 highlight the overall significance of the model, indicating that the predictors collectively explain the variability in the Level of Value Creation.

The robustness of the model was evaluated using the Variance Inflation Factor (VIF) and an outlier test. The VIF values are used for detecting multicollinearity among predictors, which can destabilize the model’s coefficients and inflate standard errors. In the model for level of value creation, the majority of the predictors exhibited VIF values below the threshold of 5, indicating that multicollinearity is generally not a noteworthy concern. However, the variable Type of Content 4 has a VIF value of 5.302233, suggesting moderate multicollinearity. Although this value is slightly above the commonly accepted threshold of 5, it is not excessively high and indicates only a moderate level of correlation. Additionally, the outlier test indicated no significant outliers with a Bonferroni-adjusted p-value less than 0.05. The largest studentized residual was -2.439 with an unadjusted p-value of 0.021573. Therefore the model shows no extreme outliers influencing the model disproportionately.

**Table 4: Level of Value Creation regression results**

| Variable | Estimate | Std. Error | t value | Pr(>\|t\|) |
|---|---|---|---|---|
| Intercept | 0,757 | 0,720 | 1,051 | 0,302 |
| Time spent directly with coach | -0,937 | 0,483 | -1,941 | 0,042 * |
| Number of activities | 0,161 | 0,089 | 1,813 | 0.061 . |
| Type of Coach | | | | |
| *3 Consultant (agency)* | -0,505 | 0,314 | -1,610 | 0,119 |
| *4 Developer innovation* | -0,636 | 0,526 | -1,208 | 0,237 |
| *5 Change manager* | 0,043 | 0,292 | 0,148 | 0,884 |
| *6 Implementation specialist* | 0,153 | 0,331 | 0,461 | 0,648 |
| *7 Healthcare worker* | -0,635 | 0,278 | -2,282 | 0,030 * |
| *8 Implementation expert* | -0,383 | 0,283 | -1,354 | 0,186 |
| Type of Content | | | | |
| *2 Regulatory guidelines* | -0,829 | 0,366 | -2,266 | 0,030 * |
| *3 Technical knowledge* | 0,075 | 0,194 | 0,383 | 0,704 |
| *4 Networking contacts* | 0,184 | 0,195 | 0,943 | 0,354 |
| *5 Leadership* | 0,167 | 0,215 | 0,780 | 0,442 |
| *6 Marketing strategies* | -0,276 | 0,312 | -0,883 | 0,385 |
| *7 Financial management* | -0,280 | 0,238 | -1,203 | 0,239 |
| *8 Other* | 0,086 | 0,255 | 0,399 | 0,737 |
| Type of Innovation | | | | |
| *2 (Tele) alarm* | -0,302 | 0,866 | -0,349 | 0,730 |
| *3 Telemonitoring* | -0,840 | 0,461 | -1,820 | 0,079 . |
| *4 Innovation for medication* | -1,882 | 0,569 | -3,307 | 0,003 ** |
| *5 Communication platform* | -1,186 | 0,508 | -2,334 | 0,027 * |
| *6 Screen care & platform* | -1,178 | 0,364 | -3,247 | 0,003 ** |
| *7 Telemonitoring & platform* | -1,644 | 0,620 | -2,652 | 0,013 * |
| *8 Medical technology* | -1,119 | 0,382 | -2,926 | 0,007 ** |
| *9 Process innovation* | -1,258 | 0,385 | -3,272 | 0,003 ** |
| *10 Other* | -0,746 | 0,462 | -1,615 | 0,117 |
| *11 Virtual Reality* | -1,431 | 0,458 | -3,122 | 0,004 ** |
| Size | 0,020 | 0,067 | 0,305 | 0,762 |
| Number of sectors | 0,172 | 0,099 | 1,735 | 0,094 |
| IOC Round | | | | |
| *Round 2* | -0,061 | 0,207 | -0,296 | 0,769 |
| *Round 3* | -0,703 | 0,271 | -2,595 | 0,015 * |
| *Round 4* | -0,683 | 0,242 | -2,826 | 0,009 ** |
| *Round 5* | 0,539 | 0,290 | 1,857 | 0,074 . |
| *Round 6* | 0,491 | 0,377 | 1,303 | 0,203 |
| *Round 7* | -0,280 | 0,245 | -1,139 | 0,264 |
| *Round 8* | 0,100 | 0,244 | 0,410 | 0,685 |
| PerceivedValue | -0,221 | 0,156 | -1,418 | 0,167 |
| AcceptanceHealthPro | 0,443 | 0,164 | 2,692 | 0,012 * |
| OrgInnovationReadiness | 0,420 | 0,173 | 2,438 | 0,021 * |
| RegulatoryInfluences | 0,034 | 0,095 | 0,361 | 0,721 |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.4916 on 28 degrees of freedom, Multiple R-squared: 0.8776, Adjusted R-squared: 0.7115, F-statistic: 5.282 on 38 and 28 DF, p-value: 9.119e-06

### Hypotheses testing for Independent Variables: Coaching Characteristics

The first hypothesis states that a higher frequency of direct sessions with the coach leads to a higher extent of value creation. The analysis shows that the variable time spent directly with the coach has a marginally significant negative effect (Estimate = -0.93744, p-value = 0.04245), indicating that more time spent with the coach unexpectedly reduces the level of value creation. Therefore, the hypothesis should be **rejected** for the level of value creation.

The second hypothesis proposes that a higher variety of activities engaged with the coach leads to a higher level of value creation. The variable Number of activities shows a marginally significant effect (Estimate = 0.16098, p-value = 0.06057), suggesting that a higher variety of activities might increase value creation. Therefore, the hypothesis can be **partially accepted** at a 0.1 significance level, though the evidence is not very strong.

The third hypothesis suggests that the type of coach directly impacts the level of value creation. The variable Type of Coach 7, which is a coach who employed/worked in healthcare shows a significant negative effect (Estimate = -0.63532, p-value = 0.03032), indicating that this particular type of coach negatively impacts value creation. Therefore, the hypothesis can be **accepted**, noting that certain types of coaches may negatively influence value creation.

The fourth hypothesis states that the type of content contributed by the coach directly influences the level of value creation. The variable Content 2, which is Regulatory and compliance guidelines, shows a significant negative effect (Estimate = -0.82894, p-value = 0.03140), indicating that this specific type of content negatively impacts value creation. Thus, the hypothesis can be **accepted**, noting that specific content types may reduce value creation.

### Hypotheses testing for Context variables: Organizational and Regulatory Context

Among the context variables, the hypothesis regarding the level of perceived value suggested that higher perceived value leads to higher value creation. The variable PerceivedValue is not significant (p-value = 0.16727). Therefore, the hypothesis cannot be accepted and should be **rejected**.

The hypothesis on the level of acceptance by healthcare professionals suggested that higher acceptance leads to higher value creation. The variable AcceptanceHealthPro shows a significant positive effect (Estimate = 0.44326, p-value = 0.01184), supporting this hypothesis. Therefore, the hypothesis can be **accepted**, indicating that higher acceptance by healthcare professionals positively impacts value creation.

The hypothesis regarding the level of organizational innovation readiness states that higher readiness leads to higher value creation. The variable OrgInnovationReadiness shows a significant positive effect (Estimate = 0.41958, p-value = 0.02136), supporting this hypothesis. Therefore, the hypothesis can be **accepted**, suggesting that organizations better prepared for innovation are more likely to create value.

Finally, the hypothesis about the degree of regulatory influences suggested that regulatory environments shape the level of value creation. However, this variable was not statistically significant (p-value = 0.72057), thus the hypothesis is **rejected**.

### Hypotheses testing for Confounding variables: Innovation and Organizational Characteristics

In the model, confounding variables were also tested. The hypothesis for "Type of Healthcare Innovation" stated that different types require distinct coaching expertise, affecting value creation. This was supported with highly significant variables, with “Virtual Reality” (Type 4) showing a p-value of 0.03, “Telemonitoring” (Type 5) at p-value of 0.027 “Technological Innovation for Medication” (Type 6) at p-value of 0.003, “Communication Platform” (Type 7) at 0.013, “Monitored care & communication platform” (Type 8) p-value of 0.003, and “Process innovation” (Type 11) p-value of 0.004. Thus, aligning coaching expertise with specific innovation types is crucial, and this hypothesis is **accepted**.

For the "Number of IOC Round," the hypothesis suggested evolving coaching requirements impact effectiveness and value creation. Significant effects were found, with Round 3 having a p-value of 0.015 and Round 4 at 0.009. This indicates that refined coaching expectations improve outcomes, and the hypothesis is **accepted**.

The hypothesis for "Size of the Organization" posited that larger organizations better adopt innovations, impacting value creation. However, this was not supported, with a p-value of 0.762, indicating size did not significantly impact value creation. Therefore, this hypothesis is **rejected**.

Lastly, the hypothesis for "Number of Sectors" suggested that organizations involved in multiple sectors require distinct coaching support, affecting value creation. The variable was marginally significant, with a p-value of 0.094, indicating a potential impact. Thus, this hypothesis is **partially accepted**.

### 4.2.1 Model 2: Degree of Learning Ability

Table 5 shows the regression model for the dependent variable "Degree of Learning Ability". In this model the independent variable “Coaching characteristics” with the domains Time spent directly with coach, Number of Activities engaged with the coach, Type of Coach and Content Contributed by the Coach were included in the model. In addition to the confounding variables, the context variables PerceivedValue, AcceptanceHealthPro, OrgInnovationReadiness, Regulatory Influences were also included. The second regression model demonstrates a good fit, evidenced by the R-squared value of 0.861, indicating that approximately 86.1% of the variability in Degree of Learning Ability is explained by the predictors. This high R-squared value suggests that the model captures most of the variation in the response variable. The Adjusted R-squared value of 0.6723 still indicates a good fit and confirms the model's robustness. The Residual Standard Error of 0.472 suggests that the typical size of the residuals is relatively small, indicating that the model's predictions closely match the actual data. Furthermore, the F-statistic of 4.564 and its corresponding p-value of 3.952e-05 highlight the overall significance of the model, indicating that the predictors collectively explain the variability in Degree of Learning Ability.

The robustness of the model for Degree of Learning Ability was also tested using the Variance Inflation Factor (VIF) and an outlier test. In this model, most of the predictors showed VIF values under the threshold of 5, indicating that multicollinearity is present in the model of degree of learning ability. The variable Type of Coach 4 (VIF=5.302233) showed multicollinearity. Additionally, the outlier test, which identifies observations significantly different from the rest of the data, indicated no significant outliers. This conclusion is based on the Bonferroni-adjusted p-value, with no studentized residuals showing a Bonferroni p-value less than 0.05. The largest studentized residual was 3.072 with an unadjusted p-value of 0.004812 and a Bonferroni p-value of 0.31759, indicating that there are no extreme outliers influencing the model. The model demonstrates strong robustness against both multicollinearity and outliers.

**Table 5: Degree of Learning Ability regression results**

| Variable | Estimate | Std. Error | t value | Pr(>\|t\|) |
|---|---|---|---|---|
| Intercept | 0,159 | 0,692 | 0,229 | 0,820 |
| Time spend directly with coach | 0,270 | 0,464 | 0,583 | 0,564 |
| Number of activities | 0,177 | 0,085 | 2,070 | 0,048 * |
| Type of Coach | | | | |
| *3 Consultant (agency)* | -0,257 | 0,301 | -0,852 | 0,401 |
| *4 Developer innovation* | -0,885 | 0,505 | -1,751 | 0,091 . |
| *5 Change manager* | 0,087 | 0,280 | 0,310 | 0,759 |
| *6 Implementation specialist* | 0,607 | 0,318 | 1,915 | 0,066 . |
| *7 Healthcare worker* | 0,063 | 0,267 | 0,235 | 0,816 |
| *8 Implementation expert* | -0,222 | 0,272 | -0,817 | 0,421 |
| Type of Content | | | | |
| *2 Regulatory guidelines* | -0,724 | 0,351 | -2,062 | 0,049 * |
| *3 Technical knowledge* | 0,129 | 0,187 | 0,690 | 0,496 |
| *4 Networking contacts* | -0,023 | 0,187 | -0,124 | 0,902 |
| *5 Leadership* | -0,099 | 0,206 | -0,485 | 0,631 |
| *6 Marketing strategies* | -0,243 | 0,300 | -0,810 | 0,425 |
| *7 Financial management* | -0,370 | 0,223 | -1,657 | 0,109 |
| *8 Other* | 0,214 | 0,245 | 0,872 | 0,391 |
| Type of Innovation | | | | |
| *2 (Tele) alarm* | 0,263 | 0,832 | 0,316 | 0,754 |
| *3 Telemonitoring* | -0,331 | 0,443 | -0,748 | 0,461 |
| *4 Innovation for medication* | -0,570 | 0,547 | -1,042 | 0,306 |
| *5 Communication platform* | -1,341 | 0,488 | -2,749 | 0,010 * |
| *6 Screen care & platform* | -0,803 | 0,349 | -2,299 | 0,029 * |
| *7 Telemonitoring & platform* | -0,252 | 0,595 | -0,423 | 0,675 |
| *8 Medical technology* | -0,759 | 0,367 | -2,067 | 0,048 * |
| *9 Process innovation* | -0,257 | 0,369 | -0,796 | 0,492 |
| *10 Other* | -0,126 | 0,443 | -0,285 | 0,778 |
| *11 Virtual Reality* | -0,906 | 0,440 | -2,060 | 0,049 * |
| Size | -0,054 | 0,064 | -0,847 | 0,404 |
| Number of sectors | -0,007 | 0,095 | -0,075 | 0,941 |
| IOC Round | | | | |
| *Round 2* | 0,225 | 0,198 | 1,113 | 0,267 |
| *Round 3* | -0,445 | 0,260 | -1,709 | 0,099 . |
| *Round 4* | -0,494 | 0,232 | -2,129 | 0,042 * |
| *Round 5* | 0,285 | 0,279 | 1,025 | 0,314 |
| *Round 6* | 1,174 | 0,362 | 3,242 | 0,003 ** |
| *Round 7* | 0,040 | 0,236 | 0,168 | 0,868 |
| *Round 8* | -0,359 | 0,235 | -1,532 | 0,137 |
| PerceivedValue | 0,249 | 0,150 | 1,658 | 0,108 |
| AcceptanceHealthPro | 0,073 | 0,158 | 0,461 | 0,648 |
| OrgInnovationReadiness | 0,257 | 0,165 | 1,557 | 0,131 |
| RegulatoryInfluences | 0,013 | 0,091 | 0,143 | 0,887 |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.472 on 28 degrees of freedom, Multiple R-squared: 0.861, Adjusted R-squared: 0.6723, F-statistic: 4.564 on 38 and 28 DF, p-value: 3.952e-05

### Hypotheses testing for Independent Variables: Coaching Characteristics

The first hypothesis states that a higher frequency of direct sessions with the coach leads to higher innovators' learning ability. The analysis shows that the variable time spent directly with the coach is not significant (Estimate = 0.270196, p-value = 0.56486), indicating that more time spent with the coach does not significantly affect the degree of learning ability. Therefore, the hypothesis is **rejected**.

The second hypothesis suggested that a higher variety of activities engaged with the coach leads to higher innovators' learning ability. The variable Number of activities shows a significant positive effect (Estimate = 0.176517, p-value = 0.04774), supporting this hypothesis. Therefore, the hypothesis can be **accepted**, indicating that a higher variety of activities positively impacts learning ability.

