

WHAT IS NEXT FOR THE DIGITALISATION OF SWEDISH HEALTHCARE?

**AN EXPLORATORY STUDY OF THE DIGITAL HEALTHCARE ECOSYSTEM
AND THE BUSINESS MODEL INNOVATION OF E-HEALTH PROVIDERS**

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What's Next for the Digitalisation of Swedish Healthcare? An Exploratory Study of the Digital Healthcare Ecosystem and the Business Model Innovation of eHealth Providers

Abstract:

With an ageing and growing population, health- and social systems globally are facing challenges in ensuring that their national infrastructure can handle this demographic shift. Within the upcoming 10-year period, the group of people above the age of 80 years is forecasted to increase by 50 per cent in Sweden. Shifting demographics will further strain a healthcare system already facing structural issues. A challenge alluded to when discussing the coordination of the Swedish public healthcare system is the political and bureaucratic complexities that its' structure implies. Where bureaucratic inertia and lagging change management have incentivized a marketisation of the primary care system, through the entry of mHealth providers. Through shifting market dynamics the provision of accessible digital healthcare has become a priority. Clearly illustrated by the declaration of 'Vision eHealth 2025' which aims to align the digitalisation efforts strategically.

With the prospects of digitalisation, the guiding motive within this qualitative and exploratory study has been to explore the challenges that prevail within the Swedish digital healthcare ecosystem, how the business model innovation among eHealth providers has been affected, and to evaluate the future trajectory for the digitalisation of healthcare. Through interviews with industry experts within primary care, the results emerged that public and private stakeholders are facing challenges in realizing an aligned ecosystem due to 1) decentralised coordination of the healthcare system, 2) the political discourse surrounding marketisation and 3) a lack of interoperability between regions' digital infrastructure. Through business model innovation mHealth providers have been able to reposition their role in the ecosystem - either by adopting a complementor approach to facilitate joint value creation or conversely by extending their value proposition to a digiphysical provision model. Finally, Vision eHealth 2025 delineates an ambitious future outlook for the digitalisation of healthcare. In this study, stakeholders involved in the digitalisation process contrast the highly set ambitions with their respective organizational realities, and deliberate on what's next for the digitalisation of Swedish healthcare.

Keywords: 'Electronic health', 'Ecosystem Strategy', 'Business Model Innovation', 'Digital Disruption', 'Marketisation'

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Definitions

Business model: a representation of a firm's underlying core logic and strategic choices for creating and capturing value within a value network (Shafer et al, 2005)

Business Model Innovation: an approach for firms to respond to changing sources of value creation in times of high environmental volatility (Pohle & Chapman, 2006).

Electronic health record (EHR): the systematized collection of electronically-stored patient and population health data in a digital format. May include a range of data like demographics, medical history, medication, vital signs, personal statistics, immunization status and laboratory tests (Gunter & Terry, 2005).

Electronic Health (eHealth): the cost-effective and secure use of information and communication technologies in support of health. (WHO, 2018)

Digitalisation: a process where the use of digital/computer technology (and mobile applications) is adopted, or, alternatively, increased by an actor (Castells, 2010).

Interoperability: the ability of organisations to interact toward mutually beneficial goals, involving the information and knowledge sharing between organisations, by means of the exchange of data between their ICT systems. Involves legal-, semantic-, organisational- and semantic interoperability (European Commission, 2016)

Lagen om valfrihetssystem (LOV): a system which grants the Swedish patient the ability to independently choose their own provider of social- and healthcare services.

Mobile Health (mHealth): the use of mobile wireless technologies for public health (WHO, 2018)

Out-of-county reimbursement: the praxis for reimbursement when a patient receives treatment outside of the region that they are listed within, where the home region has to reimburse the care provider for the treatment and all surrounding costs of the care provision service (SKL, 2015).

Primary care: a part of the open healthcare system, without limitation to sickness, age or patient group that caters to the need for fundamental medical treatment, care, preventative care and rehabilitation that does not require specialist competencies och specific medical/technical resources. (SFS 2017:30)

Triage system: an interactive software designed for primary care where patients enter their symptoms directly and the software automates the allocation of the patient's treatment and further provides means-testing, information regarding symptoms and medical advice through self-service (SBU, 2010)

Vision eHealth 2025: a vision set by the Swedish government and SALAR, which states that Sweden by 2025 should be the leading country globally in terms of utilizing the opportunities that digitalisation and the development of eHealth brings. With the intention of simplifying the process to gain access to quality health services and equal treatment, while developing and strengthening Sweden's resources for an increased level of independence and participation within society and healthcare services. (eHälsomyndigheten, 2016)

Quasi-market: markets designed to generate greater demand and higher efficiency in comparison to traditional delivery models - supporting greater accessibility, stability and impartiality than traditional markets. (Lewis, 2017)

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1. Introduction

1.1. Background

With an ageing and growing population, health- and social systems globally are facing challenges in ensuring that their national infrastructure can handle this demographic shift (WHO, 2022). The life expectancy in Sweden has never been as high as of now (Folkhälsomyndigheten, 2022) and within the upcoming 10-year period, the group of people above the age of 80 years is forecasted to increase by 50 per cent (Statista, 2022). Alongside shifting demographics, the COVID-19 pandemic has resulted in national care provision being postponed on an extensive scale, further propelling the demand for healthcare services (Regeringskansliet, 2022). All aforementioned factors have and will continue to put a strain on a healthcare system that is already facing structural issues in terms of staff shortages (Socialstyrelsen, 2019), accessibility to treatment, long waiting times and a lack of investment in preventive health (Statista, 2022).

The Swedish healthcare system is decentralised and run by 21 regions and 290 municipalities, which manage and divide their healthcare resources independently. The Swedish Association of Local Authorities and Regions (SALAR) is the national association in charge of coordinating regions and municipalities and works as a communicational bridge between the varying levels (Anell, et. al. 2012). The parliament, government and authorities determine the constitution upon which the regulation of the healthcare system rests (SKR, 2022). Each of the 21 regions enjoys municipal self-government; implying a high degree of autonomy and thus a level of regional variability in terms of available healthcare services, reimbursement models, the provision of care and choice of digital infrastructure (SKR, 2022).

Furthermore, the healthcare system is divided into a public and private sector. Where the public sector is run and managed by regions and municipalities. The private sector consists of a plethora of private providers that approximately manage a fifth of the healthcare system (Armeliuss, 2022). This division has been enabled by the freedom of choice system (LOV). Implementing LOV is optional for municipalities, but mandatory within the regional primary care system (Upphandlingsmyndigheten, 2022). LOV has been a jurisdiction that serves as an alternative to the traditional procurement system (LOU), which is intended to increase the competition between healthcare providers. However, providers compete in regard to the number of registered patients and not based on price, since the regions impose fixed price levels for all primary healthcare providers (Larsson, et. al. 2019).

A challenge often alluded to when discussing the coordination of the public healthcare system, is the bureaucratic and political complexities that its' structure implies. Where municipal autonomy

frequently is associated with bureaucratic inertia, slow adaption processes and a hesitance to implement innovative solutions (Hartley, 2005; Nilsen, et. al. 2019). The lagging change management that prevails within the public sector and the free establishment right that LOV entails has in turn implied that a number of non-governmental players have seized the opportunity to advance their positions and claim market shares within the primary healthcare sector (Larsson, et. al. 2019). This has led to a marketisation of the primary care system, where a number of private mHealth companies have entered the sector and facilitated online consultations through video calls with healthcare professionals (Blix & Jeansson, 2019).

This market shift and new digital provision model have grown increasingly popular, and the COVID-19 pandemic further escalated the interest in digital healthcare services. In 2022 over 15 per cent of the population had used online consultations through video calls; a drastic increase compared to the 8% from the study two years prior (eHälsomyndigheten, 2021). Through mHealth services, patients have been able to cut waiting times, remove the inconvenience of travel and reduced the risk of contamination by not having to visit a physical healthcare facility (Mohr et al., 2018). The perceived benefits of mHealth services have led to a development equated to a ‘quasi-market’. In which patients are able to independently seek care from private healthcare providers who receive reimbursement from the regions. Increasing the opportunities for patient choice and enabling a more consumerist-based approach within the primary care sector where patients can “shop around” for healthcare services (Blomqvist, 2020).

However, the marketisation of the primary care sector has not gone uncriticized. One criticism has been the substantial government subsidies issued for digital primary care visits, which in combination with the improved accessibility and geographical unbound nature that mHealth services provide, could result in unsustainable cost increases for taxpayers (Blix & Jeansson, 2019). Additionally, the rapid growth of mHealth services has led to SALAR having to make uncharacteristically fast-paced decisions regarding the pricing models for such offerings. Propelling the political debate regarding the current reimbursement system, with the delayed implementation of minimum fees and the enactment of out-of-county reimbursements (Konkurrensverket, 2022). Other factors like the inability to draw an accurate diagnosis over video, overprescriptions of medicine and overconsumption of healthcare are commonly touched upon within the reproval of mHealth providers' service offerings (Blix & Jeansson, 2019).

Even if mHealth providers have been criticized within the political debate, the provision of accessible digital healthcare is a priority within the healthcare system. Over \$1.22 billion is invested by the regions annually in healthcare IT (International Trade Administration, 2022) and the prospects of national coordination in digitalisation efforts have been a focal point within the

development of healthcare strategies within the public sector. Clearly illustrated by ‘Vision eHealth 2025’ that was declared in 2016. A national policy framework designated to dictate and align the digitalisation efforts within the healthcare system. (SKL, 2016).

However, in conversation with a number of stakeholders within the Swedish healthcare system - the credence towards the highly set ambitions that Vision eHealth 2025 sets forth is moderate. Where the Business Unit Manager at 1177 and Inera pointed out that *“the notion of Sweden being the leading country globally in utilising the opportunities of digitalisation is a guiding star for our operations as a national coordinator of the public healthcare system - but we are far from there yet, so one should not attach themselves to the ambitious objectives that Vision eHealth 2025 proclaims”* (Interview, 03-11-22). A statement insinuating the challenges that reside within the Swedish healthcare system in its digitalisation and adoption of eHealth. Furthermore, parliamentary bills have been put forth highlighting the gap between Vision eHealth 2025 and the incompatible digital infrastructure and uncoordinated governance of the digitalisation of the healthcare system (Grönwall, et. al., 2020).

With the challenges and multifaceted perspectives that stakeholders within the healthcare system have towards its digitalisation, the guiding motive within this exploratory study has been to explore the digital healthcare ecosystem’s structure, how the progression of eHealth providers' business models might have been influenced and influenced within the ecosystem and lastly to evaluate stakeholder’s perceptions on the future outlook for the digitalisation of the healthcare system.

1.2. Research Gap

There is ample research regarding the challenges of implementing eHealth strategies in the healthcare system. Where the poor usability of eHealth systems (Scandurra, I. et.al, 2013), reimbursement models, interoperability, and regulatory issues present obstacles to implementation (Hollmark, et. al. 2015) and how the marketisation of the eHealth sector and self-managing consumerism may undermine health equity (Hellberg, et. al. 2016) have been examined throughout the existing literature. However, current research does not provide an in-depth exploration of how the barriers to implementing eHealth strategies may affect the disposition and success of the digital healthcare ecosystem. Nor, does current research explore how the business model innovation among eHealth providers has been propelled by these obstacles, or how private companies' business model innovation might benefit or disrupt the ecosystem.

Furthermore, there is research on how the National Reference Architecture Framework (the first component of eHealth architecture) have contributed to the progression of an ecosystem of

connected eHealth (Sellberg, et. al. 2017, Jørgensen, et. al. 2015). And additionally the importance of digital healthcare ecosystems being designed with policies of health equity at the forefront to avoid further propelling health inequalities (Van Kessel, et. al, 2022). However, available research regarding the progression of a digital healthcare ecosystem is seemingly limited to the provision of eHealth solutions within the public sector and is centred around policy recommendations to promote inclusivity within the ecosystem. Whereas research regarding how the business model innovation of private eHealth companies affects the digital healthcare ecosystem's structure and the digital disruption through eHealth providers' business model innovation is limited.

1.3. Purpose

With consideration to the fast-paced digitalisation propelled by marketisation; researchers and orchestrating stakeholders within this sector should call for more knowledge on how the processes, flows and relationships within the digital healthcare ecosystem are characterized. To facilitate an understanding of how to manage the challenges and opportunities within the digitalisation process and to further grasp how eHealth providers' business model innovation might affect this process. This study seeks to contribute to the current research gap regarding the digitalisation of the Swedish primary care sector and examines the role that eHealth companies and their business model innovation play in establishing a digital healthcare ecosystem. The aim of the study is to develop a systematic understanding of how the Swedish healthcare ecosystem is being affected by the growth of the eHealth industry and to examine the future trajectory of the digital healthcare ecosystem. The paper will address the structural obstacles in shaping the new digital healthcare market and the challenges and prospects of achieving national coordination within the digitalisation of the healthcare ecosystem. The study aims to answer the following research questions:

1.4. Research Questions

- 1) What is the current landscape for private and public healthcare providers within the Swedish digital healthcare ecosystem?
- 2) How has the landscape within the Swedish healthcare ecosystem influenced the business model innovation of private eHealth companies?
- 3) What is the future outlook for the digitalisation of Swedish healthcare and are private eHealth providers a facilitator for national digital coordination?

1.5 Delimitations

The digitalisation of the Swedish healthcare system is a nationally encompassing and structurally complex process to examine. In delimiting the scope of this study we have chosen to evaluate the digitalisation of the healthcare system by focusing on the primary care sector, rooted in the marketisation that has occurred within this sector in recent years. However, fragmentation in regional strategies implies obstacles in the process of investigating the digitalisation efforts within the public sector for all of Sweden's regions exhaustively. Which ultimately was considered to go beyond the scope of this study. Therefore, selecting an interview sample that captured the regional variability was a priority to promote the generalizability of the study's results. A number of regions with varying digitalisation strategies were selected to give a representative account of how varying regions perceive private providers and to understand their role in the healthcare ecosystem.