The third hypothesis stated that the type of coach directly impacts the learning ability of the innovators. Most variables related to the type of coach (Type of Coach 3 to Type of Coach 8) are not significant, except for Type of Coach 4 “Developer of the innovation”, which shows a marginally significant negative impact (Estimate = -0.884782, p-value = 0.09089), and Type of Coach 6, which is a Implementation specialist, shows a marginally significant positive impact (Estimate = 0.608100, p-value = 0.06579). Therefore, the hypothesis can be **partially accepted** at a 0.1 significance level, noting that certain types of coaches can significantly influence learning ability, either positively or negatively.

The fourth hypothesis proposed that the type of content contributed by the coach directly influences the learning ability of the innovators. The variable Content 2, Regulatory and compliance guidelines, shows a significant negative effect (Estimate = -0.724389, p-value = 0.04858), indicating that this specific type of content negatively impacts learning ability. Thus, the hypothesis can be **accepted**, noting that specific content types, like regulatory and compliance guidelines may reduce learning ability.

### Hypotheses testing for Context variables: Organizational and Regulatory Context

To evaluate the context variables' impact on learning capacity, several hypotheses were assessed. The hypothesis that higher perceived value would lead to higher learning capacity was not supported, as the variable PerceivedValue was not significant (p-value = 0.10848). Consequently, this hypothesis is **rejected**.

The hypothesis that higher acceptance by healthcare professionals would enhance learning capacity was also tested. However, the variable AcceptanceHealthPro did not show significance (p-value = 0.64834), leading to the **rejection** of this hypothesis as well.

Similarly, the hypothesis proposing that greater organizational innovation readiness would positively impact learning capacity was not supported by the data. The variable OrgInnovationReadiness had a p-value of 0.13063, indicating no significant effect, thus **rejecting** this hypothesis.

Finally, the hypothesis that regulatory influences shape learning capacity was tested, but the variable RegulatoryInfluences was not significant (p-value = 0.88711). Therefore, this hypothesis is also **rejected**. In summary, none of the context variables—perceived value, acceptance by healthcare professionals, organizational innovation readiness, and regulatory influences—showed significant impacts on the degree of learning ability in this model. As a result, all related hypotheses are rejected.

### Hypotheses testing for Confounding variables: Innovation and Organizational Characteristics

In the model several confounding variables were also tested. The hypothesis for "Type of Healthcare Innovation" stated that different types require distinct coaching expertise, affecting value creation. This hypothesis was supported by the data, with "Virtual Reality" (Type 4) having a p-value of 0.010, “Monitored care & communication platform” (Type 8) p-value of 0.048, "Telemonitoring" (Type 5) with a p-value of 0.029, and "Process Innovation" (Type 11) with a p-value of 0.049, all showing significant effects. This indicates that the type of innovation significantly influences learning ability, and aligning coaching expertise with specific innovation types is essential. Therefore, this hypothesis is **accepted**.

The hypothesis for the "Number of IOC Round" stated that the evolving clarity and refinement of coaching requirements across IOC rounds impact the effectiveness of coaching and the degree of learning ability. The results showed that "IOC Round 3" (p = 0.099), "IOC Round 4" (p = 0.042), and “IOC Round 6” (p=0.003) had significant effects, indicating that the refinement of coaching expectations over time positively influences learning ability. Thus, this hypothesis is **accepted**.

For "Organization Size," the hypothesis proposed that the size of an organization affects its ability to adopt and implement innovations, thereby influencing the degree of learning ability. The variable "Size" did not show significant effects (p = 0.404), suggesting that organization size did not significantly impact learning ability in this analysis. Therefore, this hypothesis is **rejected**.

Finally, the hypothesis for "Number of Sectors" suggested that organizations involved in multiple sectors require distinct coaching support, which affects the degree of learning ability. The variable "Number of Sectors" was not significant (p = 0.941), indicating no substantial impact. Thus, this hypothesis is **rejected**.

### 4.2.4 Model 3: Level of Value Creation with moderation variables

The model in Table 6 was tested to examine the factors influencing the level of value creation with the moderation variables. Initially, a model was developed, incorporating interaction terms between predictors and their contributions to goal achievement and satisfaction with support provided. This initial model showed high multicollinearity and complexity, as indicated by the high variance inflation factors (VIF) and numerous singularities in the coefficient estimates. Furthermore, the overall F-statistic indicated that the model was not significantly better than a model with no predictors ($F = 0.9524$, p-value = 0.6111).

To address the issues of multicollinearity and complexity, the model was simplified by removing interaction terms and focusing on the main effects. This model includes the dependent, independent and moderation variables. Although the interaction terms were removed, the moderation effects are still captured indirectly by including the main effects of the moderation variables: Degree of Contribution to Goal Achievement and Level of Satisfaction with Support Provided.

The simplified model in table 6 showed improvement with fewer coefficients being undefined and a more manageable level of multicollinearity, as indicated by VIF values generally below 5. Significant predictors included Degree of Contribution to Goal Achievement at levels 4 ($p = 0.02305$) and 5 ($p = 0.00407$) and Content 2 approached significance ($p = 0.05460$). The model's significance is highlighted by a Residual Standard Error of 0.6795, a Multiple R-squared of 0.6408, an Adjusted R-squared of 0.4487, and an F-statistic of 3.336 on 23 and 43 degrees of freedom with a p-value of 0.0003181.

Even Though, the interaction terms were removed to reduce complexity, the main effects of the moderation variables still provide valuable insights into their impact on the level of value creation. Overall, the refined model suggests that higher levels of contribution to goal achievement significantly predict the level of value creation. Other predictors such as time with a coach, number of activities, and satisfaction levels were not significant in this final model.

**Table 6: Level of Value Creation with the moderation variables regression results**

| Variable | Estimate | Std. Error | t value | Pr(>\|t\|) |
|---|---|---|---|---|
| Intercept | 1,637 | 0,765 | 2,131 | 0,039 * |
| Time spend directly with coach | 0,223 | 0,503 | 0,445 | 0,659 |
| Degree of contribution to goal achievement | | | | |
| *Level 2* | 1,548 | 1,143 | 1,353 | 0,183 |
| *Level 3* | 0,771 | 0,686 | 1,124 | 0,267 |
| *Level 4* | 1,648 | 0,699 | 2,357 | 0,023 * |
| *Level 5* | 2,320 | 0,764 | 3,035 | 0,004 ** |
| Level satisfaction with the support provided | | | | |
| *Level 2* | -1,015 | 0,985 | -1,031 | 0,308 |
| *Level 3* | 0,378 | 0,751 | 0,503 | 0,618 |
| *Level 4* | 0,206 | 0,642 | 0,320 | 0,750 |
| *Level 5* | -0,119 | 0,677 | -0,175 | 0,862 |
| Number of activities | 0,007 | 0,105 | 0,068 | 0,946 |
| Type of Coach | | | | |
| *3 Consultant (agency)* | -0,270 | 0,360 | -0,749 | 0,458 |
| *4 Developer innovation* | 0,646 | 0,497 | 1,298 | 0,201 |
| *5 Change manager* | 0,160 | 0,340 | 0,471 | 0,640 |
| *6 Implementation specialist* | 0,287 | 0,443 | 0,649 | 0,520 |
| *7 Healthcare worker* | -0,278 | 0,290 | -0,977 | 0,334 |
| *8 Implementation expert* | -0,117 | 0,315 | -0,372 | 0,712 |
| Type of Content | | | | |
| *2 Regulatory guidelines* | -0,615 | 0,311 | -1,976 | 0,055 . |
| *3 Technical knowledge* | 0,216 | 0,193 | 1,122 | 0,268 |
| *4 Networking contacts* | 0,030 | 0,221 | 0,134 | 0,894 |
| *5 Leadership* | 0,293 | 0,243 | 1,206 | 0,234 |
| *6 Marketing strategies* | -0,163 | 0,367 | -0,445 | 0,658 |
| *7 Financial management* | -0,241 | 0,279 | -0,864 | 0,392 |
| *8 Other* | -0,275 | 0,274 | -1,005 | 0,321 |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.6795 on 43 degrees of freedom, Multiple R-squared: 0.6408, Adjusted R-squared: 0.4487, F-statistic: 3.336 on 23 and 43 DF, p-value: 0.0003181

### 4.2.4 Model 4: Degree of Learning Ability with moderation variables

A linear regression model in Table 7 was also performed for the other dependent variable, the degree of learning ability, incorporating the independent and moderation variables. Initially, a model was created that included interaction terms between independent variables and contributions to goal achievement and satisfaction with the support provided. This initial model exhibited high multicollinearity and complexity, as indicated by high variance inflation factors (VIF) and numerous singularities in the coefficient estimates. Additionally, the overall F-statistic suggested that the model was not statistically significant ($F = 1.007$, p-value = 0.5821).

To deal with multicollinearity and complexity, the model was also simplified by eliminating interaction terms and focusing on the main effects. This approach resulted in fewer undefined coefficients and a more manageable level of multicollinearity, as evidenced by VIF values generally below 5. Nevertheless, several predictors remained statistically insignificant.

Significant predictors included Degree of Contribution to Goal Achievement at levels 4 ($p = 0.03369$) and 5 ($p = 0.00467$), with Content 2 also being significant ($p = 0.03488$). The model exhibited an improved overall fit, with an R-squared of 0.5756, suggesting that approximately 57.56% of the variance in the degree of learning ability is explained by the predictors in the model. The adjusted R-squared was 0.3486. The overall significance of the model was confirmed by a F-statistic of 2.536 and a p-value of 0.004133, indicating that the predictors collectively explain the variability in the degree of learning ability.

The model indicates that higher levels of contribution to goal achievement are significant predictors of the degree of learning ability. This means that when project goals are more substantially achieved (particularly at higher levels 4 and 5), the learning ability of the organization improves. Additionally, the specific content provided by the coach (Content 2) also significantly contributes to this improvement. Therefore, the model demonstrates that both achieving project goals and the quality of content provided by the coach are crucial factors in enhancing the learning ability of the organization.

**Table 7: Degree of Learning Ability with the moderation variables regression results**

| Variable | Estimate | Std. Error | t value | Pr(>\|t\|) |
|---|---|---|---|---|
| Intercept | 1,115 | 0,749 | 1,489 | 0,141 |
| Time spend directly with coach | 0,687 | 0,492 | 1,396 | 0,170 |
| Degree of contribution to goal achievement | | | | |
| *Level 2* | 1,444 | 1,120 | 1,289 | 0,204 |
| *Level 3* | 0,723 | 0,671 | 1,077 | 0,288 |
| *Level 4* | 1,503 | 0,685 | 2,194 | 0,034 * |
| *Level 5* | 2,235 | 0,749 | 2,985 | 0,005 ** |
| Level satisfaction with the support provided | | | | |
| *Level 2* | -0,237 | 0,964 | -0,245 | 0,807 |
| *Level 3* | 0,997 | 0,736 | 1,355 | 0,182 |
| *Level 4* | 0,855 | 0,629 | 1,360 | 0,181 |
| *Level 5* | 0,430 | 0,663 | 0,648 | 0,520 |
| Number of activities | -0,024 | 0,102 | -0,238 | 0,813 |
| Type of Coach | | | | |
| *3 Consultant (agency)* | 0,006 | 0,353 | 0,018 | 0,986 |
| *4 Developer innovation* | 0,664 | 0,487 | 1,364 | 0,180 |
| *5 Change manager* | -0,051 | 0,333 | -0,152 | 0,880 |
| *6 Implementation specialist* | 0,571 | 0,433 | 1,317 | 0,195 |
| *7 Healthcare worker* | 0,008 | 0,279 | 0,029 | 0,977 |
| *8 Implementation expert* | -0,076 | 0,309 | -0,246 | 0,807 |
| Type of Content | | | | |
| *2 Regulatory guidelines* | -0,665 | 0,305 | -2,179 | 0,035 * |
| *3 Technical knowledge* | 0,049 | 0,189 | 0,261 | 0,795 |
| *4 Networking contacts* | 0,034 | 0,216 | 0,157 | 0,876 |
| *5 Leadership* | 0,267 | 0,238 | 1,122 | 0,268 |
| *6 Marketing strategies* | -0,125 | 0,360 | -0,348 | 0,730 |
| *7 Financial management* | -0,243 | 0,273 | -0,892 | 0,377 |
| *8 Other* | -0,031 | 0,268 | -0,117 | 0,908 |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.6655 on 43 degrees of freedom, Multiple R-squared: 0.5756, Adjusted R-squared: 0.3486, F-statistic: 2.536 on 23 and 43 DF, p-value: 0.004133

The hypotheses for the moderation variables are the following. For the degree of contribution to goal achievement the hypothesis states that "The higher the degree of contribution to goal achievement, the higher the innovators' learning capacity and the extent of value creation, because achieving goals indicates effective coaching and resource utilization." and for the level of satisfaction with support the hypothesis indicated that "The higher the level of satisfaction with support, the higher the innovators' learning capacity and the extent of value creation, because satisfied participants are more likely to engage fully and benefit from the coaching process."

The analysis of both models provides partial support for these hypotheses. The variable "Degree of Contribution to Goal Achievement" significantly affects both learning and value creation outcomes, supporting its role as an influential factor. This aligns with the first hypothesis, confirming that achieving project goals through effective coaching and resource utilization enhances both learning capacity and value creation. Specifically, higher levels of goal achievement (particularly at levels 4 and 5) were found to be significant predictors of both learning ability and value creation, demonstrating that effective goal attainment is a crucial component of successful coaching outcomes. Therefore, the first hypothesis is **accepted.**

However, the variable "Level of Satisfaction with Support" did not show a significant influence in either model. This contradicts the second hypothesis, which suggested that higher satisfaction levels would significantly moderate the impact of coaching on learning and value creation outcomes. While satisfaction with support was hypothesized to enhance engagement and benefit from the coaching process, the analysis did not find a significant relationship, indicating that satisfaction alone may not be a sufficient driver of improved learning and value creation. Therefore, the second hypothesis is **rejected.**

In summary, the hypothesis regarding the degree of contribution to goal achievement is supported, indicating its importance in influencing coaching outcomes. Achieving higher levels of goal contribution significantly predicts better learning capacity and value creation, demonstrating the efficacy of targeted goal achievement in coaching. Conversely, the hypothesis concerning the level of satisfaction with support is not supported, suggesting that satisfaction does not significantly impact learning capacity and value creation in this context. Thus, the overall hypothesis is partially accepted, highlighting the critical role of goal achievement in enhancing coaching effectiveness.

### 4.2.5 Overview quantitative analysis

The table 8 summarizes the results of the hypothesis testing for the variables influencing the level of value creation. The hypotheses were tested using linear regression models, and the results indicate the significance and direction of the effects of independent, context, and moderation variables on the dependent variables. The findings provide insights into which factors contribute to successful value creation and enhanced learning capacity in the context of coaching-supported healthcare innovation projects.