Further, two focal firms were appointed for the analysis; Platform24 and Kry. By analysing two eHealth companies and their inter- and intrafirm processes, the aim was to demonstrate how private stakeholders adapt varying ecosystem strategies and the opportunities and challenges that they face within their respective business model innovation. Moreover, the study does not depict the business model innovation of Doktor24, the sister company to Platform24. This stems from the objective of examining differing business model strategies; where Doktor24, similarly to Kry, is a digiphysical B2C eHealth company operating within the primary care system. While Platform24 is a B2B SaaS company. Even if focusing on two eHealth companies might be considered a narrow scope, the aim of the study is to compare their business model innovation, where the two companies' business model innovation illustrate two different approaches and give ground for an insightful comparison.

1.6 Research contribution

This study is intended to contribute to the relatively limited current state of research in the area of the digitalisation of the Swedish healthcare system and the role of eHealth providers in this process. What distinguishes this study from prior research are three significant aspects. Firstly, few studies address the digitalisation of the Swedish healthcare system based on the business model innovation of eHealth providers. Secondly, this study offers an account of the perspectives of industry experts from regions, private healthcare providers and authorities; thus providing a more holistic account that is not commonly found throughout available research. Lastly, the study aims to highlight and give an account of the strategic choices that private eHealth providers have opted for and how they plan to operate in the future.

2. Literature review

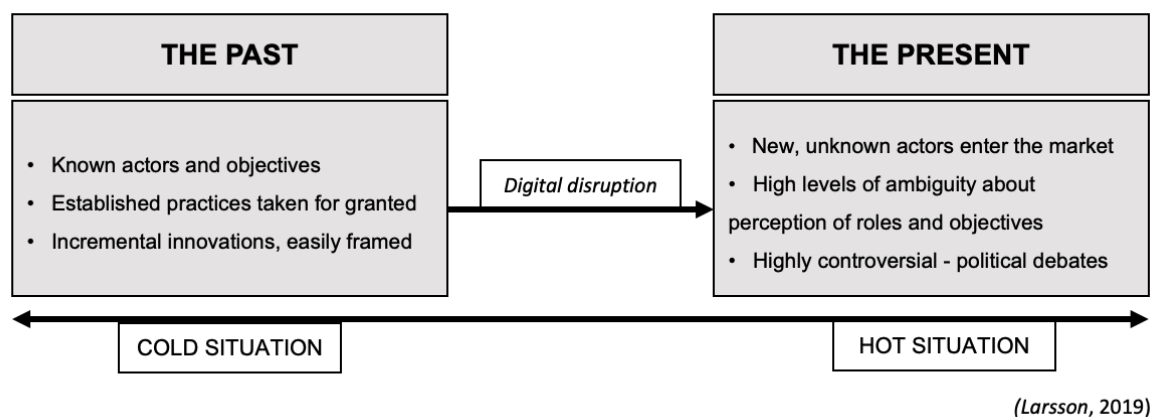
This section gives a general background to the subject matter and the available research underlining the scope of the study. With the aim of providing an illustrative background of how the Swedish healthcare ecosystem is constituted, how marketisation has disrupted the healthcare system and lastly an account of the available research regarding digital healthcare ecosystems.

2.1 Disruption through marketisation

Innovation within the public healthcare sector has progressed incrementally in recent years. Where the complexity of the operating environment and public healthcare system being heavily embedded in societal structures, have led to a dearth of disruptive innovations (Schulman, et. al., 2009).

Furthermore, the drivers behind innovation within the public sector can be contrasted with the factors that drive commercial innovations. Where innovation within the public healthcare sector typically stems from the incentive to increase public value and usefulness on a societal level, rather than gaining a competitive advantage or increasing profits (Bloch, et. al. 2013). The embeddedness of public healthcare services is a factor that influences the risk when presenting innovative solutions. Typically digital innovation within the public healthcare sector is scrutinised prior to being fully developed and the quality dimensions of such innovation are more substantial since the innovation is implemented at scale. Therefore, digital transformation within the public healthcare system is adjourned by the complex challenges that decision- and policymakers face in its implementation (OECD, 2016). With today's fast-paced digital environment, marketisation within the healthcare sector and digital transformation putting existing frames of how healthcare provision should be conducted into question; there is a fundamental need for re-evaluating the healthcare system's current structure (Kastberg, 2014).

Figure 1. *Market movement on the hot-cold continuum* (Larsson, 2019)



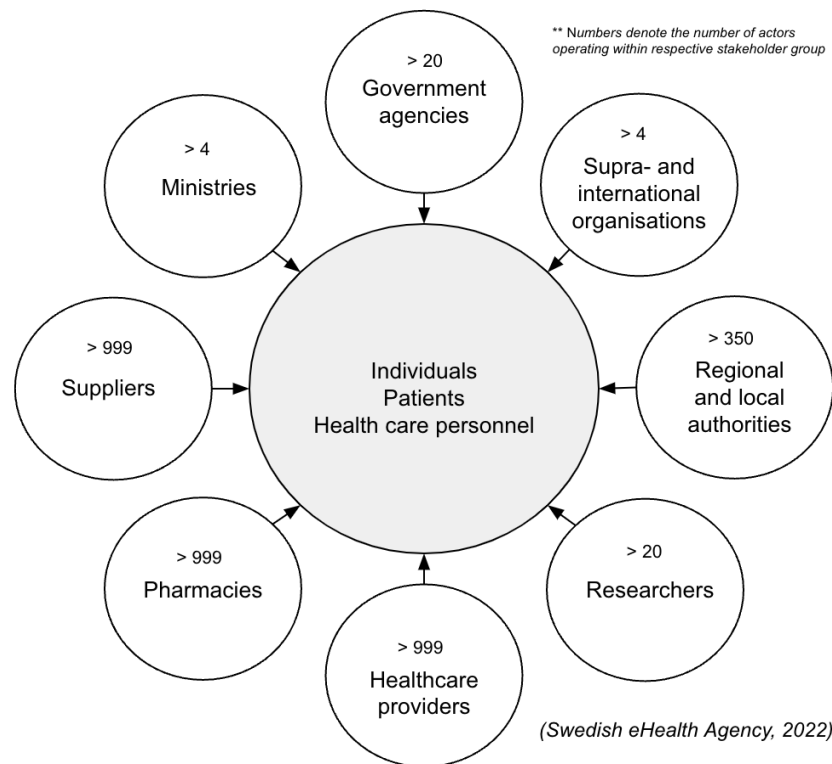
Callon (1998) suggests a hot-cold continuum for evaluating market situations where there is an emergence of technological development. “Cold” situations are characterized by clearly identifiable actors, preferences, roles and interests within the market - which are easily framed and where disruption can be easily resolved. “Hot” situations are characterized by a high degree of uncertainty and a controversial change process. In “hot” situations market disruption implies a challenging process of reaching a consensus and agreement regarding the future trajectory and coordination of the market. Larsson (2019) argues that the digitalisation of the Swedish healthcare system is triggering a movement towards the “hot” dimension of the continuum.