**Table 8: Results of the hypotheses testing for the dependent variable Level of Value Creation**

| Hypothesis | Result |
|---|---|
| **Independent Variables** | |
| The higher the frequency of direct sessions with the coach, the higher the extent of value creation. | Rejected (Negative effect, p-value = 0.042) |
| The higher the variety of activities engaged with the coach, the higher the level of value creation. | Partially Accepted (Marginally significant, p-value = 0.061) |
| The type of coach directly impacts the level of value creation. | Accepted (Certain types of coaches negatively influence value creation, p-value = 0.030) |
| The type of content contributed by the coach directly influences the level of value creation. | Accepted (Specific content types negatively impact value creation, p-value = 0.031) |
| **Context Variables** | |
| Higher perceived value leads to higher value creation. | Rejected (Not significant, p-value = 0.167) |
| Higher acceptance by healthcare professionals leads to higher value creation. | Accepted (Significant positive effect, p-value = 0.012) |
| Higher organizational innovation readiness leads to higher value creation. | Accepted (Significant positive effect, p-value = 0.021) |
| Regulatory environments shape the level of value creation. | Rejected (Not significant, p-value = 0.721) |

| | |
|---|---|
| **Confounding Variables** | |
| Different types of healthcare innovations require distinct coaching expertise, affecting value creation. | Accepted (Certain types of healthcare innovations positively influence value creation, p-values = 0.03, 0.027, 0.003, 0.013, 0.003, 0.004) |
| Number of IOC Round influences the level of value creation as the coaching requirements evolve over time. | Accepted (Certain IOC rounds positively influence value creation, p-values = 0.015, 0.009) |
| Larger organizations better adopt innovations, impacting value creation. | Rejected (Not significant, p-value = 0.762) |
| Organizations involved in multiple sectors require distinct coaching support, affecting value creation. | Partially Accepted (Marginally significant, p-value = 0.094) |
| **Moderation Variables** | |
| The higher the degree of contribution to goal achievement, the higher the innovators' learning capacity and the extent of value creation. | Accepted (Significant effect, p-values: 0.023, 0.004) |
| The higher the level of satisfaction with support, the higher the innovators' learning capacity and the extent of value creation. | Rejected (Not significant, p-values: 0.617, 0.750) |

Table 9 presents the hypotheses tested the degree of learning ability of innovators in healthcare organizations. Again, the independent, context, confounding and moderation variables are summarized in the table. The findings are based on the earlier performed models.

**Table 9: Results of hypotheses testing for the dependent variable Degree of Learning Ability**

| Hypothesis | Result |
|---|---|
| **Independent Variables** | |
| The higher the frequency of direct sessions with the coach, the higher the innovators' learning ability. | Rejected (Not significant, p-value = 0.564) |
| The higher the variety of activities engaged with the coach, the higher the innovators' learning ability. | Accepted (Significant positive effect, p-value = 0.048) |

| | |
|---|---|
| The type of coach directly impacts the learning ability of the innovators. | Partially Accepted (Certain types of coaches can significantly influence learning ability, p-values: 0.091, 0.066) |
| The type of content contributed by the coach directly influences the learning ability of the innovators. | Accepted (Specific content types negatively impact learning ability, p-value = 0.049) |
| **Context Variables** | |
| Higher perceived value leads to higher learning capacity. | Rejected (Not significant, p-value = 0.108) |
| Higher acceptance by healthcare professionals leads to higher learning capacity. | Rejected (Not significant, p-value = 0.648) |
| Higher organizational innovation readiness leads to higher learning capacity. | Rejected (Not significant, p-value = 0.131) |
| Regulatory environments shape the degree of learning capacity. | Rejected (Not significant, p-value = 0.887) |
| **Confounding variables** | |
| Different types of healthcare innovations require distinct coaching expertise, affecting learning ability. | Accepted (Certain types of healthcare innovations positively influence learning ability, p-values = 0.01, 0.048, 0.029, 0.049) |
| Number of IOC Round influences the degree of learning ability as the coaching requirements evolve over time. | Accepted (Certain IOC rounds positively influence value creation, p-values = 0.01, 0.042, 0.003) |
| Larger organizations better adopt innovations, impacting learning ability. | Rejected (Not significant, p-value = 0.404) |
| Organizations involved in multiple sectors require distinct coaching support, affecting learning ability. | Rejected (Not significant, p-value = 0.941) |
| **Moderation Variables** | |
| The higher the degree of contribution to goal achievement, the higher the innovators' learning capacity and the extent of value creation. | Accepted (Significant effect on learning ability, p-values: 0.009, 0.0004) |

| | |
|---|---|
| The higher the level of satisfaction with support, the higher the innovators' learning capacity and the extent of value creation. | Rejected (Not significant, p-values: 0.182, 0.181) |

Figure 5 summarises the results of the hypothesis testing for the variables influencing the level of value creation and learning ability in healthcare innovations. It shows for which dependent variable the hypothesis is accepted and if there is a positive or negative effect (+/-). When there is no effect for both dependent variables a (0) is used to define the relationship. If the hypothesis could be partially accepted, (~) can be seen.

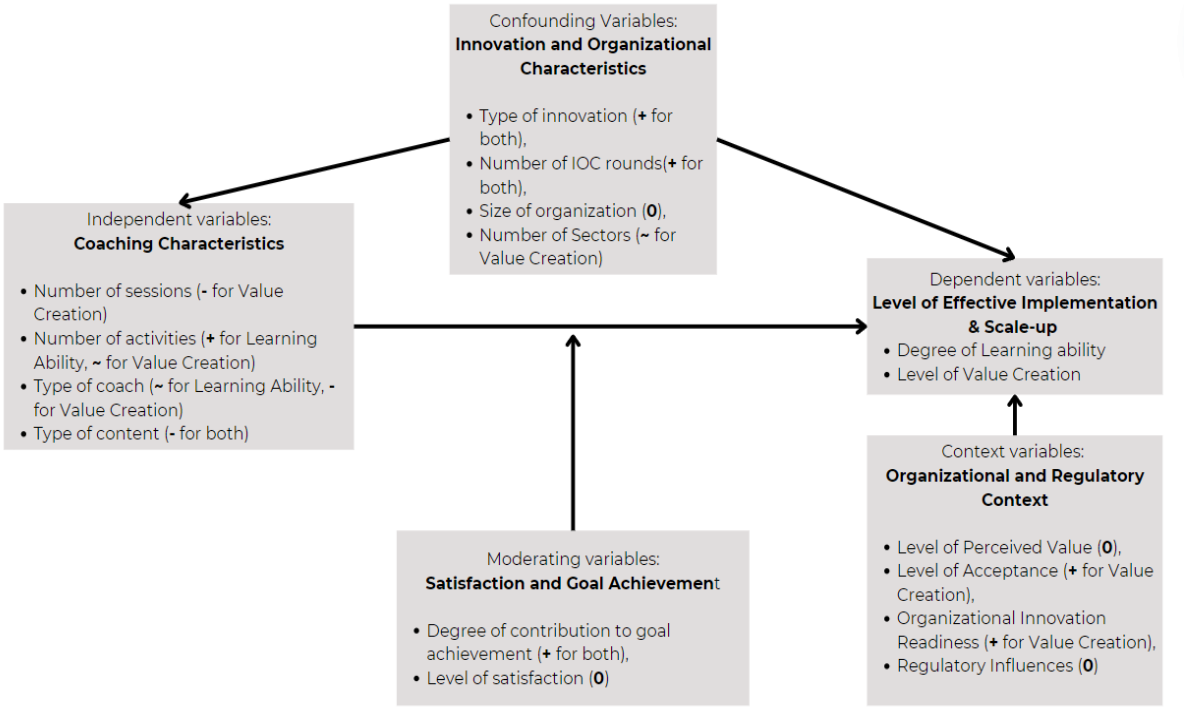


**Figure 5: Relationship between variables after hypothesis testing**

## 4.3 Analysis open question qualitative

The open questions in the analysis are divided into two parts. The first part focuses on questions derived from the variables shown in the conceptual model, which were also addressed through closed questions in the survey. To provide greater depth and detail, some of these closed questions were expanded into open-ended questions. These are discussed in the first section of this chapter. The second part includes questions requested by ZonMw to gather insights on areas for improvement within the IOC grant program. This section explores these feedback questions in detail. The chapter concludes with a table summarizing the overall conclusions for each question.

# Part I: In-Depth Exploration of Conceptual Model Variables

### 4.3.1 Examples of Activities

To better understand the characteristics of coaching, some variables were further questioned for more details. For instance, the variable "Number of Activities Engaged with the Coach" was further explored. Responses to the open question "Can you give examples of how specific activities with your coach have led to improvements in your project?" highlight various experiences.

Positive outcomes included increased technology use, mentioned three times, such as the use of the Physitrack app. One respondent noted, "The increased use of the Physitrack app as an e-Health and exercise program for physiotherapy patients. The coach showed how and wherefore we could use the app, since we already had it but did not do anything with it." This suggests the coach demonstrated the app's benefits, provided training, and offered ongoing support, thereby encouraging more frequent use by practitioners. Enhanced networking with general practitioners and other stakeholders was mentioned five times. Coaches facilitated these connections, enabling teams to leverage external expertise and support. For example, one respondent stated, "He introduced us to innovative general practitioners," while another mentioned, "Our coach used her experience/knowledge of home care and welfare to give us a boost in networking and speaking the language of this specific care market."

Workshops and training sessions were cited six times as providing practical skills and insights, including VR headset training and care technology strategy development. One participant mentioned, "Workshops and assignments provided insight into how behavioural change comes about and which strategies are appropriate for different situations." Implementation advice through consultations, writing plans, and seeking funding was also frequently mentioned, appearing four times. A respondent shared, "By writing an implementation plan and finding funding, two projects were carried out."

Knowledge sharing and the establishment of a knowledge hub for E-health were highlighted seven times. One participant noted, "Coaches have helped us set up sessions to gather information, structure the available information, and formulate next steps. They also tested the products we created and gave constructive feedback." Well-crafted business cases, also mentioned seven times, gained support for scaling up. For example, a respondent said, "A strategy has been developed that provides tools to properly implement and incorporate care

technology into the care process. A toolbox has been jointly developed that we can continue to use ourselves." Workshops on behaviour change strategies and targeted grant acquisition efforts yielded significant funding, mentioned five times. One respondent highlighted, "Last year, targeted search for partners and follow-up funding efforts resulted in a €500k grant." Coaches also assisted with project management, cited five times. As one participant stated, "Coordination with planning, secretariat, healthcare professionals, etc. Project management activities."

However, some respondents noted dissatisfaction with the coach's approach or failure to secure concrete partnership outcomes, mentioned three times. For instance, one respondent said, "The coach was telling us what we could tell our employees. Just read a cheap script." Reluctance among care providers to integrate technology remains a challenge, despite some positive impacts, mentioned twice. A participant highlighted, "In March, a joint meeting was held, with 12 of the 17 practices present, of which 8 practices were already using Mind2Care (47%). However, 53% of members had significant objections ranging from too much work for pregnant women to functionality issues with the instrument and it being very time-consuming."

Overall, the data show that coaching has had diverse impacts on healthcare innovation projects. This emerged from the varied responses where many participants reported significant improvements in specific areas such as technology use (3 times), networking (5 times), workshops and training sessions (6 times), implementation advice (4 times), knowledge sharing (7 times), well-crafted business cases (7 times), behaviour change strategies (5 times), and project management assistance (5 times). On the other hand, challenges in technology adoption and resistance persist, as highlighted by dissatisfaction with coaching approaches (3 times) and reluctance to integrate technology (2 times). Coaches with relevant experience and technical expertise are highly valued as mentioned by the respondents for providing practical insights, best practices, and strategic advice. Business and financial planning results are mixed, with some reporting positive outcomes, while others found these activities less beneficial.

### 4.3.3 Examples of Coach Contribution

To gain further insight into coach characteristics, the "Type of Content Contributed by the Coach" was also examined. This was combined with the moderation variable "Degree of Goal Achievement" where a question was constructed to examine this. Responses to the question "Can you give examples of the coach's contribution to achieving project goals?" reveal significant facilitation of progress.

Information provision was mentioned three times. One respondent stated, "Extensive information provision, conveniently made available. The coach enthused and motivated." This shows coaches' information-sharing efforts were well-received and guided the projects. Technical and governance improvements were highlighted twice. One respondent noted, "The coach improved the technical (ICT) and governance perspective and also supported the innovator's personal development to find support within the governing body." This indicates that coaches helped enhance both the technological framework and the organizational support for projects.

Training sessions and workshops were frequently mentioned, appearing four times. One respondent said, "Organizing training sessions, for healthcare professionals to gain new knowledge about the innovation," and another highlighted, "Brainstorming sessions that inspired the project's setup. Therefore we had a more clear view on what we should to do and also what actions we need to take to complete it." These sessions provided participants with the necessary skills and insights to advance their projects effectively. In the answers on the questions respondents also highlighted the role of the coach to their goal contribution. Coaches were recognized for their proactive, organized, and driven approach, mentioned three times. One participant shared, "He was very proactive, organized, and driven, which helped to overcome the problems we experienced prior to the subsidy," while another mentioned, "Very stimulating, easily accessible, and extremely helpful with challenges."

Networking and practical knowledge were emphasized five times. As one respondent mentioned, "Network knowledge, technical knowledge, practical knowledge. Perseverance," and another added, "Sharing experiences from previous implementations. She gave us insights we could use for our own project." Difficulties in securing partnerships were noted twice. One participant highlighted, "The coach participated in conversations with health insurers, which is a major obstacle in getting funding for healthcare innovation." Presentation and communication skills were cited three times. One respondent noted, "Presentations with background knowledge, supporting planning achievement, conversations with third parties, good and useful feedback." Coaches were effective in delivering presentations and communicating project plans. This highlights how effective communication from coaches helped clarify and advance project objectives.

Developing implementation plans and securing funding were crucial contributions, mentioned four times. For instance, a respondent shared, "At the start we were lost and did not know where to begin. The coach contributed in many ways. Writing an implementation plan and writing a grant application. Organizing and developing focus groups." Behaviour change and motivation were highlighted three times. One participant mentioned, "Providing insight into which factors are important for behaviour change, how to determine which factors are important in which situation, and which interventions match."

Project management and structuring were also mentioned four times. One respondent said, "Very structured towards result (traction)," and another added, "Project management qualities." Coaches contributed to project management by structuring and guiding projects towards results.

However, some challenges and areas for improvement were noted. Incomplete information was mentioned twice, with one respondent stating, "Factsheet made, but unfortunately incomplete," and another added, "The coach had information for our organization on how to implement the care product in a Google Drive map, but did not help with this implementation or gave us ideas how we can do it." This highlights the need for more comprehensive information provision and guidance. Lack of practical experience with tools was another issue, mentioned twice. A respondent mentioned, "The coach told us how a software program for remote care worked but often couldn't answer questions and didn't use the program herself."

The preference for more in-person sessions over online interactions was mentioned twice. One respondent noted, "We found it (contributing to the goal) minimal: only online, no physical

sessions, and they received a lot of money for minimal work." Finally, unclear communication and expectations were sometimes an issue, mentioned twice. For instance, one respondent said, "I think our question to the coach was not always clear. If this had been better worked out or questioned, the effect would have been better."

Overall, the data show that coaches had diverse impacts on achieving project goals. This emerged from varied responses, with many participants highlighting significant contributions in specific areas such as information provision (3 times), technical and governance improvements (2 times), training (4 times), networking (5 times), presentation skills (3 times), difficulties in securing partnerships (2 times), implementation planning (4 times), behaviour change (3 times), and project management (4 times). However, challenges such as incomplete information (2 times), lack of practical experience (2 times), preference for in-person sessions (2 times), and unclear communication (2 times) also emerged, indicating areas for further improvement. Coaches with relevant experience and technical expertise are highly valued for providing practical insights, best practices, and strategic advice."

### 4.3.2 Change of Stakeholders' Views on Innovation

As theory strongly suggests, stakeholder opinions, particularly those of healthcare professionals, are crucial for the successful implementation and scale-up of an innovation. Consequently, the context variables "Level of Perceived Value" and "Level of Acceptance by Healthcare Professionals" were further investigated in the open-ended question: "How has participation in the IOC subsidy changed stakeholders' views on the innovation?"

Increased knowledge, understanding, and a shift from scepticism to a positive attitude emerged as significant themes, mentioned collectively seven times. Several respondents indicated that participation in the IOC scheme led to stakeholders gaining more knowledge and understanding of the innovation. One noted, "More knowledge, more certainty obtained about the use and possibilities," while another said, "Where stakeholders were sceptical regarding the utility and necessity before participating in the IOC scheme, they are now positive about the implementation of the innovation."

Greater openness among management and enhanced motivation and support for digitalization were highlighted five times. The scheme helped in making management more open to the potential of innovation and motivated stakeholders to embrace digitalization more enthusiastically. One participant stated, "Especially management has become more open to the potential of innovation," and another added, "More motivated to shape the digitalization of care."

Increased adoption and broader acceptance and enthusiasm for integrating technology into care processes were noted collectively eight times. Forced participation in the innovation during the scaling-up phase increased its use and reduced resistance. One respondent shared, "By obliging users to participate in the innovation during the scaling-up phase, the use has increased significantly. The initial fear was taken away." Another highlighted, "Stakeholders are now more positive about innovation and understand the added value of certain tools."

Concrete innovations and better insights were mentioned three times. The IOC scheme helped in developing concrete innovations and providing better insights into their impacts. One respondent noted, "We have developed the concept into a concrete care innovation, giving better insight into the plan and its effect for various partners and care recipients."

Notably, one respondent highlighted the establishment of an innovation department following the IOC scheme: "The willingness to engage more with innovation. Actions were developed even without subsidies. The organization established an innovation department after this IOC scheme. Better collaboration because we are more aligned. Stakeholders are more positive towards innovation. They have more insight into why certain tools are used and what their added value is. By focusing on the 'why,' acceptance and enthusiasm have emerged." This response underscores the long-term impact of the scheme in fostering a culture of innovation and improving collaboration and acceptance.

However, some challenges and areas of limited impact were also noted. Continued resistance and unmet goals were mentioned twice. Despite efforts, some stakeholders continued to resist, and specific goals were not achieved. One respondent noted, "Despite the extra efforts of the implementation coach, the goal of offering the tool to all clients was not achieved. There remains resistance among stakeholders."

Limited impact due to specific circumstances and mixed reactions were mentioned five times. In some cases, the IOC scheme had little to no impact due to specific circumstances or limitations. One respondent mentioned, "Not applicable," and another said, "The scaling-up phase never fully reached the implementation phase, so the stance of the stakeholders has not changed." Financial and structural challenges remained significant hurdles, mentioned twice. One respondent mentioned, "Organizations were still heavily reliant on interns for implementation, leading to no structural embedding of eHealth in various organizations."

Overall, participation in the IOC scheme generally led to positive changes in stakeholder attitudes towards innovation. Increased knowledge and understanding, combined with a shift from scepticism (mentioned 7 times), greater openness among management and enhanced motivation (5 times), and increased adoption and acceptance of technology (8 times) were significant positive shifts. These changes emerged from practical involvement, increased visibility, and structured implementation plans. However, challenges such as continued resistance (2 times), limited impact and mixed reactions (5 times), and financial and structural constraints (2 times) also surfaced, indicating areas for improvement. The frequency of these mentions highlights the nuanced impact of the IOC scheme on stakeholder attitudes, with both significant advancements and persistent obstacles.

# Part ll: ZonMw Feedback and Areas for Improvement in the IOC Subsidy Program

## 4.3.3 Challenges and Guidance during the IOC project

To better understand the key challenges encountered during the IOC project and how coaches helped in overcoming these challenges, responses to the questions “What were the main challenges you encountered during the IOC project?” and “How did your coach help in overcoming these challenges?” were analysed. This combined analysis highlights various themes and the frequency with which they were mentioned.

Time investment issues were a major challenge, mentioned eight times. Respondents noted that only the coach’s time was compensated, leaving the practice's contact person and colleagues to bear their own costs. One respondent said, "Time investment was only reimbursed for the coach. The time investment for the practice contact person and colleagues was fully at the expense of the practice." Another highlighted, "Time pressure: the project is only six months." There were also mentions of time and cost constraints, such as "Time and costs." Technical and integration problems were mentioned seven times, including difficulties in integrating the innovation into the existing ICT landscape. One participant shared, "Integrating it into the current ICT landscape and space between ongoing ICT projects and time of ICT staff for integration." Financial constraints were significant, mentioned five times, with respondents noting the difficulty in securing funding for healthcare innovation.

Regulatory challenges were mentioned six times, highlighting issues with laws and regulations. One respondent stated, "Legislation around automatically inviting patients," while another mentioned, "There are laws and regulations that hinder further safeguarding." Organizational challenges, including planning and control difficulties, were mentioned seven times. Respondents reported problems in planning and executing project activities. Resistance from staff and creating buy-in were mentioned six times, with respondents reporting challenges in gaining support from personnel. One participant shared, "Gaining support from staff," while another mentioned, "Resistance from employees towards working differently." Engaging other healthcare professionals and stakeholders was noted four times. Communication and perception issues were mentioned four times. Some respondents found it challenging to explain the value of the innovation, with one stating, "I found the counter-hearing route strange: I had to explain the value of video calling." Others mentioned issues with creating awareness among stakeholders.

Setting concrete goals and structured planning were mentioned six times. Respondents highlighted that coaches helped by setting clear, achievable objectives and organizing tasks efficiently. One respondent said, "Yes, by setting concrete goals." Providing support and encouragement was mentioned seven times. Coaches played a crucial role in motivating participants and keeping them focused on their goals. One respondent stated, "They kept us motivated and pushed us forward." Leveraging networks and external contacts were noted five times. Coaches connected teams with the right people and resources. One participant shared, "Our coach connected us with the right people." Workshops, training, and knowledge sharing were highlighted seven times. Coaches organized workshops and training sessions to equip participants with the necessary skills and knowledge. One respondent noted,

"Workshops, providing ideas on how to stimulate things," and another added, "Online training and instructions provided answers and guidance."

Tailored interventions and adaptability were mentioned six times. Coaches adapted their approaches based on the specific needs of the teams and projects. One participant stated, "Assignments better aligned with the time available to participants." Problem-solving and providing practical solutions were noted five times. Coaches helped teams address challenges by offering practical advice and solutions. One respondent shared, "Coach made it clear that using the new electronic tool was not that complicated and could reduce administrative burdens for caregivers." Encouraging collaboration and consensus-building was mentioned four times. Coaches facilitated discussions and collaborations among team members and stakeholders. One participant stated, "Engaging in discussions with colleagues, identifying resistances, organizing knowledge sessions, and letting them experience it."

However, despite these efforts, there were mentions of limited impact and unmet goals. Some respondents felt that the coaching did not lead to significant outcomes, as noted six. One respondent stated, "Not really overcoming challenges during the coaching trajectory," while another mentioned, "The challenges were not overcome during the coaching period."

Overall, the key challenges encountered during the IOC project can be grouped into several main categories. Time and resource constraints mentioned (8 times), followed by technical, integration, and financial issues (12 times), resistance and stakeholder engagement issues (10 times), communication and perception issues (4 times). Coaches provided valuable support in various ways, including setting concrete goals (6 times), offering support and encouragement (7 times), leveraging networks (5 times), organizing workshops and training (7 times), providing tailored interventions (6 times), solving problems with practical solutions (5 times), and fostering collaboration (4 times). These efforts helped teams address many challenges effectively, although some obstacles persisted. The frequency of these mentions highlights the multifaceted role of coaches in overcoming project challenges, with both significant contributions and areas where further support might be needed.

### 4.3.4 Coach Improvements

To assess ways in which coaching guidance during the IOC project could be improved, responses to the question, "What could your coach have done better in the guidance? Were there aspects of the support you missed or that could have been improved?" were examined. The analysis revealed several key themes and their frequency of occurrence.

Many respondents expressed general satisfaction with their coaching experience, with no significant improvements suggested, mentioned 20 times. Statements such as "No, coaching trajectory could not have been better," "No concrete improvement suggestions," and "We are satisfied" reflect this sentiment.

Some respondents noted a need for greater effectiveness and focus on the coaching, mentioned six times. For example, one respondent mentioned, "We could have focused more on one or two concrete problems/actions and explored them thoroughly." Another highlighted, "Earlier testing to see if objectives were formulated realistically." Financial concerns and

subsidy issues were mentioned four times. One respondent stated, "The financial incentive, read subsidy, should not be provided. Those who benefit are clever companies making a lot of money under the guise of coaching." Another mentioned, "Clearer explanation of this subsidy application for laypeople."

Technical support was another area for improvement, mentioned three times. Respondents indicated that coaches could have played a more significant role in technical adjustments. One participant noted, "The supplier should have made a technical adjustment in the software. This did not happen, and we did not fully utilize the potential. The coach could have played a bigger role here." Improving stakeholder analysis and connections was mentioned three times. One respondent suggested, "Better stakeholder analysis and connection with stakeholders." Another mentioned the need for coaches to understand the internal culture and language of the organization better.

Time management and more frequent feedback were mentioned four times. Respondents expressed the need for more feedback moments and better time indications. One respondent noted, "More frequent feedback moments, but given the limited time, this was difficult," while another mentioned, "A better time indication could have been provided." Some respondents desired more hands-on and practical support, mentioned three times. One participant stated, "Active additions and a hands-on approach to using their network." Another suggested that the coach could have led more sprints and brought people together if there had been more time.

Post-project follow-up and action were mentioned three times. One respondent noted, "After the delivery of the vision, there was a lack of decisiveness." Another suggested that more time was needed for behavioural change among users. Specific areas for improvement were mentioned sporadically. These include clearer explanations of the subsidy application process, better integration with the organization's culture, and more effective problem-solving focus. For instance, one respondent mentioned, "Help in improving functionalities," while another highlighted, "The coach should have known the internal way, connected with the culture, and understood the language of the staff/management team."

Overall, the feedback on coaching during the IOC project indicates general satisfaction but highlights several areas for improvement. General satisfaction was expressed 20 times, indicating that many respondents were pleased with the coaching. However, areas such as effectiveness and focus (6 times), financial and subsidy issues (4 times), technical support (3 times), stakeholder engagement (3 times), time management (4 times), hands-on and practical support (3 times), and post-project follow-up (3 times) were noted for improvement. These themes suggest that while coaches were generally effective, there are specific areas where their support could be enhanced to better meet the needs of the organizations they are assisting.

### 4.3.5 Innovation after the IOC project

To better understand the plans of organizations to support and scale innovation after the IOC project, responses to the question "What were/are your organization's plans to support and scale the innovation after the IOC project?" were analysed.

Scaling and broader implementation were mentioned 15 times. Respondents indicated ongoing efforts to expand the use of innovations across their organizations. One respondent noted, "We are continuing to scale up," while another mentioned, "We are currently scaling up more broadly." Another shared, "The innovation has now been successfully deployed in several departments of the hospital. Further rollout (organization-wide) is still ongoing." Financial and funding plans were mentioned eight times. Some respondents expressed concerns about the financial aspects of scaling innovations. One participant mentioned, "Ultimately stopped because the project costs became too high," while another highlighted, "We are waiting for new funding to further implement the innovation. With limited means, we have now received some small grant money from a university for impact measurement."

Continued use and support of the innovation were mentioned seven times. Respondents indicated that they are still using the innovations and receiving support from suppliers. One participant shared, "The VR headset is still being used, but implementation remains a point of attention. We still have support from the supplier and have given it another year to stimulate use." Another noted, "The innovation is still being used, and we are working to expand it." Integration and process improvement were mentioned six times. Respondents indicated plans to integrate innovations into their existing processes to improve efficiency. One respondent stated, "The implementation leads to better processes, so direct application if it works. Adjust if it doesn't work." Another mentioned, "Further development of the organization in the context of administrative burden reduction was immediately initiated after the project and successfully implemented."

Creating awareness and motivation were mentioned five times. Respondents highlighted the importance of increasing awareness and motivating staff to adopt innovations. One participant noted, "We are going to focus even more on awareness and motivation of our employees. We are also going to develop other forms of care where care technology is part of it." Another mentioned, "We had hoped that digital consultation and guidance would become a standard service alongside the regular offering." Partnerships and collaboration were mentioned five times. Respondents indicated plans to work with other organizations and stakeholders to support and scale innovations. One participant shared, "Other practices have approached us to transfer the knowledge. They also want to implement it." Another noted, "We remain welcome at various organizations and will work to achieve structural embedding and financing."

New projects and expansions were mentioned five times. Respondents indicated plans to start new projects or expand existing ones to further support innovation. One respondent noted, "We have three projects that we are going to implement," while another mentioned, "We are continuing and getting new additions every month." Marketing and sales plans were mentioned three times. Respondents highlighted efforts to market and sell their innovations to

a broader audience. One participant shared, "We are continuing with sales and marketing in the Netherlands." Another noted, "The acquired knowledge will be used for marketing and sales purposes of our innovation."

Overall, organizations expressed a range of plans to support and scale innovations after the IOC project. Scaling and broader implementation were the most frequently mentioned, appearing 15 times. Financial and funding plans were mentioned eight times, indicating concerns about the costs of scaling innovations. Continued use and support, integration and process improvement, creating awareness and motivation, partnerships and collaboration, new projects and expansions, and marketing and sales were also significant themes, highlighting the multifaceted strategies organizations are employing to sustain and grow their innovations. These responses suggest that while there is a strong commitment to scaling and supporting innovations, financial and resource challenges remain critical factors that organizations need to address.

### 4.3.6 Improvements of the IOC

To better understand how the IOC subsidy scheme could be improved to better support the implementation and scaling of healthcare innovations, responses to the question "Which aspects of the IOC subsidy scheme do you think could be improved to better support the implementation and scaling of healthcare innovations?" were analysed. This combined analysis highlights various themes and the frequency with which they were mentioned.

Financial support and cost coverage were mentioned seven times. Respondents suggested that subsidies should also cover the time investment of internal staff, not just the coach. One participant stated, "A contribution to cost reimbursement not only for the coach but also for the time investment within the organization." Another noted, "Financing of our own people (not just external) should be included." The duration and flexibility of the scheme were mentioned six times. Respondents highlighted the need for longer implementation periods and more flexible timelines. One respondent shared, "The IOC is quite short. Real implementation and anchoring take longer," while another mentioned, "A longer implementation period and a higher amount would help. Also, funding our own people, not just externals."

The administrative burden and the complexity of the application process were mentioned eight times. Respondents suggested simplifying these processes to make the scheme more accessible. One participant noted, "The whole trajectory is so complicated, especially the subsidy application. That really needs to be easier." Another mentioned, "Simplify the application and accountability process to lower the application threshold." The quality and role of coaches were mentioned five times. Some respondents felt that internal coaches should be allowed and that the focus should be more on hands-on support. One participant stated, "Allow internal coaches too, now you are forced to hire an (expensive) external coach." Another noted, "The coaching should not just focus on advice but also on direct time investment in helping to find the right contacts and contributing to the input sought."