2.2 The Swedish healthcare ecosystem

The healthcare ecosystem is made up of various actors and the Swedish eHealth Agency is the orchestrating authority that coordinates the government's eHealth efforts and monitors the national and international developments regarding eHealth (eHälsomyndigheten, 2022). The Swedish E-Health Agency lists eight partners that constitute the Swedish healthcare ecosystem: providers, supranational and international organisations, ministries, government agencies, regional and local authorities, healthcare providers, pharmacies, industry/stakeholder organizations and finally researchers (Inera, 2016).

When it comes to eHealth suppliers, this group is constituted of IT providers and suppliers of digital healthcare equipment and infrastructure. The role of Inera in the healthcare ecosystem could be defined as a coordinator of the regional and local authorities, where the company is owned by the regions and municipalities and develops national/regional digital healthcare solutions. In terms of ministries within the digital healthcare ecosystem, the Ministry of Social Affairs is the actor responsible for issues related to social welfare services. Governmental bodies refer to management groups where the focus is on the strategic issues and choices related to National eHealth. In the case of regional and local authorities, this group is constituted of representatives from all of Sweden's regions and municipalities. The group of healthcare providers within the Swedish digital healthcare ecosystem is divided into public and private providers, like public healthcare providers within the regions and private providers, for example constituting eHealth companies like Kry and Doktor24 (Inera, 2016). There are several other members within the Swedish digital healthcare ecosystem, but their role will not be elaborated on considering the scope of this study which resides in examining the primary care sector.

Figure 2. A visualization of the Swedish healthcare ecosystem



Note: Visualisation adapted from eHälsomyndigheten (2022)

2.3 A digital healthcare ecosystem

The digitalisation of service sectors is an all-encompassing phenomenon in the current digital age. Even if the healthcare sector in many ways differs from other service industries, it is no exception to digital transformation (Blix & Jeansson, 2019). With consideration of the disruption caused by shifting demographics and the overall strain that Swedish healthcare is facing, the healthcare system requires a fundamental renewal of capabilities to suffice (Friesdorf, et. al. 2019). Where widespread adoption of information technologies and digital solutions will be necessary to face the challenges that the shift of the healthcare paradigm implies (Serbanati, et. al., 2010). In parallel with the marketisation of the healthcare system, patients are choosing to interact with other parts of the healthcare value chain through private eHealth services. Through this, patients can gain easier access to healthcare, which in turn is altering the market dynamics. eHealth providers are offering services that are designed to address traditional industry challenges and have with their entry disaggregated the value chain and diluted the public healthcare sector's original value proposition (Friesdorf, et. al. 2019).

Within recent years, stakeholders within the Swedish healthcare industry have come to understand the benefits of eHealth and digital health applications. Where private eHealth companies have

entered the market and are providing innovative new digital health solutions, public healthcare providers are proactively working with digitalising their service offerings, pharmacies are extending and digitalising their treatments (McKinsey, 2016), ministries like the Swedish eHealth Agency have been established to orchestrate the digitalisation efforts within the industry (Swedish eHealth Agency, 2022) and players like Inera are trying to coordinate the regions/municipalities through their digital services. Industry disruption can thus create new opportunities for the digitalisation of the healthcare system, by facilitating a better patient experience and accessibility to healthcare through increased patient choice, strengthening the partnerships among providers and stakeholders and incentivizing more efficient healthcare provision. However, there are prevalent risks with digital disruption and establishing a digital healthcare ecosystem. Friesdorf, et. al's (2019) research presents five of the most common 'pitfalls' within the process of establishing an ecosystem:

- 1) **“Shiny object” pitfall** - ecosystem orchestrators should focus on adopting and promoting a pragmatic, focused and realistic approach in the solutions that are developed. Where both feasibility and value creation are taken into consideration. Rather than having a plethora of complex and unfocused solutions.
- 2) **“Neglecting foundations” pitfall** - the success of an ecosystem depends on having solid foundations; where proper and scalable IT infrastructure, refined data security concepts, integration within the data landscape and a strong business network are essential components.
- 3) **“Total control” pitfall** - the success of an ecosystem often corresponds to its openness to service providers and other partners. Orchestrators should aim not to hold on to tight control and block opportunities for innovators, but rather set up strategic control points to promote the integration of members into the ecosystem.
- 4) **“Just technology and new partners” pitfall** - success is dependent on adopting a mindset where there is a willingness to collaborate with a range of partners and to promote awareness of the notion that all solutions do not have to be developed in-house.
- 5) **“Neglecting the core” pitfall** - even if the digital healthcare ecosystem can become a vital aspect of orchestrators' operating model, there is still a need to oversee and continually improve core operations within the healthcare system. Only with operational excellence at the core levels, orchestrators can ensure that investments in the ecosystem pay off.

Furthermore, the role and size of the orchestrator can constitute a challenge in establishing an aligned ecosystem. The appropriate ecosystem strategy will depend on the orchestrator's capability to coordinate ecosystem efforts, utilize its membership base and its' ability to compete in a dynamic market (Friesdorf, et. al. 2019).

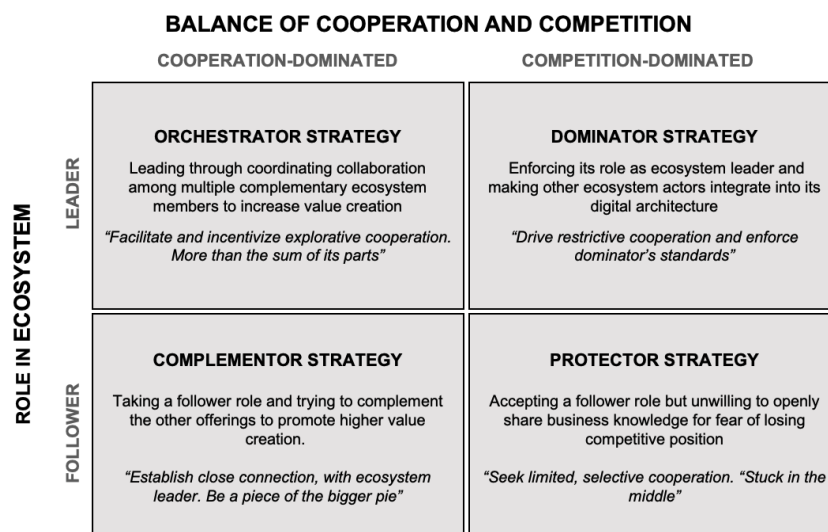
3. Theoretical framework

This section of the study intends to provide an overview and introduction to relevant concepts and theoretical frameworks that have been applied throughout the thesis.