Extended support and follow-up were mentioned four times. Respondents expressed the need for ongoing support even after the initial project period. One respondent shared, "Follow-up support over a longer period," while another mentioned, "We have no possibility for follow-up. Our target group (babies) was excluded from the new rounds, which only focus on innovations

in elderly care." Specific areas for improvement were mentioned sporadically. These include providing more knowledge sharing and support for scaling innovations, reducing the administrative load, and making the process less stressful. For instance, one respondent mentioned, "Provide more support for knowledge sharing and funding the deployment of healthcare personnel for scaling/implementing the innovation," while another highlighted, "Make the reporting at the end of the project smaller. We made a report that was hardly read, costing a lot of work and taking the flow out of the project."

Overall, the feedback indicates several areas where the IOC subsidy scheme could be improved to better support the implementation and scaling of healthcare innovations. Financial support and cost coverage were the most frequently mentioned, appearing seven times. Duration and flexibility of the scheme were highlighted six times, indicating a need for longer and more adaptable project timelines. Administrative and application process improvements were mentioned eight times, emphasizing the need for simplification. The quality and role of coaches were mentioned five times, suggesting that allowing internal coaches and focusing on practical support could enhance the scheme. Extended support and follow-up were mentioned four times, pointing to the need for ongoing assistance beyond the initial project period. Specific areas for improvement were also noted, highlighting the diverse needs of organizations participating in the scheme. These responses suggest that while the IOC subsidy scheme provides valuable support, there are key areas where adjustments could significantly enhance its effectiveness and accessibility.

### 4.3.7 Overview of the qualitative analysis

Table 10 provides a summary of the responses to open-ended questions analysed in this research. It highlights the key themes and findings. Overall, the table demonstrates the diverse role of coaches in supporting innovation projects and the diverse strategies organizations employ for innovations. It underscores the importance of tailored coaching, ongoing support, and addressing financial and structural challenges to enhance the effectiveness of the IOC subsidy program.

**Table 10: Summary of the finding qualitative analysis**

| Section | Question | Key Themes and Findings |
|---|---|---|
| **4.3.1 Examples of Activities** | Can you give examples of how specific activities with your coach have led to improvements in your project? | Increased technology use, enhanced networking, workshops and training, implementation advice, knowledge sharing, business cases, behavior change strategies, project management. Challenges include dissatisfaction with coaching and resistance to technology integration. |
| **4.3.3 Examples of Coach Contribution** | Can you give examples of the coach's contribution to achieving project goals? | Information provision, technical and governance improvements, training sessions, networking, presentation skills, difficulties securing partnerships, implementation planning, behavior change, project management. Challenges include incomplete information, lack of practical experience, preference for in-person sessions, unclear communication. |
| **4.3.2 Change of Stakeholders' Views on Innovation** | How has participation in the IOC subsidy changed stakeholders' views on the innovation? | Increased knowledge, understanding, and positive attitudes; openness and motivation for digitalization; increased adoption and acceptance; concrete innovations; challenges include continued resistance, limited impact due to specific circumstances, financial and structural challenges. |
| **4.3.4 Challenges and Guidance during the IOC Project** | What were the main challenges you encountered during the IOC project?<br>How did your coach help in overcoming these challenges? | Time and resource constraints, technical and financial issues, resistance and stakeholder engagement, communication issues. Coaches provided support in setting goals, encouragement, leveraging networks, organizing workshops, tailored interventions, problem-solving, fostering collaboration. Persistent obstacles include unmet goals and limited impact. |

| | | |
|---|---|---|
| **4.3.6 Coach Improvements** | What could your coach have done better in the guidance? Were there aspects of the support you missed or that could have been improved? | General satisfaction, need for greater focus, financial concerns, technical support, stakeholder analysis, time management, hands-on support, post-project follow-up, specific areas for improvement. |
| **4.3.7 Innovation after the IOC Project** | What were/are your organization's plans to support and scale the innovation after the IOC project? | Scaling and broader implementation, financial and funding plans, continued use and support, integration and process improvement, creating awareness and motivation, partnerships and collaboration, new projects and expansions, marketing and sales. |
| **4.3.8 Improvements of the IOC** | Which aspects of the IOC subsidy scheme do you think could be improved to better support the implementation and scaling of healthcare innovations? | Financial support and cost coverage, duration and flexibility of the scheme, administrative and application process improvements, quality and role of coaches, extended support and follow-up, specific areas for improvement. |

## 4.4 Synthesis of the results

The synthesis of quantitative and qualitative findings reveals key factors influencing value creation and learning ability in healthcare innovation projects.

Quantitatively, regression models show that the degree of contribution to goal achievement significantly boosts both value creation and learning ability. Diverse coaching activities enhance learning outcomes, while specific types of coaches and content, particularly regulatory and compliance guidelines, negatively impact both measures. Context variables like acceptance by healthcare professionals and organizational readiness positively affect value creation, but perceived value and regulatory influences do not. Satisfaction with support did not show significant impact on outcomes.

Qualitatively, effective coaching activities such as workshops, training, and implementation advice were highlighted, enhancing technology use, networking, and project management. Respondents noted the importance of the coach's role in providing motivation, structured planning, and tailored support to overcome challenges like resistance, technical issues, and financial constraints. However, areas for improvement include addressing incomplete information, lack of practical experience, and preference for in-person sessions.

Combining these findings, the importance of goal-setting and achievement, diverse coaching activities, tailored coaching approaches, and effective support systems emerge as crucial for successful innovation. Structured planning, clear communication, and supportive organizational contexts are key to driving value creation and learning ability.

Overall, the synthesis of quantitative and qualitative findings underscores the importance of targeted goal achievement, diverse and practical coaching activities, supportive organizational contexts, and effective coach-stakeholder interactions in driving value creation and learning ability in healthcare innovation projects. These insights are summarized in table 11.

**Table 11: Synthesis of quantitative and qualitative findings**

| Variable | Quantitative Findings | Qualitative Findings | Combined Insights |
|---|---|---|---|
| **Independent Variables** | | | |
| **Number of Sessions with Coach** | - Level of Value Creation: Hypothesis rejected (negative effect, p-value = 0.042).<br>- Degree of Learning Ability: Hypothesis rejected (not significant, p-value = 0.564). | - Time investment issues and cost concerns were major challenges.<br>- Coaches provided support in setting concrete goals and tailored interventions. | The increased number of sessions with the coach did not significantly improve outcomes. It did have a negative outcome on value creation. Time investment issues and inefficiency in session utilization need addressing. |
| **Number of Activities Engaged with Coach** | - Level of Value Creation: Partially accepted (marginally significant positive effect, p-value = 0.061).<br>- Degree of Learning Ability: Accepted (significant positive effect, p-value = 0.048). | - Positive outcomes included increased technology use, networking, workshops, training, and implementation advice.<br>- Challenges included dissatisfaction with coaching approaches and resistance to technology. | Engaging in a variety of activities with the coach positively impacts both value creation and learning ability. Practical activities are effective, though some dissatisfaction and resistance need addressing. |
| **Type of Coach** | - Level of Value Creation: Accepted (certain types of coaches had significant negative impacts, p-value = 0.030).<br>- Degree of Learning Ability: Partially accepted (marginally significant impacts, p-values: 0.091, 0.066). | - Coaches were valued for technical and governance improvements, training, and proactive approaches.<br>- Issues included incomplete information, lack of practical experience, and preference for in-person sessions. | The type of coach significantly impacts outcomes. Effective coaches provide technical and governance support. Incomplete information and lack of practical experience highlight areas needing improvement. |

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| **Type of Content Contributed by Coach** | - Level of Value Creation: Accepted (specific content types had significant negative impacts, p-value = 0.031).<br>- Degree of Learning Ability: Accepted (negative impacts, p-value = 0.049). | - Coaches contributed significantly through information provision, training, networking, and project management.<br>- Challenges included incomplete information and unclear communication. | The content contributed by coaches is crucial, with specific types having significant impacts. Effective contributions included training and project management, while challenges indicate the need for improving content quality and relevance. |
| **Context Variables** | | | |
| **Level of Perceived Value** | - Level of Value Creation: Rejected (not significant, p-value = 0.167).<br>- Degree of Learning Ability: Rejected (not significant, p-value = 0.108). | - Increased knowledge, understanding, and positive attitudes were reported.<br>- Challenges included continued resistance and limited impact due to specific circumstances. | While perceived value did not significantly impact quantitative measures, qualitative data suggest that increased knowledge and positive attitudes are important. Addressing resistance and contextual challenges could enhance perceived value's impact. |
| **Level of Acceptance by Healthcare Professionals** | - Level of Value Creation: Accepted (higher acceptance led to higher value creation, p-value = 0.012).<br>- Degree of Learning Ability: Rejected (not significant, p-value = 0.648). | - Greater openness and motivation for digitalization, increased adoption, and broader acceptance were reported.<br>- Some resistance and limited impact were noted. | Acceptance by healthcare professionals significantly enhances value creation. While it did not significantly impact learning ability, fostering a positive environment and reducing resistance could improve outcomes. |
| **Level of Organizational Innovation Readiness** | - Level of Value Creation: Accepted (higher readiness led to higher value creation, p-value = 0.021).<br>- Degree of Learning Ability: Rejected (not significant, p-value = 0.131). | - Positive impacts included better process integration and motivation for digital transformation.<br>- Challenges included financial and structural constraints. | Organizational innovation readiness positively impacts value creation. Better-prepared organizations achieve more. Addressing financial and structural constraints could further enhance readiness and outcomes. |

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| **Degree of Regulatory Influences** | - Level of Value Creation: Rejected (not significant, p-value = 0.721).<br>- Degree of Learning Ability: Rejected (not significant, p-value = 0.887). | - Regulatory challenges were frequently mentioned as significant barriers.<br>- Efforts to navigate regulations were noted but often insufficient. | Regulatory influences did not significantly impact quantitative outcomes, but qualitative data underscore the importance of addressing regulatory challenges. Better strategies for navigating these barriers could improve overall project success. |
| **Confounding variables** | | | |
| **Type of Healthcare Innovation** | -Level of Value Creation: Accepted (significant positive, p-values = 0.03, 0.027, 0.003, 0.013, 0.003, 0.004)<br>- Degree of Learning Ability: Accepted (significant positive, p-values: 0.010, 0.029, 0.048) | - Emphasized that innovations with unique technical and process needs thrived with specialized coaching.<br>- Coaches provided tailored training and workshops, adapting methods to suit specific innovation needs like technology integration and implementation strategies. | Type of Healthcare Innovation did significantly impact quantitative outcomes, influencing the learning ability and value creation. Need for coaches to adjust their methods according to the type of innovation is useful, underscoring the importance of aligning coaching expertise with the type of innovation. |
| | -Level of Value Creation: Accepted (significant positive, p-values = 0.015, 0.009)<br>- Degree of Learning Ability: Accepted (significant positive, p-values: 0.099, 0.042, 0.03) | - Clarity and structure of coaching improved as IOC rounds progressed.<br>- Better-defined coaching frameworks in later rounds helped set clearer goals and navigate challenges more effectively. | Feedback in the qualitative analysis highlights the evolution in coaching quality and effectiveness over successive IOC rounds, supporting the quantitative findings. |
| | - Level of Value Creation: Rejected (not significant, p-value = 0.762).<br>- Degree of Learning Ability: Rejected (not significant, p-value = 0.131). | - Qualitative data did not strongly support the impact of organization size on learning ability.<br>- While larger organizations may have more resources, respondents did not emphasize size as a critical factor. | Organization size does not significantly impact learning ability. |
| | - Level of Value Creation: Partially accepted (marginally significant positive effect, p-value = 0.094). | - There were no strong qualitative indications that the number of sectors significantly influenced learning ability. | The number of sectors does not significantly impact learning ability. Project-specific challenges and support needs are more influential. |

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| | - Degree of Learning Ability: Rejected (not significant, p-value = 0.941). | - Respondents generally highlighted challenges and support needs specific to their projects. | |
| **Moderation variables** | | | |
| **Degree of Contribution to Goal Achievement** | - Level of Value Creation: Accepted (significant predictors, p-values: 0.023, 0.004).<br>- Degree of Learning Ability: Accepted (significant predictors, p-values: 0.009, 0.0004). | - Contributions facilitated by structured planning, workshops, and tailored interventions.<br>- Persistent obstacles included unmet goals and limited impact in some cases. | The degree of contribution to goal achievement is a significant predictor of both value creation and learning ability. Effective coaching strategies, including structured planning and tailored interventions, are crucial in facilitating these contributions. |
| **Level of Satisfaction with Support Provided** | - Level of Value Creation: Rejected (not significant, p-values: 0.617, 0.750).<br>- Degree of Learning Ability: Rejected (not significant, p-values: 0.182, 0.181). | - General satisfaction with coaching was high, but areas for improvement included more focused support, better time management, and practical assistance.<br>- Some dissatisfaction with approach or limited impact was noted. | While satisfaction with support did not significantly impact quantitative outcomes, qualitative feedback suggests it is essential for enhancing overall project experience. Addressing areas for improvement could increase satisfaction and potentially improve outcomes |

# 5. Discussion

The purpose of this research was to assess the impact of the ZonMw Innovation and Implementation Coaching (IOC) subsidy program on the implementation and scaling of healthcare innovations. This discussion will cover the theoretical contributions, practical relevance, limitations, and suggestions for future research, providing a comprehensive overview of the study's findings and their implications. Special attention is given to the role of financial incentives in fostering innovation.

**Theoretical Contributions**

This research builds on and extends several key theories in the field of healthcare innovation. Firstly, this research builds on and extends Rogers' (2003) diffusion of innovations theory by emphasising the significant roles of organizational readiness and expert coaching in successful innovation adoption. While Rogers' theory primarily focuses on attributes affecting the adoption rate, such as relative advantage, compatibility, complexity, trialability, and observability, this study highlights the pivotal role of organizational readiness and expert coaching. Organizational readiness, which includes having the necessary infrastructure, resources, and a supportive culture, is crucial for the successful adoption and integration of innovations. Quantitative analysis revealed that organizational innovation readiness significantly impacts value creation (p-value = 0.021). Complementary qualitative data highlighted themes such as increased technology use, enhanced networking, and effective workshops and training sessions facilitated by coaches. Coaches were instrumental in activities like technology utilization, enhanced stakeholder networking, and organizing impactful workshops, leading to significant improvements reported by participants. Tailored coaching acts as an intermediary that positively influences organizational readiness and adaptability. Quantitative results demonstrated that structured coaching significantly improves learning ability (p-values: 0.009, 0.0004) and value creation (p-values: 0.023, 0.004). Qualitative findings supported this, noting that coaches enhanced networking opportunities, provided practical skills and strategic advice, and helped overcome specific barriers. These insights underscore that effective innovation adoption depends not only on the innovation's perceived attributes but also on robust support systems.

Secondly, this research reinforces and expands the application of theories of change in healthcare innovation, which have been discussed as frameworks for guiding innovation and creating supportive environments through government policies (Grol & Wensing, 2004; Stewart et al., 2018). Empirical evidence showed that structured coaching can effectively address barriers, providing clarity and strategic direction to tackle issues such as lack of planning and direction. The significant impact of acceptance by healthcare professionals on value creation (p-value = 0.012) underscores the importance of stakeholder engagement. Qualitative responses highlighted themes of coaches providing practical skills, helping participants overcome behavioural and technical challenges, and offering strategic advice that facilitated project implementation. Coaches played key roles in developing implementation plans and securing funding, which were essential for project success. These contributions validate and extend the theories of change, demonstrating their practical utility in real-world healthcare innovation scenarios.