3.1 Ecosystem concept and strategies

Adner's (2017) definition of an ecosystem is described as "*the alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to materialize*". A relevant definition in the process of examining digital transformation within an industry, where multiple stakeholders will have to cooperate and align to materialize the focal value proposition. **Alignment structure** refers to the extent to which there is a mutual agreement among members in the ecosystem, regarding their positions and the flows between them. All ecosystems are inherently **multilateral**, which implies that there are multiple partners within the ecosystem and critical interactions within their relationships. The **set of partners** component implies that the membership between partners is defined and that they have joint value creation as their common goal. Lastly, the "**for a focal value proposition to materialize**" component of the definition, suggests that a productive analysis of ecosystem strategy is centred around the value proposition and the required activities for its instantiation. Focusing on digital transformation and the ecosystem construct, Jacobides (2019) defines a digital ecosystem as a "*loose network of interacting organisations that are digitally connected and enabled by modularity, that affect and are affected by each other's offerings*". A digital ecosystem arises as a result of digitalisation, which enables a broad set of firms to connect in order to deliver a solution towards customers, and further offers a new way to organise economic activities. Kamaldin, et. al. (2021) have developed four ecosystem strategies that can guide members within the digitalisation of an industry:

Figure 3. Visualization of archetypical ecosystem strategies for digitalisation

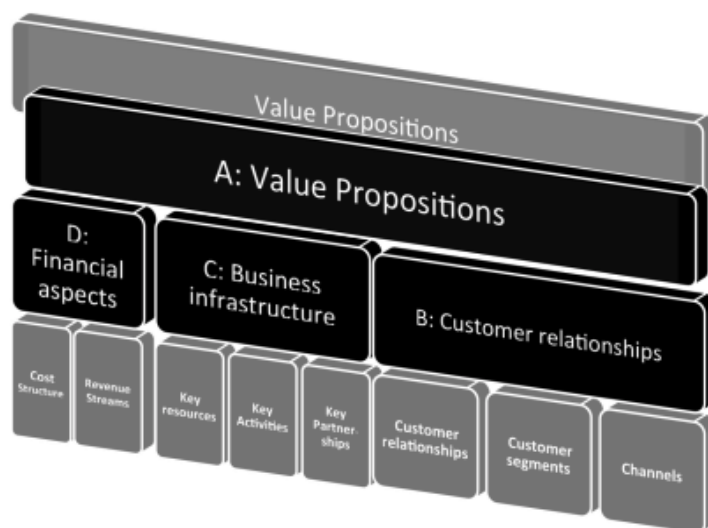


Note: Visualization adapted from Kamaldin, et. al. (2021)

3.2 Business Model Canvas

The Business Model Canvas (BMC) is a management framework developed by Osterwalder and Pigneur (2010) to provide a systematic approach to outlining the value creation in a business model. The BMC framework has been widely adopted for business modelling and describes nine key elements that business models typically rely on. Schaltegger et. al. (2012) further built on the framework by classifying four business model pillars to group the nine elements of the BMC: *value propositions*, *customer relationships*, *business infrastructure* and *financial aspects*. Where business model innovation relates to the identifiable changes across the four pillars (Morgan, 2015).

Figure 4. Business Model Innovation Canvas with nine key elements and business model pillars



Note: Canvas from Osterwalder & Pigneur (2010) and pillars from (Schaltegger et. al, 2012)

In the discussion of digitalisation transformation, the BMC is useful in explaining the interplay between the different business elements and how changes in certain elements have ripple effects across the entire canvas. The success of digital transformation, commonly depends on how complementary changes within the organization's business elements facilitate an effective adoption of new technologies. Additionally, the BMC framework is rooted in the notion of iterative business model innovation and refinement through testing. A concept that plays well into digital transformation since this sort of business model innovation commonly needs to be aligned iteratively (Mueller, 2022).

4. Methodology

This section provides a description of how the chosen research methodology was decided upon, how the data collection has been conducted, an overview of the interview sampling process, a visualization of the data analysis and the reliability and validity of the chosen research method.

4.1 Research Method and Approach

4.1.1 Research Method

The study is based on a qualitative research method. Since the primary data is retrieved from a plethora of stakeholders within the Swedish healthcare system, a quantitative method would have limited our ability to get a nuanced insight into the interviewees' perspectives on the subject and to make adjustments in the interview guide based on new findings (Ahrne et. al., 2015). For the interviews, a semistructured method was chosen to facilitate a flexible process in allowing the interviewees to shape the study (Bell, 2022). Where the interview guide has been progressively adjusted with regard to the insights gained from previous interviews. Throughout the interview process, a number of industry experts provided their perception of the digitalisation of the Swedish healthcare system and how the future development of eHealth might progress. This insight was useful to be able to distinguish the challenges and opportunities that regional healthcare providers and private eHealth companies face in operating within the primary care sector and in working with its digitalisation. In terms of the sample of interviewees, the list of whom to interview was not set in advance. Initially, a number of suitable stakeholders within the public healthcare system from each of the 21 regions, a handful of private eHealth companies and legislators within the healthcare sector were identified and contacted for the interview. However, throughout the process, additional stakeholders, like the Swedish eHealth Agency and Inera, were acknowledged as relevant for understanding and mapping out the ecosystem and contacted thereafter.

4.1.2 Research approach

Abductive reasoning has been the selected research approach for this study. The abductive approach combines elements of the inductive- and deductive approaches, and typically comes into play when a new phenomenon is observed or has not yet been explained within current research (Walton, 2005). This approach stems from making a set of observations and then seeking the most likely conclusions, which are inferences based on the best alternative explanations. Such explanations are developed through an elaborate analysis and interpretation of the empirical data conducted by the authors (Sober, 2013).

4.2 Data collection

4.2.1 Sampling of interviewees

To evaluate the digitalisation strategies of public and private actors within the Swedish healthcare ecosystem, there was a need to gather insights from stakeholders. Conversing with stakeholders whose professional roles related to queries regarding strategic development and digitalisation, was therefore a vital part of gaining a holistic understanding of the ecosystem and how different actors approach digitalisation. Interviews were conducted with 12 industry experts within three segments: 1) *public/regional healthcare providers*, 2) *private eHealth companies* and 3) *authorities*. By broadening the scope and talking to multiple regions, the intention was to gain an understanding of the regional differences in regard to digitalisation strategies, the performance of regional eHealth solutions and the stakeholders' perspectives of the challenges and opportunities within the digitalisation process. By interviewing two private eHealth companies, the intention was to facilitate an understanding of their respective business models and the challenges and opportunities that the companies have faced in establishing and scaling their business model within the primary healthcare sector. For the last segment of interviewees, the intention was to better understand the regulations that dictate the healthcare system and what structural entry barriers might affect the digitalisation of the healthcare system. All of the interviewees had senior positions within their organizations and had been involved in the digitalisation process of their respective businesses. Ultimately 12 interviews were conducted, one for the pre-study and the remainder for the main study (**Appendix 1**).

4.2.2 Pre-study

During the pre-study phase, a literature review and a guiding interview were carried out. The intention during this phase was to gain a general understanding of relevant stakeholders, the reimbursement structure, regulations and laws that dictate the healthcare system, current digitalisation efforts and policies, and the political discourse surrounding private healthcare providers. The interview was conducted with Vaccina, a private healthcare provider who specializes in vaccinations and healthcare services beyond the scope of primary care. With consideration of the interviewee's proximity to a key industry player and their vast experience with operating within the Swedish healthcare system, we concluded that the interview would be beneficial in the process of calibrating the interview guide and identifying relevant stakeholders. Accordingly, the findings in the pre-study shaped the structure of the interview guide for the main study and a number of relevant stakeholders were identified and later contacted for participation in the main study.