Thirdly, the NASSS (Non-adoption, Abandonment, Scale-up, Spread, and Sustainability) framework by Greenhalgh et al. (2017) identifies seven domains influencing health innovations' adoption and scaling. This study adds depth to the framework by providing empirical evidence on the role of expert coaching in overcoming organizational culture and financial barriers. Quantitative findings showed significant positive effects of coaching on learning ability and value creation, while qualitative insights revealed themes of coaches contributing to technical and governance improvements, organizing training sessions and workshops, and providing strategic advice. Coaches facilitated knowledge sharing, organized impactful workshops, and enhanced organizational performance. Regarding financial constraints, the research highlights the role of financial incentives in facilitating innovation adoption and scaling. Quantitative analysis demonstrated that financial support significantly impacts innovation adoption. Qualitative findings corroborated this, with respondents frequently mentioning coaches' roles in securing funding and developing business cases to overcome economic barriers. These insights enhance the NASSS framework's applicability in practical settings, providing a more comprehensive understanding of how different domains interact to influence healthcare innovations' success.

Furthermore, this study provides comprehensive analyses of financial incentives' effectiveness, offering new insights into their role in the implementation and scaling phases of healthcare innovations. Previous research has acknowledged the potential of financial incentives to change healthcare practices by providing the necessary economic motivation for adopting new technologies (Flodgren et al., 2011; Clemens & Gottlieb, 2012). Financial incentives motivated healthcare providers to integrate new practices by offsetting initial costs and risks. Quantitative evidence demonstrated the significant impact of financial support on innovation adoption and scaling, while qualitative data highlighted successful grant acquisitions and business case development facilitated by coaches.

Lastly, an unexpected finding is that more frequent coaching sessions do not necessarily lead to better outcomes. This challenges existing assumptions and suggests the need for more strategic and focused coaching approaches. The study found that the frequency of coaching sessions had a negative effect on value creation (p-value = 0.042), with qualitative insights indicating a preference for more hands-on and practical support rather than frequent interactions. These findings suggest that the quality and focus of coaching interactions may be more important than their frequency.

Overall, this research significantly enhances the existing body of knowledge on healthcare innovation by providing empirical evidence on the critical roles of organizational readiness, expert coaching, and financial incentives in facilitating the adoption and scaling of healthcare innovations. The integration of qualitative and quantitative findings offers a comprehensive view of the dynamics involved in implementing and scaling healthcare innovations, providing valuable insights for theory, practice, and policy.

**Practical Relevance**

The findings have several practical implications for stakeholders involved in healthcare innovation. For organizations like ZonMw, understanding the specific factors that enhance or hinder innovation implementation can inform better planning and execution of innovation projects. The increase in the number of coaching sessions did not significantly improve outcomes and had a negative effect on value creation, indicating that the quality and focus of coaching sessions are more critical than their quantity. Organizations should optimize coaching sessions to address time investment issues and cost concerns. Engaging in a variety of activities with the coach positively impacts both value creation and learning ability. Effective activities include technology use, networking, workshops, and implementation advice, though dissatisfaction with coaching approaches and resistance to technology need addressing.

The type of coach significantly impacts outcomes, with some types negatively affecting value creation. Effective coaches provide technical and governance support, but incomplete information and lack of practical experience are challenges. Selecting coaches with the right expertise and ensuring they provide practical and relevant information is crucial. The content provided by coaches is also crucial, with effective contributions including training, project management, and networking. Challenges such as incomplete information and unclear communication need improvement to enhance content quality and relevance.

While perceived value did not significantly impact quantitative measures, qualitative data shows that increased knowledge and positive attitudes are important. Addressing resistance and contextual challenges could enhance the perceived value's impact. Acceptance by healthcare professionals significantly enhances value creation. Fostering a supportive culture and engaging healthcare professionals early in the innovation process are crucial. Coaches can help change perspectives and increase motivation for digitalization and broader acceptance.

Organizational innovation readiness positively impacts value creation. Better-prepared organizations achieve more, indicating the importance of fostering a supportive environment for innovation. Addressing financial and structural constraints can further enhance readiness and outcomes. Regulatory influences did not significantly impact quantitative outcomes, but qualitative data underscore the importance of addressing regulatory challenges. Developing better strategies for navigating these barriers could improve overall project success.

The type of healthcare innovation significantly impacts both value creation and learning ability. Innovations with unique technical and process needs benefit from specialized coaching. Coaches should adjust their methods according to the type of innovation to ensure alignment with specific needs. Results highlight the evolution in coaching quality and effectiveness over successive IOC rounds, with clearer goals and better-defined coaching frameworks in later rounds supporting quantitative findings.

The degree of contribution to goal achievement is a significant predictor of both value creation and learning ability. Effective coaching strategies, including structured planning and tailored interventions, are crucial in facilitating these contributions. While satisfaction with support did not significantly impact quantitative outcomes, qualitative data suggest it is essential for enhancing the overall project experience. Addressing areas for improvement, such as more focused support and better time management, could increase satisfaction and potentially improve outcomes.

The ZonMw IOC subsidy program enabled organizations to overcome barriers, allowing them to implement and scale up innovations effectively. This highlights the importance of funding mechanisms that support identifying and overcoming implementation barriers. Practical steps include providing adequate training, ensuring clear communication of the innovation's benefits, and aligning the innovation with existing workflows. Demonstrating the benefits of innovation through pilot projects, success stories, and data-driven presentations can help in gaining stakeholder support. Financial incentives and structured coaching interventions play a crucial role in facilitating innovation in healthcare settings.

**Limitations**

This study has several limitations that could impact the generalizability of the findings. First, the sample size, although statistically sufficient, may not capture the full diversity of experiences across different IOC rounds and healthcare settings. Future studies could benefit from a larger and more varied sample to enhance the robustness of the results. Secondly, is recall bias. Several respondents noted that they had difficulty remembering the details of the projects involved in the IOC subsidy program, as considerable time had passed since their participation. This recall difficulty likely impacted their ability to answer the questions accurately, potentially affecting the reliability of the data collected. Another limitation is non-response bias. Despite a large number of respondents being contacted via email, only a small proportion completed the survey, resulting in unit non-response. Misinterpretation of questions also posed a limitation. Some survey questions were challenging for respondents to understand, for example requiring them to divide the time spent with the coach. This confusion led some respondents to terminate the survey prematurely, resulting in incomplete data. The potential for misinterpretation of questions could also have led to inaccurate responses, impacting the overall validity of the findings.

**Future Research**

The results of this research have highlighted several areas that require further investigation to enhance our understanding of healthcare innovation implementation and scaling. One key area for future studies is the need for an analysis using a baseline measurement framework. This approach would assess the initial state of organizations before participating in the IOC program, providing a baseline to measure the true impact of coaching and financial incentives over time. By establishing this baseline zero-point, a better understanding of the long-term effects of the IOC program on organizational learning, innovation adoption, and value creation can be gained. Such an analysis would help identify specific changes attributable to the coaching intervention, separating them from other external factors.

Additionally, evaluating the actual cost and time required for implementing and scaling innovations under the IOC program is crucial. Future research should consider not only the financial investment in coaching but also the time commitment from healthcare professionals

and organizational resources. This comprehensive cost-effectiveness assessment would compare the initial and ongoing expenses against the tangible benefits achieved, such as improved patient outcomes, increased efficiency, and enhanced value creation. Understanding these dynamics will provide insights into the sustainability and scalability of the innovations supported by the program, offering a clearer picture of the overall return on investment. Balancing the costs and time commitments with the measurable benefits will help determine the true value and impact of the innovations, ensuring that the resources invested yield significant and lasting improvements in healthcare delivery.

Gaining deeper understanding of the IOC program is another critical area for future research. While the program has shown promise, not all variables were significant, and some, such as the number of direct coaching sessions, had unexpected negative effects. Future studies should explore into why certain variables, such as the number of direct coaching sessions, and type of content contributed by the coach, might negatively impact outcomes. Additionally, examining the level of perceived value and level of organizational innovation readiness, which were found to be crucial for value creation, can provide more insights. By understanding these crucial variables better, more targeted and effective interventions can be developed to enhance the overall success of innovation implementation. Examining alternative models to identify more effective strategies for supporting healthcare innovations is also essential.

Furthermore, respondents indicated that the knowledge often remains with the coach rather than being transferred to the organization. Future research should explore methods to ensure that the expertise and skills passed on by the coach are effectively integrated into the organization. This could involve developing structured knowledge transfer protocols, creating documentation and training materials, or implementing follow-up sessions to reinforce learning. Investigating best practices for securing and institutionalizing knowledge within the organization will be critical for sustaining innovation efforts and ensuring long-term benefits.

Lastly, the current IOC subsidy primarily covers the cost of hiring a coach, but additional time and financial resources are needed from healthcare professionals for the implementation and scaling of innovations. Future research should investigate the feasibility and impact of providing additional subsidies specifically for professional development and participation in innovation activities. By funding these aspects, organizations may be better equipped to support innovation adoption and achieve long-term success. Studies could explore different funding models by conducting comparative analyses and pilot programs. Researchers could compare outcomes of organizations with varying levels of subsidy support and gather qualitative data through surveys and interviews. Longitudinal studies could track the progress of innovations over time to measure the sustained impact. By addressing both financial and human resource needs, these studies can offer insights into optimizing funding strategies for healthcare innovation.

**Recommendations**

This section highlights the recommendations derived from the research findings, aimed at enhancing the implementation and scaling of healthcare innovations. These recommendations are designed to provide practical guidance for ZonMw, policymakers, and healthcare organizations, ensuring the effective and sustainable adoption of innovative practices.

Recommendations for ZonMw

1. Optimize Coaching Program Quality: Evidence suggests that focusing on the quality and focus of coaching sessions, rather than merely increasing their frequency, can improve outcomes. Emphasizing targeted, high-quality interactions that address specific organizational needs and challenges may ensure that each coaching session adds substantial value to the innovation process.
2. Implement Comprehensive Cost-Effectiveness Assessments: Incorporating comprehensive cost-effectiveness assessments in the evaluation of the IOC program can provide valuable insights. These assessments could consider both the financial investment in coaching and the time commitment from healthcare professionals, helping to understand the sustainability and scalability of supported innovations and informing future resource allocation and program design.
3. Conduct Longitudinal Studies: Supporting longitudinal studies that establish a baseline (zero-point) before organizations participate in the program can help understand the long-term impact of the IOC program. Tracking changes over time may provide a clearer picture of the effects of coaching and financial incentives on organizational learning, innovation adoption, and value creation, offering valuable data to enhance the effectiveness of future innovation support programs.
4. Improve Communication and Information Quality: Enhance the clarity and completeness of communication and information provided by coaches. Findings indicate that challenges such as incomplete information and unclear communication from coaches negatively impact outcomes. ZonMw should focus on improving the quality of information and communication strategies to ensure that all relevant details are conveyed effectively. This can involve training coaches in effective communication techniques and providing standardized information templates.
5. Develop Strategies to Increase Healthcare Professional Engagement: Implement strategies to increase the engagement and acceptance of healthcare professionals in the innovation process. The level of acceptance by healthcare professionals significantly enhances value creation. To foster a supportive culture and engage healthcare professionals early, ZonMw can develop initiatives such as workshops, seminars, and involvement in decision-making processes. These strategies can help change perspectives, increase motivation for digitalization, and encourage broader acceptance of innovations.

Policy Recommendations

1. Enhance Funding Mechanisms for Innovation:
   Developing funding mechanisms that cover not only the cost of hiring coaches but also provide additional subsidies for professional development and participation in innovation activities can enable healthcare organizations to allocate resources effectively, ensuring both financial and human capital are sufficiently invested in innovation projects.
2. Develop a Subsidy for Training Implementation Specialists:
   Developing a subsidy specifically aimed at training implementation specialists within healthcare organizations can ensure that the knowledge and skills required for successful innovation implementation are retained within the organization. This approach would help build internal capacity and reduce reliance on external coaches, fostering long-term sustainability and continuous improvement.
3. Foster a Collaborative Innovation Ecosystem:
   Promoting policies that foster a collaborative ecosystem for healthcare innovation can facilitate knowledge sharing, resource pooling, and the development of comprehensive support networks. Collaborative efforts among healthcare organizations, research institutions, and innovation agencies can enhance the overall success and scalability of healthcare innovations.

By implementing these recommendations, ZonMw and policymakers can enhance the effectiveness of healthcare innovation programs, ensuring substantial and sustainable benefits to healthcare organizations and professionals. These strategies aim to support the successful implementation and scaling of innovative practices, ultimately improving patient outcomes and healthcare quality.

# 6. Conclusion

The research question guiding this study was **"What is the impact of incentives on implementation and scaling up of healthcare innovations, taking ZonMw's Implementation and Upscaling Coaching (IOC) Subsidy Program as a case study?"**

To address this question, a mixed-methods approach was employed, integrating quantitative and qualitative analyses. The quantitative component involved analysing survey data from participants of the IOC subsidy program, focusing on variables such as the frequency of coaching sessions, the types of activities engaged with the coach, the background of the coach, and the content contributed by the coach. The qualitative component consisted of thematic analysis of open-ended survey responses, providing deeper insights into the participants' experiences and perspectives.

The findings suggest that the IOC subsidy program significantly impacts the implementation and scaling of healthcare innovations. One key conclusion is that the effectiveness of coaching is not necessarily linked to the frequency of direct sessions. Instead, the quality and relevance of coaching activities are more critical. For instance, more frequent coaching sessions were found to negatively affect learning ability and value creation, indicating that direct coaching might lead to diminishing returns. In contrast, engaging in a variety of activities with the coach, such as technology use, networking, workshops, and implementation advice, positively impacted both learning ability and value creation.

The type of coach significantly impacted outcomes, with some types having a negative effect on value creation. Effective coaches provided technical and governance support, but challenges included incomplete information and lack of practical experience. The content provided by coaches was crucial, with specific types having significant impacts on both value creation and learning ability. Effective contributions included training, project management, and networking, while challenges like incomplete information and unclear communication needed improvement.

The study also revealed that organizational readiness and acceptance by healthcare professionals were significant factors in enhancing value creation. Higher levels of organizational readiness and professional acceptance were linked to better outcomes, emphasizing the importance of a supportive culture and early engagement of healthcare professionals in the innovation process. Furthermore, innovations such as telemonitoring and technological advancements for medication benefited from tailored coaching approaches, suggesting that aligning coaching expertise with the specific needs of different innovation types is crucial.

This research extends Rogers' diffusion of innovations theory and the NASSS framework by Greenhalgh et al., demonstrating the significant roles of organizational readiness and expert coaching in successful innovation adoption. It also contributes to the theories of change in healthcare innovation by providing empirical evidence on the practical utility of structured coaching in overcoming implementation barriers.

The study's limitations include potential recall bias due to the time lapse between the project completion and survey administration, and non-response bias, which may affect the

generalizability of the findings. Future research should consider longitudinal studies to track the long-term impact of coaching and financial incentives, as well as comprehensive cost-effectiveness assessments to evaluate the sustainability of innovations. Such studies would provide a more robust understanding of how coaching and financial support contribute to sustained innovation success.