4.2.3 Main study

Before initiating the main study, it was decided that the number of interviews conducted ultimately should align with the notion of achieving theoretical saturation (Bell et. al, 2022). 12 interviews were carried out for the main study, with six interviewees for segment 1, three interviewees for segment 2 and two interviewees for segment 3. A volume that was considered adequate with consideration to the timeframe and scope of the study, and which further satisfied Arhne et. al.'s (2015) minimum recommendation of interviews, which ranges between 10 - 15. The length of the interviews spanned from 00:29 - 00:53 hours. Since the intention of the data collection was to understand the varying stakeholder's perspectives regarding the subject matter, the time span of the interviews was not decided beforehand to promote the interviewees being able to freely express their thoughts without being limited to a set timeframe.

All interviews were carried out on a digital basis, through video interviews via Google Hangouts. There are qualitative researchers that suggest that non-face-to-face video interviews could potentially lessen the rapport that can be established between the interviewer and researcher. Where interruptions and an inability to pick up on non-verbal cues may lead to asynchronous communication (Bell, 2022). However, other researchers argue that video interviewing through telecommunications applications allows for a comparable interactional experience to face-to-face interviews (Akemu & Abdelnour, 2020). Where one can transcend geographical boundaries, encourage participation through decreased participation barriers and increase the flexibility in the interview process (Hanna, 2012). Since a number of the interviewees for this study were located in other regions and the aim of wanting to promote the participation of senior industry experts, a digital interview format was deemed applicable for this study.

With the aid of the Business Model Canvas, a number of key themes were distinguished and laid the basis for the interview guide. This structure was intended to promote a systematic approach to understanding the business models of different stakeholders and to see how these in turn had been affected by digitalisation. The intention of developing sections of the interview guide based on the BMC and the categories that this framework suggests was to decrease the risk of subjectivity from the conductors of the study throughout the interview process (Bell, 2022) and to capture the informants perspective regarding their business model and the effects of digitalisation.

A number of key questions (**Appendix 2**) were formulated and asked in each interview, to be able to capture the varying elements of the stakeholders' business models. Further research was conducted after each of the interviews to get an in-depth understanding of the topics that were touched upon and to add relevant queries for the upcoming interviews. However, with regard to the

aim of the study, some questions in the interview guide were discarded throughout the process since they did not bring explanatory value or were considered redundant for the scope. In the data coding process, the BMC framework was utilised to illustrate the business models of the two participating eHealth companies (**Appendix 3**). Both authors were present for all of the interviews and involved in the interview process. However, prior to conducting the interview, one author was assigned responsibility for taking notes on relevant matters and identifying non-verbal cues. All of the interviewees agreed to the interviews being recorded. Where transcriptions were made by listening to the recordings in close conjunction with the interviews to be able to better recollect the topics and to assure that the transcriptions aligned with what was brought up during the interviews.

4.3 Data coding

To present the empirical data that was collected throughout the interview process, a number of quotes have been selected by the authors with consideration to the key dimensions identified throughout the coding process. The empirical aggregate dimensions were distinguished by adopting a Gioia methodology; a common concept-development approach for qualitative research (Bell, 2022). A ground assumption within this approach is that the organizational world is socially constructed. Where the people constructing their organisational world are “knowledgable agents” who with the sensemaking of their intentions, thoughts and actions, can provide a rich background for researchers to dissect their varying experiences and to discover new concepts based on their interpretations of their organizational worlds (Gioia, et. al. 2012).

In selecting a Gioia approach the intention was not to affirm existing concepts within current research, or in accordance with the Eisenhardt method build an empirical basis for new theoretical development (Eisenhardt, 2020). On the other hand, the aim of the chosen methodology was to make interpretations of the human organizational experience of stakeholders within the Swedish healthcare system. And additionally, to be able to systematically discover prevalent concepts within the healthcare ecosystem and to distinguish similarities and differences within the business model innovation of the two participating eHealth companies. According to the Gioia approach, the first step in the process is open-coding. In this stage, the transcribed data from the interviews are analyzed with the intention of developing first-order codes. In other words, identifying the preliminary concepts and emerging themes within the data to group similar concepts together (Corley & Gioia, 2004). Based on the identified first-order concepts, the axial coding stage resided in making connections between the concepts that coincided and shared the same conceptual ideas to then develop the second-order themes. Ultimately this categorization process resided in the classification of four aggregate dimensions. The following were found: 1) *the issues with the healthcare system's structure and coordination*, 2) *the lack of interoperability*, 3) *the human and political factors of digitalisation* and 4) *the future outlook for the digitalisation of healthcare*.

Figure 5. Visualization of the data structure based upon the Gioia methodology



4.4 Quality of research

4.4.1 Reliability and Validity

A reason that militates against the study's external reliability is that the generalizability of the results is limited by the non-randomized sample of interviewees, which risks skewing the results (Ahrne, et. al., 2015). This limitation has been taken into consideration by ensuring that the interview sample has been diversified; by including public stakeholders from a number of regions with different political power structures and population sizes, three private healthcare companies with different business models, and a range of institutional stakeholders with diverse roles within the healthcare system. However, selecting respondents from specific stakeholder groups within the healthcare industry was not a completely randomized process – which therefore could skew the results (Bryman & Bell, 2022).

Another problematic aspect of the qualitative research method is the risk of author subjectivity. Where the respondents express their personal views on the question, and authors provide a subjective interpretation of their responses. Furthermore, interviewers may accept the perspective of the interviewee or transfer their own beliefs into the interview questions. Additionally, considering the politicised nature of the topic of marketisation within the healthcare sector, this could lead to a risk of biased responses where interviewees suppress their personal opinions to represent their organisation's position within the healthcare system, to not risk affecting their career opportunities or reputation. Furthermore, a limitation of the chosen semi-structured interview format is that the interview guide has been progressively adjusted throughout the interview process and depending on the stakeholder. This could in turn have resulted in some aspects not being touched upon in every interview session (Bryman & Bell, 2022).

Moreover, a subjective bias in the coding process could also be a critique of the qualitative approach. The Gioia methodology gives a systematic approach to the selection process in which empirics have been included/clustered into themes - but ultimately it is based upon the authors' subjective perceptions of what is deemed to be relevant (Bryman & Bell, 2022). To promote the internal reliability of the study, i.e the degree to which the authors agreed with one another regarding the perception of the data (Bryman & Bell, 2022) the authors have had continuous discussions regarding the empirical findings and conducted independent and collaborative analyses to ensure a unified understanding of the empirical material.

4.4.2 Ethics and GDPR

Before all interviews were conducted, a description of the study and its purpose were presented to the interviewees. Additionally, a description was provided regarding how the participant's data would be treated in alignment with the EU General Data Protection Regulation (GDPR); where no confidential information would be disclosed in the report and the participant's name would not be revealed. Including the title and organization of the participant was deemed necessary for the report, as it adds relevant information regarding the participant's insight into the organisation's strategic approach to digitalisation and their competence and the organisation's role within the digital healthcare ecosystem. To further improve the objectivity of the report and to counteract cognitive biases or skew the reader's perception of the empirical findings, no information regarding the participant's gender or age has been included in the report.