In conclusion, the research demonstrates that financial incentives and expert coaching are critical for the implementation and scaling of healthcare innovations. However, their impact is heavily influenced by the quality and focus of coaching, the readiness of the organization, and the engagement of healthcare professionals. The findings advocate for a strategic approach to coaching and financial support, emphasizing the need for tailored, context-specific interventions that address the unique challenges and opportunities within each healthcare organization.

This study underscores that strategic, expert coaching, combined with robust organizational support, is essential for driving meaningful and lasting healthcare innovations. Incentive programs, such as coaching subsidies schemes should prioritize the quality and relevance of coaching interactions over their frequency, ensuring that coaching content is practical and directly applicable to the innovation efforts. By fostering organizational readiness and engaging healthcare professionals early in the innovation process, organizations like ZonMw can significantly enhance the effectiveness of their programs. The findings offer new insights into the critical factors that influence successful implementation and scaling of healthcare innovations, providing valuable directions for future research and practical applications.

Ultimately, the integration of these findings suggests that expert coaching and strong organizational foundations are key to overcoming the challenges associated with implementing and scaling healthcare innovations. By addressing these factors, ZonMw and similar organizations can better support the development and adoption of innovative solutions that improve healthcare outcomes and system efficiency.

# 7. References


Berta, W., Teare, G., Gilbart, E., Ginsburg, L., Lemieux-Charles, L., Davis, D., & Rappolt, S. (2005). The Contingencies of Organizational Learning in Long-Term Care. *Health Care Management Review*, *30*(4), 282–292. https://doi.org/10.1097/00004010-200510000-00002

Bessant, J. R., & Tidd, J. (2015). *Innovation and entrepreneurship*. John Wiley & Sons.

Bingham, C. B., & Eisenhardt, K. M. (2011). Rational heuristics: the 'simple rules' that strategists learn from process experience. *Strategic Management Journal*, *32*(13), 1437–1464. https://doi.org/10.1002/smj.965

Blind, K., Petersen, S. S., & Riillo, C. a. F. (2017). The impact of standards and regulation on innovation in uncertain markets. *Research Policy*, *46*(1), 249–264. https://doi.org/10.1016/j.respol.2016.11.003

Boyce, L. A., Jackson, R. J., & Neal, L. J. (2010). Building successful leadership coaching relationships. *Journal of Management Development*, *29*(10), 914–931. https://doi.org/10.1108/02621711011084231

Bryman, A. (2016). *Social Research Methods (5th ed.). London Oxford University Press. - References - Scientific Research Publishing*. (n.d.). https://www.scirp.org/reference/referencespapers?referenceid=1948986

Carpenter, D., Hassell, S., Mardon, R., Fair, S., Johnson, M., Siegel, S., & Nix, M. (2018). Using learning communities to support adoption of health care innovations. *The Joint Commission Journal on Quality and Patient Safety*, *44*(10), 566–573. https://doi.org/10.1016/j.jcjq.2018.03.010

CBS. (2023, March 6). *How many elderly are there in the Netherlands?* Statistics Netherlands. https://www.cbs.nl/en-gb/visualisations/dashboard-population/age/elderly-people

Chuah, S. H., Rauschnabel, P. A., Krey, N., Nguyen, B., Ramayah, T., & Lade, S. (2016). Wearable technologies: The role of usefulness and visibility in smartwatch adoption. *Computers in Human Behavior*, *65*, 276–284. https://doi.org/10.1016/j.chb.2016.07.047

Clark, R. E., Estes, F., Middlebrook, R. H., & Palchesko, A. (2004). Turning research into results: A guide to selecting the right performance solutions. *Performance Improvement*, *43*(1), 44–46. https://doi.org/10.1002/pfi.4140430110

Clark, T., Foster, L., Bryman, A., & Sloan, L. (2021). *Bryman's social research methods*. Oxford University Press.

Clemens, J., & Gottlieb, J. D. (2012). Do physicians' financial incentives affect medical treatment and patient health? *Social Science Research Network*. https://doi.org/10.2139/ssrn.2101251

Conn, K. M., Mo, C. H., & Sellers, L. M. (2019). When less is more in boosting survey response rates*. *Social Science Quarterly*, *100*(4), 1445–1458. https://doi.org/10.1111/ssqu.12625

Cunha, F. J. a. P., Ribeiro, N. M., Monteiro, R. L. S., & De Barros Pereira, H. B. (2016). Social network analysis as a strategy for monitoring the dissemination of information between hospitals. *Transinformacao*, *28*(3), 309–322. https://doi.org/10.1590/2318-08892016000300006

Cunningham, C. T., Quan, H., Hemmelgarn, B. R., Noseworthy, T., Beck, C. A., Dixon, E., Samuel, S., Ghali, W. A., Sykes, L. L., & Jetté, N. (2015). Exploring physician specialist response rates to web-based surveys. *BMC Medical Research Methodology*, *15*(1). https://doi.org/10.1186/s12874-015-0016-z

Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S., Alexander, J., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implementation Science*, *4*(1). https://doi.org/10.1186/1748-5908-4-50

Dawes, J. (2008). Do data characteristics change according to the number of scale points used? An experiment using 5-Point, 7-Point and 10-Point scales. *International Journal of Market Research*, *50*(1), 61–104. https://doi.org/10.1177/147078530805000106

De Matos, M. P., Soares, M. C. C., Cassiolato, J. E., & De Queiroz, J. M. (2016). Innovation in the health system. In *IGI Global eBooks* (pp. 64–90). https://doi.org/10.4018/978-1-5225-1674-3.ch004

Deiorio, N. M., Carney, P. A., Kahl, L. E., Bonura, E., & Juvé, A. M. (2016). Coaching: a new model for academic and career achievement. *Medical Education Online*, *21*(1), 33480. https://doi.org/10.3402/meo.v21.33480

Desveaux, L., McBrien, K., Barnieh, L., & Ivers, N. (2019). Mapping variation in intervention design: a systematic review to develop a program theory for patient navigator programs. *Systematic Reviews*, *8*(1). https://doi.org/10.1186/s13643-018-0920-5

Edmondson, A. C. (2019). THE ROLE OF PSYCHOLOGICAL SAFETY. *Leader to Leader*, *2019*(92), 13–19. https://doi.org/10.1002/ltl.20419

Eggleston, J. (2024). Frequent Survey Requests and Declining Response Rates: Evidence from the 2020 Census and Household Surveys. *Journal of Survey Statistics and Methodology*. https://doi.org/10.1093/jssam/smae022

European Commission. (2017). .*Technology Readiness Levels (TRL)*. HORIZON 2020 – WORK PROGRAMME 2014-2015. https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-g-trl_en.pdf

Fjeldstad, Ø. D., Johnson, J. K., Margolis, P. A., Seid, M., Höglund, P. J., & Batalden, P. B. (2019). Networked health care: Rethinking value creation in learning health care systems. *Learning Health Systems*, *4*(2). https://doi.org/10.1002/lrh2.10212

Flodgren, G., Eccles, M., Shepperd, S., Scott, A., Parmelli, E., & Beyer, F. (2011). An overview of reviews evaluating the effectiveness of financial incentives in changing healthcare professional behaviours and patient outcomes. *The Cochrane Library*. https://doi.org/10.1002/14651858.cd009255

GDPR.eu. (2019, February 19). *General Data Protection Regulation (GDPR) Compliance Guidelines*. https://gdpr.eu/

Glaser, J. (2007, April 1). *Financial incentives for healthcare IT adoption*. PubMed. https://pubmed.ncbi.nlm.nih.gov/17427473/

Glasgow, R. E., Vogt, T., & Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *American Journal of Public Health*, *89*(9), 1322–1327. https://doi.org/10.2105/ajph.89.9.1322

Greenhalgh, T., & Abimbola, S. (2019). The NASSS Framework - a synthesis of multiple theories of technology implementation. *PubMed*, *263*, 193–204. https://doi.org/10.3233/shti190123

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of Innovations in service Organizations: Systematic review and recommendations. *The Milbank Quarterly*, *82*(4), 581–629. https://doi.org/10.1111/j.0887-378x.2004.00325.x

Greenhalgh, T., & Stones, R. (2010). Theorising big IT programmes in healthcare: Strong structuration theory meets actor-network theory. *Social Science & Medicine*, *70*(9), 1285–1294. https://doi.org/10.1016/j.socscimed.2009.12.034

Greenhalgh, T., Wherton, J., Papoutsi, C., Lynch, J., Hughes, G., A'Court, C., Hinder, S., Fahy, N., Procter, R., & Shaw, S. (2017). Beyond Adoption: a new framework for theorizing and evaluating nonadoption, abandonment, and challenges to the Scale-Up, spread, and sustainability of health and care technologies. *Journal of Medical Internet Research*, *19*(11), e367. https://doi.org/10.2196/jmir.8775

Greenhalgh, T., Wherton, J., Papoutsi, C., Lynch, J., Hughes, G., A'Court, C., Hinder, S., Procter, R., & Shaw, S. (2018). Analysing the role of complexity in explaining the fortunes of technology programmes: empirical application of the NASSS framework. *BMC Medicine*, *16*(1). https://doi.org/10.1186/s12916-018-1050-6

Grol, R., & Wensing, M. (2004). What drives change? Barriers to and incentives for achieving evidence-based practice. *Medical Journal of Australia*, *180*(S6). https://doi.org/10.5694/j.1326-5377.2004.tb05948.x

Hargadon, A., & Sutton, R. I. (1997). Technology brokering and innovation in a product development firm. *Administrative Science Quarterly*, *42*(4), 716. https://doi.org/10.2307/2393655

Henwood, B. F., Siantz, E., Bataille, G., Pomerance, E., Clancy, J. L., & Gilmer, T. (2020). Advancing Integrated Care through Practice Coaching. *International Journal of Integrated Care*, *20*(2). https://doi.org/10.5334/ijic.4737

Herzlinger. (2006, May 1). *Why innovation in health care is so hard*. PubMed. https://pubmed.ncbi.nlm.nih.gov/16649698/

Hoogstraaten, M. J. (2023). *Mixing and matching institutions*. https://doi.org/10.33540/1653

Jacob, C., Sezgın, E., Sánchez-Vázquez, A., & Ivory, C. (2022). Sociotechnical Factors Affecting Patients' Adoption of Mobile Health Tools: Systematic Literature Review and Narrative Synthesis. *Jmir Mhealth and Uhealth*, *10*(5), e36284. https://doi.org/10.2196/36284

Johnson, Stoskopf, C., & Shi, L. (2017). *Comparative health systems*. Jones & Bartlett Learning.

Jones, R. J., Woods, S. A., & Guillaume, Y. (2015). The effectiveness of workplace coaching: A meta-analysis of learning and performance outcomes from coaching. *Journal of Occupational and Organizational Psychology*, *89*(2), 249–277. https://doi.org/10.1111/joop.12119

Keown, O. P., Parston, G., Patel, H., Rennie, F., Saoud, F., Kuwari, H. A., & Darzi, A. (2014). Lessons from eight countries on diffusing innovation in health care. *Health Affairs*, *33*(9), 1516–1522. https://doi.org/10.1377/hlthaff.2014.0382

Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest*, *7*(3), 77–124. https://doi.org/10.1111/j.1529-1006.2006.00030.x

Lawlor, D. A., Tilling, K., & Smith, G. D. (2017). Triangulation in aetiological epidemiology. *International Journal of Epidemiology*, dyw314. https://doi.org/10.1093/ije/dyw314

Lee, D. (2018). Effects of key value co-creation elements in the healthcare system: focusing on technology applications. *Service Business*, *13*(2), 389–417. https://doi.org/10.1007/s11628-018-00388-9

Liberati, E. G., Ruggiero, F., Galuppo, L., Gorli, M., González-Lorenzo, M., Maraldi, M., Ruggieri, P., Friz, H. P., Scaratti, G., Kwag, K. H., Vespignani, R., & Moja, L. (2017). What hinders the uptake of computerized decision support systems in hospitals? A qualitative study and framework for implementation. *Implementation Science*, *12*(1). https://doi.org/10.1186/s13012-017-0644-2

Lluch, M. (2011). Healthcare professionals' organisational barriers to health information technologies—A literature review. *International Journal of Medical Informatics*, *80*(12), 849–862. https://doi.org/10.1016/j.ijmedinf.2011.09.005

Lyng, H. B., Macrae, C., Guise, V., Haraldseid-Driftland, C., Fagerdal, B., Schibevaag, L., Alsvik, J. G., & Wiig, S. (2021). Balancing adaptation and innovation for resilience in healthcare – a metasynthesis of narratives. *BMC Health Services Research*, *21*(1). https://doi.org/10.1186/s12913-021-06592-0

Maddox, T. M., Albert, N. M., Borden, W. B., Curtis, L. H., Ferguson, T. B., Kao, D. P., Marcus, G. M., Peterson, E. D., Redberg, R. F., Rumsfeld, J. S., Shah, N. D., & Tcheng, J. E. (2017). The learning Healthcare System and Cardiovascular Care: A scientific statement from the

American Heart Association. *Circulation*, *135*(14). https://doi.org/10.1161/cir.0000000000000480

Marjanovic, S., Altenhofer, M., Hocking, L., Chataway, J., & Ling, T. (2020). Innovating for improved healthcare: Sociotechnical and innovation systems perspectives and lessons from the NHS. *Science and Public Policy*, *47*(2), 283–297. https://doi.org/10.1093/scipol/scaa005

Marvel, M. R., Wolfe, M. T., & Kuratko, D. F. (2020). Escaping the knowledge corridor: How founder human capital and founder coachability impacts product innovation in new ventures. *Journal of Business Venturing*, *35*(6), 106060. https://doi.org/10.1016/j.jbusvent.2020.106060

Mathison, S. (1988). Why triangulate? *Educational Researcher*, *17*(2), 13–17. https://doi.org/10.3102/0013189x017002013

Ministerie van Volksgezondheid, Welzijn en Sport. (2022, October 13). *NZa: krapte in de zorg vraagt om prioriteitenbeleid*. Nieuwsbericht | Nederlandse Zorgautoriteit. https://www.nza.nl/actueel/nieuws/2022/10/13/nza-krapte-in-de-zorg-vraagt-om-prioriteitenbeleid

Ministerie van Volksgezondheid, Welzijn en Sport. (2023, June 30). *Zorgkosten stijgen flink in 2023*. Nieuwsbericht | Zorginstituut Nederland. https://www.zorginstituutnederland.nl/actueel/nieuws/2023/06/30/kwartaalcijfers-zorgkosten

Morand, D. A. (1995). The role of behavioral formality and informality in the enactment of bureaucratic versus organic organizations. *Academy of Management Review*, *20*(4), 831–872. https://doi.org/10.5465/amr.1995.9512280023

Niemeijer, A., Depla, M., Frederiks, B., & Hertogh, C. M. (2014). The experiences of people with dementia and intellectual disabilities with surveillance technologies in residential care. *Nursing Ethics*, *22*(3), 307–320. https://doi.org/10.1177/0969733014533237

Oortwijn, W. J., Hanney, S. R., Ligtvoet, A., Hoorens, S., Wooding, S., Grant, J., Buxton, M. J., & Bouter, L. M. (2008). Assessing the impact of health technology assessment in the Netherlands. *International Journal of Technology Assessment in Health Care*, *24*(03), 259–269. https://doi.org/10.1017/s0266462308080355

Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: A Handbook for Visionaries, Game Changers, and Challengers*. John Wiley & Sons.

R Studio, & Grolemund, G. (n.d.). *Hands-On Programming with R*. https://rstudio-education.github.io/hopr/index.html

Rogers, E. M. (1983). *DIFFUSION OF INNOVATIONS 3RD e REV*. New York : Free Press ; London : Collier Macmillan.

Rousseau, V., Aubé, C., & Tremblay, S. (2013). Team coaching and innovation in work teams. *Leadership & Organization Development Journal*, *34*(4), 344–364. https://doi.org/10.1108/lodj-08-2011-0073

Savignac, F. (2007). The Impact of Financial Constraints on Innovation: What Can Be Learned from a Direct Measure? *Social Science Research Network*. https://doi.org/10.2139/ssrn.1694507

Scott, A., Liu, M., & Yong, J. (2016). Financial Incentives to encourage Value-Based Health care. *Medical Care Research and Review*, *75*(1), 3–32. https://doi.org/10.1177/1077558716676594

Smits & RTL nieuws. (2023, March 22). *In 2032 tekort van meer dan 137.000 werknemers in zorg, ook met kabinetsmaatregelen*. RTL Nieuws. https://www.rtlnieuws.nl/nieuws/nederland/artikel/5373375/personeelstekort-zorg-en-welzijn-helder-tweede-kamer

Stewart, R. E., Marcus, S. C., Hadley, T. R., Hepburn, B., & Mandell, D. S. (2018). State adoption of incentives to promote Evidence-Based Practices in Behavioral Health Systems. *Psychiatric Services*, *69*(6), 685–688. https://doi.org/10.1176/appi.ps.201700508

Storbacka, K., & Nenonen, S. (2015). Learning with the market: Facilitating market innovation. *Industrial Marketing Management*, *44*, 73–82. https://doi.org/10.1016/j.indmarman.2014.10.009

Sutter, C., Webb, J. W., Kistruck, G., Ketchen, D. J., & Ireland, R. D. (2017). Transitioning entrepreneurs from informal to formal markets. *Journal of Business Venturing*, *32*(4), 420–442. https://doi.org/10.1016/j.jbusvent.2017.03.002

Thijssen, S. V., Jacobs, M., Swart, R. R., Heising, L., Ou, C. X., & Roumen, C. (2021). The barriers and facilitators of radical innovation implementation in secondary healthcare: a systematic review. *Journal of Health Organisation and Management*, *37*(3), 289–312. https://doi.org/10.1108/jhom-12-2020-0493

Thom, D. H., Hessler, D., Willard-Grace, R., Bodenheimer, T., Najmabadi, A., Araujo, C., & Chen, E. H. (2014). Does health coaching change patients' trust in their primary care provider? *Patient Education and Counseling*, *96*(1), 135–138. https://doi.org/10.1016/j.pec.2014.03.018

Vijande, M. L. S., Sánchez, J. Á. L., & Trespalacios, J. A. (2012). How organizational learning affects a firm's flexibility, competitive strategy, and performance. *Journal of Business Research*, *65*(8), 1079–1089. https://doi.org/10.1016/j.jbusres.2011.09.002

Weintraub, P., & McKee, M. (2018). Leadership for Innovation in Healthcare: An Exploration. *International Journal of Health Policy and Management*, *8*(3), 138–144. https://doi.org/10.15171/ijhpm.2018.122

Wensing, M., Bal, R., & Friele, R. (2011). Knowledge implementation in healthcare practice: a view from The Netherlands. *BMJ Quality & Safety*, *21*(5), 439–442. https://doi.org/10.1136/bmjqs-2011-000540

Wickremasinghe, D., Gautham, M., Umar, N., Berhanu, D., Schellenberg, J., & Spicer, N. (2018). "It's About the Idea Hitting the Bull's Eye": How Aid Effectiveness Can Catalyse the Scale-up of Health Innovations. *International Journal of Health Policy and Management*, *7*(8), 718–727. https://doi.org/10.15171/ijhpm.2018.08

Wyatt, R. C., & Meyers, L. S. (1987). Psychometric properties of four 5-Point Likert type response scales. *Educational and Psychological Measurement*, *47*(1), 27–35. https://doi.org/10.1177/0013164487471003

ZonMw. (n.d.-a). *Implementatiecoach stuurt op heldere communicatie voor betere samenwerking*. https://www.zorgvoorinnoveren.nl/nieuws/implementatiecoach-stuurt-op-heldere-communicatie-voor-betere-samenwerking/

ZonMw. (n.d.-b). *Over ZonMw*. https://www.zonmw.nl/nl/over-zonmw

Zorg voor Innoveren. (2023, June 27). *Ronde 2 Implementatie- en opschalingscoaching Ouderen Thuis opent 12 september!* https://www.zorgvoorinnoveren.nl/nieuws/ronde-2-implementatie-en-opschalingscoaching-ouderen-thuis-opent-12-september/

# Appendix A: Survey questions

## Survey Implementation and Upscaling Coach (IOC)

**Privacy** Q2 Participation in this research is voluntary, and you can stop filling out the survey at any time without giving a reason. Your answers to the questions will be shared with the research team.

Do you agree to participate? o Yes o No

## Confounding Variables

**Number of IOC rounds** Q3 In which IOC round did your innovation project participate? (Multiple answers possible)

▢ Round 1

▢ Round 2

▢ Round 3

▢ Round 4

▢ Round 5

▢ Round 6

▢ Round 7

▢ Round 8

**Type of innovation** Q4 Which category or type of healthcare innovation was implemented during the IOC project?

1. Screen care
2. (Tele) alarm
3. Telemonitoring
4. Technological innovation for medication
5. Communication platform
6. Screen care & communication platform
7. Telemonitoring & communication platform
8. Medical technology
9. Process innovation
10. Other, namely:
11. Virtual Reality

Q5 What type of impact did you expect to achieve in healthcare or within your organization through the implementation or scaling up of your innovation?

1. Results in labour savings
2. Results in cost savings
3. Improves the quality of care
4. Improves the quality of life for patients and clients

**Size of organization** Q6 How would you categorize the size of your organization, excluding the founder? Choose the category that best fits the number of employees:

1. Micro-enterprise: 0 - 3 employees
2. Very small enterprise: 4 - 9 employees
3. Small enterprise: 10 - 49 employees
4. Medium-sized enterprise: 50 - 249 employees
5. Large enterprise: 250 employees or more

**Sector of organization**

Q7 In which sector(s) is your organization active? Select all options that apply.

1. Hospitals, clinics, other medical specialist care
2. Mental health care
3. General practitioner care and health centres
4. Nursing, care, and home care (VVT)
5. Disabled care
6. Youth care
7. Dental care
8. Health services
9. Other paramedics
10. Other care and welfare
11. Other, namely: _____

## Independent variables

**Number of Sessions with Coach** Q8 To gain a better understanding of the time investment and efficiency of the support provided by the IOC project, we ask you to estimate the following. Provide a distribution of the total number of hours spent on the IOC project, distinguishing between the hours spent on direct coaching sessions and the hours spent on other activities by the coach.

0 10 20 30 40 50 60 70 80 90 100

Direct coaching sessions

Indirect activities by the coach

**Type of activities engaged with the coach** Q9 Which of the following activities did you do together with the coach? (you may select multiple answers)

1. Selecting suitable innovations
2. Establishing implementation conditions
3. Developing implementation plans

4. Training healthcare providers in new methods
5. Developing scaling plans
6. Expanding the relevant network
7. Interpreting laws and regulations
8. Tackling system barriers (e.g., getting the innovation into the reimbursement system)
9. Developing business cases
10. Improving the value proposition
11. Brainstorming with the coach
12. Obtaining funding

**Type of coach** Q10 What is the background of your coach?

1. Consultant (self-employed)
2. Lifestyle specialist
3. Consultant (consultancy firm)
4. Innovation developer
5. Change management
6. Implementation specialist
7. Working/ worked in healthcare
8. Experienced in implementation/scaling of similar innovations

**Type of content contributed by coach** Q11 What type of content did your coach mainly contribute to your project? (you may select multiple answers)

1. Insights into the sector
2. Guidelines for regulations and compliance
3. Technical knowledge and skills
4. Network contacts and introductions to key stakeholders
5. Leadership and team development
6. Marketing and sales strategies
7. Financial planning and management
8. Other, namely: _____

Q12 Can you give examples of how specific activities with your coach led to improvements in your project?

## Context variables

**Type of innovation user** Q13 Who is the main user of the healthcare innovation within your context? o Healthcare users (e.g., patients, clients) o Caregivers o Healthcare providers (e.g., doctors, nurses) o The organization itself (e.g., hospital, clinic, care institution)

Q14 The following questions are a number of statements about the users and the organization where the innovation was implemented or scaled up during the IOC scheme. Evaluate these based on your experiences and insights.

Strongly disagree Disagree Neutral Agree Strongly agree

**Level of Perceived Value**

1. The healthcare innovation is very valuable to the main user.
2. The presence of the coach has greatly contributed to the value of the healthcare innovation.

**Level of Acceptance by Healthcare Professionals**

1. The healthcare professional (doctors, nurses, and other staff) has fully adopted the healthcare innovation.
2. Participation in the IOC scheme has improved the implementation or scaling of the healthcare innovation within the organization.
3. Participation in the IOC scheme has increased the involvement of users (healthcare users, caregivers, healthcare professionals) in the innovation.

**Level of Organizational Innovation Readiness**

1. The organization had all the resources and infrastructure before the IOC scheme to adopt and implement new healthcare innovations.
2. The experience and insights gained from the IOC scheme have better prepared and motivated the healthcare organization to accept and implement innovations.
3. The opinion of all stakeholders (healthcare users, caregivers, healthcare professionals) regarding the innovation has clearly improved during and after the IOC project.

**Degree of Regulatory Influences**

1. Laws and regulations in the healthcare sector have influenced the implementation and/or scaling of healthcare innovations within my context.
2. The coach has helped with laws and regulations during the implementation and/or scaling of healthcare innovations.

Q15 How has participation in the IOC scheme changed the stakeholders' perspective on the innovation? Explain your answer.

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## Dependent variables

**Degree of learning ability** Q16 The following questions are a number of statements. Evaluate these based on your experiences and insights.

1. My organization was effective in developing, implementing, and scaling an innovation after participating in the IOC scheme.
2. My organization effectively applies new knowledge and insights gained through participation in the IOC scheme in daily practice.
3. Participation in the IOC scheme has greatly contributed to the development of new skills within our team or organization.
4. My organization quickly began using and developing new ideas after participating in the IOC scheme.
5. My organization has effectively learned to deal with new opportunities or challenges after participating in the IOC scheme.

**Level of value creation** Q17 The following questions are a number of statements. Evaluate these based on your experiences and insights.

1. The innovation has created a lot of value for our organization after participating in the IOC scheme.
2. The innovation has created a lot of value for patients and healthcare providers after participating in the IOC scheme.
3. My organization works better and faster since we participated in the IOC scheme.
4. Participation in the IOC scheme has helped make processes in our organization more efficient.
5. Participation in the IOC scheme has greatly helped our organization in the long term.

## Moderating variables

**Degree of contribution to goal achievement** Q18 To what extent do you think the coaching contributed to achieving your project's goals?

o Not at all o Poorly o Neutral o Well o Very well

**Level of satisfaction with the support provided** Q19 To what extent are you satisfied with the support received from the coach?

o Very dissatisfied o Dissatisfied o Neutral o Satisfied o Very satisfied

Q20 Can you give examples of the coach's contribution to achieving project goals?

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**Extra**

Q21 What were the main challenges you encountered during the IOC project?

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Q22 How did your coach help overcome these challenges? Provide specific examples if possible.

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Q23 What could your coach have done better in the guidance? Are there aspects of the support that you missed or that could have been improved?

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Q24 What were/are your organization's plans to support and scale the innovation after the IOC project?

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Q25 Which aspects of the IOC subsidy scheme do you think could be improved to better support the implementation and scaling of healthcare innovations?

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**Gift card**

Q26 If you would like to participate in the lottery for a VVV gift card worth €25, please kindly enter your email address below. Your email address will only be used for the lottery and to contact you if you win. Your survey answers will remain completely anonymous, and your email address will not be linked to your survey results.

# Appendix B: Coding Framework

1. Coaching Characteristics

- **Positive Outcomes**
    - Increased Technology Use
    - Enhanced Networking
    - Workshops and Training Sessions
    - Implementation Advice
    - Knowledge Sharing
    - Well-Crafted Business Cases
    - Behaviour Change Strategies
    - Project Management Assistance
- **Challenges**
    - Dissatisfaction with Coaching Approach
    - Resistance to Technology Adoption

2. Coach Contribution to Goal Achievement

- **Positive Contributions**
    - Information Provision
    - Technical and Governance Improvements
    - Training Sessions and Workshops
    - Networking and Practical Knowledge
    - Presentation and Communication Skills
    - Implementation Planning and Funding
    - Behaviour Change and Motivation
    - Project Management and Structuring
- **Challenges**
    - Incomplete Information
    - Lack of Practical Experience with Tools
    - Preference for In-Person Sessions
    - Unclear Communication and Expectations

3. Stakeholders' Views on Innovation

- **Positive Changes**
    - Increased Knowledge and Understanding
    - Greater Openness and Motivation for Digitalization
    - Increased Adoption and Acceptance of Technology
    - Development of Concrete Innovations
    - Establishment of Innovation Departments
- **Challenges**
    - Continued Resistance
    - Limited Impact Due to Specific Circumstances
    - Financial and Structural Challenges

4. Challenges and Guidance during the IOC Project

- **Main Challenges**
    - Time Investment Issues
    - Technical and Integration Problems
    - Financial Constraints
    - Regulatory Challenges
    - Organizational Challenges
    - Resistance from Staff
    - Engaging Healthcare Professionals and Stakeholders
    - Communication and Perception Issues
- **Coach's Support**
    - Setting Concrete Goals
    - Providing Support and Encouragement
    - Leveraging Networks and External Contacts
    - Organizing Workshops and Training
    - Tailored Interventions and Adaptability
    - Problem-Solving and Practical Solutions
    - Encouraging Collaboration and Consensus-Building
- **Limited Impact**
    - Coaching Did Not Lead to Significant Outcomes

5. Coach Improvements

- **Areas for Improvement**
    - Greater Effectiveness and Focus
    - Financial Concerns and Subsidy Issues
    - Technical Support
    - Improving Stakeholder Analysis and Connections
    - Time Management and More Frequent Feedback
    - More Hands-On and Practical Support
    - Post-Project Follow-Up and Action
- **General Satisfaction**
    - No Significant Improvements Suggested

6. Plans to Support and Scale Innovation Post-IOC Project

- **Ongoing Efforts**
    - Scaling and Broader Implementation
    - Financial and Funding Plans
    - Continued Use and Support of Innovation
    - Integration and Process Improvement
    - Creating Awareness and Motivation
    - Partnerships and Collaboration
    - New Projects and Expansions
    - Marketing and Sales Plans

7. Improvements for IOC Subsidy Scheme

- **Suggestions for Improvement**
    - Financial Support and Cost Coverage

- Duration and Flexibility of the Scheme
- Reducing Administrative Burden and Simplifying Application Process