5. Empirical findings

The empirical data gathered throughout the interview process is presented in this section of the study, based on the Gioia approach and the axial coding of the transcriptions in the data coding section of the study. Four higher levels of abstractions have been grouped together and the respondents' answers have been presented and compared with regard to these dimensions in order to encapsulate the perspectives of varying stakeholders within the healthcare system.

5.1 The healthcare system's structure and governance

5.1.1 The decentralised coordination of the Swedish primary healthcare system

A representative from the Swedish eHealth Agency, a governmental agency with the aim of pursuing the development of national eHealth infrastructure, explained that:

“One of the main issues with the national coordination of the digitalisation of the Swedish healthcare system is the question of free will. Where all 21 regions and 290 municipalities have municipal autonomy. All stakeholders do their best with consideration to their own capabilities. Where regions are of varying sizes and have different abilities in terms of human capital, competence and financial resources to develop efficient digital systems for their population”.

The representative from Platform24, agreed with the challenges that municipal autonomy implies for national coordination of digitalisation and argued:

“The challenges with establishing a national coordination of digital infrastructure is rooted in 1) *confidence*, where regions lack trust in Inera's ability to coordinate due to their low delivery and quality of services historically, 2) *municipal autonomy*, which is the foundation from a political perspective, which can be challenged with the implementation of a national software and 3) *varying regional care provision models*, where the procedures and processes for healthcare services differ drastically between regions”.

The Business Area Manager at Inera, who with the procurement and cooperation with Platform24 actively works with developing and providing regions and municipalities with national eHealth solutions, further reinforced the challenges with digital coordination and municipal autonomy:

“With the solution that we [Inera] are implementing - municipal autonomy is a major challenge for cooperation over regional borders. There are differing patient fees - which in turn could result in patients choosing the most cost-efficient region. This becomes counterproductive for realising the vision of a unified Swedish digital healthcare system”

In conclusion, the majority of the interviewees suggested that the decentralized coordination of the healthcare system presents a challenge to implementing a national digital infrastructure. Furthermore, municipal autonomy implies that there is fragmentation within the digital infrastructure that is in use as well as the digitalisation strategies that are implemented regionally. The stakeholders who are working towards national coordination, like Inera and the Swedish eHealth Agency, described the decentralised coordination as a roadblock to accomplishing their task and incentivizing regions to implement their solutions.

5.1.2 Misalignment between eHealth progression and reimbursement models

With the disruption that the marketization of the primary healthcare sector has implied, the adjustment of the reimbursement model has not kept an even pace with the market development. Where the representative from Kry explored the challenges within the current reimbursement structure, explaining that:

"Economically and philosophically, I think the challenges within the healthcare system are evidence that the reimbursement model itself no longer fits our reality. If you believe in patient choice, which is regulated by the law, it is quite reasonable to think that the reimbursement model should be changed to accommodate the patient's choice. But that is not the case today”.

The Business Area Manager of Capio, further highlighted the misalignment between the current reimbursement model and the state of the market, by stating:

“Today’s reimbursement model is faultily formulated.”

Furthermore, the Business Area Manager at Inera elaborated on how the reimbursement model has been formatted, the challenges that it has propelled and the action SALAR has taken, by stating:

“The reimbursement model has been formatted based on physical care provision and has simply been reused for digital care provision. This has resulted in a lot of money being spent in a way that was not intended. We know that mHealth providers have taken advantage of the reimbursement model that exists, which is why SALAR’s health care delegation has made a recommendation for an appropriate reimbursement level- which most regions have implemented.“

In addition, the Development Manager at Region Gävleborg elaborated on the challenges and misalignment within the current reimbursement model by describing the loopholes it has allowed for mHealth providers:

“Private mHealth providers would not have had any financial bearing if they had not exploited the loophole within the reimbursement model, through out-of-county reimbursements, to finance their operations. Where they [mHealth companies] were able to capitalize on healthcare visits that in the public sector would not even have been considered to give grounds for seeking out healthcare.”

The Head of the Unit from Region Östergötland shared this perspective of the drawbacks of the current reimbursement model and elaborated by saying:

“We work in accordance to the Health and Medical Care Act - where the patients with the greatest needs should be prioritised. And when we talk about healthcare visits that not necessarily should have been considered a visit - but rather an instance where the patient could have gotten counselling online, the reimbursement for such visits has resulted in economical hits on the regions. The reimbursement for such visits has been managed through a separate system and regions simply have had to come to terms with the economical silos in the system - without having any sense of control in the actual care provision. This separate reimbursement system has therefore been a major disadvantage”.

The Head of Development at Region Gävleborg further supported the notion of how regions and private mHealth providers operate under differing circumstances by stating:

“The Health and Medical Care act implies that we [regions] provide healthcare to those with the greatest need. The patients who choose mHealth providers indirectly undermine the financing of the public sector since their healthcare needs are not required to go through any means testing. The public sector is bound by law to prioritise healthcare needs, on the contrary to mHealth providers who are offered a stable financial backing even for unwarranted healthcare visits”.

In conclusion, the attitudes towards the reimbursement model are often negative. None of the interviewees stated that the current reimbursement models align with the current market dynamics and the digital provision model; on the contrary, all stakeholders argued that there is a need for readjusting the reimbursement model to accommodate this shift.

5.2 The human and political factors of digitalisation

5.2.1 Political discourse surrounding the marketisation of the primary healthcare sector

The entry of mHealth providers and the political discourse that has surrounded the reimbursement model for their offerings was a talking point throughout the interview process. Where the representative from Kry discussed the public debate that surrounded their market entry, and how the challenges that this has inferred have propelled their business model innovation, explaining that:

“The main reasonings behind opting for a digiphysical provision model stemmed in 1) the reasoning regarding what type of provider that we want to be, where a full-service digiphysical model is preferable to being a niche-player, 2) we wanted to risk-minimize our business model, and 3) the public discourse regarding private providers and the reimbursement model. In my opinion, the public debate is extremely skewed regarding the reimbursement [for mHealth providers].”

When asked regarding mHealth providers' role within the primary healthcare system and the reasoning behind patients utilizing mHealth providers' services, the Head of Development at Region Gävleborg stated:

“In my opinion, private mHealth providers are the evidence that we [Region Gävleborg] have not been able to offer patients accessible healthcare, which propels patients to choose what we believe is an inferior option”.

The deputy CEO of Platform24, who before their current position has been active within the mHealth company Doktor24, stated that:

“The main problem with the political discourse regarding mHealth providers, is not the digitalisation of the healthcare provision model, but rather the issues with the reimbursement model and the separate systems for public and private providers. The healthcare system is complex as is, so there is no need to add another layer of complexity [through differing reimbursement models].”

In conclusion, the representatives from the public sector had varying standpoints and perceptions regarding the mHealth providers' market entry - where some argued that the entry of mHealth providers disrupted the entire basis of the healthcare system and were a waste of taxpayers' money, while others had a more openminded and collaborative view. Several interviewees suggested that this split of opinion was rooted in the different political rules within the regions. In addition, mHealth providers suggested that the political discourse surrounding their market entry has led to a misrepresentation of their business models rooted in the reimbursement structure.

5.2.2 Change-aversiveness towards digitalisation of the primary healthcare sector

In discussing the stakeholder's perceptions of the process of digitalisation and the adoption of eHealth services within the primary care sector, the Unit Manager at Region Östergötland noted:

“There is a mindset within the healthcare profession, where professionals believe that the human encounter is essential for making a qualitative diagnosis and are proud and want to cherish their [medical] competence, rather than automating the healthcare provision through digitalisation. With this approach and the number of major organisations that have to reconcile - the digitalisation process is not easily facilitated”.

This statement encapsulates the change aversiveness within the healthcare profession. Where several of the interviewees described that some professionals can be hesitant towards adopting eHealth solutions. Several causes behind this mindset were suggested throughout the interviews. Some argued that there is a fear that the entire healthcare provision model will be automated and that the professionals' role will be redundant with the opportunities that digitalisation implies. The representative from Region Östergötland further elaborated on the reasoning behind the change aversiveness by describing this fearful attitude among professionals:

“In my experience of explaining our digitalisation efforts to employees, there often is a reaction where they think that we are going to digitalize everything - and they get scared”.

The representative further elaborated on the sense of pride that resides within the healthcare profession and a strive of wanting to defend that knowledge:

“Our medical experts are proud of their medical knowledge and want to protect it. In many cases, it is not that simple to drive the digitalisation process forward. There might be a fear in the process of change. But I understand the hesitation - because it affects the medical role to its core in some ways. And that change can therefore be a sensitive subject.”

Where the representative of Platform 24 further highlighted the human factor and change-averse mindset within the profession by stating:

“One of the biggest challenges with the digitalisation of healthcare resides in the question of how the work processes will have to change for healthcare providers. A basic query, but a human one. And therefore one of the most challenging aspects within the digitalisation process”.

The Business Area Manager of Inera further elaborated on the challenges with anchoring digitalisation efforts within the public sector by pointing toward the traditional mindset that prevails within the healthcare industry, where the representative stated that:

“There are few sectors that are as change-averse as the healthcare sector. This could be a consequence of the high-stress levels within the profession, and the demanding process of adjusting

work processes. There has been a focus on meeting patients physically and having a traditional dialogue with your care provider. It's a conservative process".

One of the interviewees from the Swedish eHealth Agency, had a background as a clinical physician, and further elaborated on the change-averse mindset within the healthcare profession based on their own experience:

"As a healthcare physician, I am probably quite progressive when I say that I think digital healthcare is beneficial - but I always add that it's beneficial when it is used for the right cause". We [Inera] are aware of the change unwillingness that prevails within the healthcare system. There is a lack of confidence in the national coordination of digitalisation efforts. It is difficult to see the current coordination of digital healthcare as a unified ecosystem - there are several silos".

In conclusion, the takeaways from the interviews suggested that automation through digital solutions and eHealth within primary healthcare in some cases have been perceived as problematic and fear-inducing development among healthcare professionals. Which could stem from the changes in the work processes with digitalisation, the fear of healthcare expertise losing its importance through automation, losing the human factor within the healthcare provision and finally the suggested lack of trust in the national coordination of digital healthcare.

5.3 Lack of interoperability

With consideration of the study's aim to investigate the challenges within the digital healthcare ecosystem, a focus within the interview process concerned the technical aspects that might hinder the national coordination of digital healthcare. When interviewing the Swedish eHealth Agency, the concept of interoperability was brought up, the representatives gave a brief definition:

"To transfer data between varying digital systems, these systems need to be able to interact. Which is dependent on the use of the same terminology between varying healthcare levels. Achieving interoperability is essential and four layers have to be taken into consideration: legal-, organizational-, semantic- and technical interoperability."

When distinguishing the challenges in achieving interoperability within the digital infrastructure of the Swedish healthcare system, the representative explained the regulatory obstacle that personal integrity infers:

"Within the Swedish regulatory system, personal integrity is heavily regulated. Which presents one of the main issues within the digitalisation of the healthcare system. You can not share data as you wish" and continued "It is not the same system and you can not easily access information and health data. Interoperability is dependent on figuring out these factors - it's not just the technology that has to interplay, you additionally have to look at regulations, stakeholders and terminology."

The representative of Platform24 was of a different opinion regarding the role that interoperability plays in the national coordination of eHealth, and argued:

“Interoperability is a recurring buzzword within this sector. However, I would argue that interoperability is not a relevant KPI to measure the level of success within the digitalisation process. Rather we should be looking at the delivery model shift and how many healthcare visits are carried out through digital versus physical provision. The only KPIs that I would consider if I was in the eHealth Agency’s position would be customer behaviour, the ability to automate and accessibility. Interoperability is just a process measurement - not an outcome measurement.”

In conclusion, there is a lack of coordination within the regions’ digital infrastructure, which implies that the process of sharing health data over regional borders and even within regions presents a challenge. Some stakeholders believed that interoperability presents the biggest challenge in terms of achieving national coordination within the digitalization of healthcare, whilst others argued that national digital coordination rather is dependent on having an easily accessible and nationally encompassing digital infrastructure to which all established systems can be interconnected. Despite the varying opinions among the stakeholders, the lack of interoperability implies that 21 regions do not share the semantic, organisational and technical prerequisites to enable an effective sharing of health information - which presents an issue.

5.4 Stakeholder perspectives on the future digitalisation of healthcare

5.4.1 eHealth companies and business model innovation

Throughout the interview process, the subject of business model innovation was discussed to understand the business model innovation of eHealth providers. In conversing with the deputy CEO of Platform 24, the representative described the structure within the Doktor24 group:

“We are a group with two different companies, Platform24 and Doktor24, a mHealth company and a SaaS software company. And this division symbolises what’s occurring within the European healthcare system. Where we can see a clear shift within the business delivery model - where actors are shifting away from a physical delivery model to a digital-first delivery model”

The representative further elaborated on the decision of establishing Platform24 by stating that:

“Our strategic decision to tap into a SaaS business model stemmed from its stickiness, but further from our business DNA of wanting to aid and to effectively complement the public healthcare system. Where the logic has been to approach regions and describe our SaaS offering as a service that automates and makes their healthcare provision more efficient - allowing them to provide an even better service towards patients. Rather than being seen as a competitor”.

When asked about the entry barriers and level of competition within this sphere of eHealth services, the representative further stated:

“This type of service is usually coordinated by a few players within the market. We welcome all types of competition. But there will not be that many players entering the market since it is a very complex thing to do. This type of market usually develops toward some sort of consolidation, with a few major players, just like other software markets globally”.

Kry is another private eHealth provider within the Swedish primary healthcare sector. However, its business model and value proposition differs from Platform24. The representative described Kry’s business model and the strategic logic behind their business model innovation in recent years:

“Kry is a mHealth provider offering digital consultations within the scope of primary care. However, I was a part of driving the strategic shift towards a digiphysical business model. We realized that a solely digital service would not suffice. Rather, with grounds in the political discourse regarding out-of-county reimbursement, we wanted to offer a full-service offering towards our patients by interlinking our digital consultation service with physical healthcare provision by establishing health centres. A decision that stemmed from three factors: 1) redefining the notion of what type of provider we wanted to be, 2) minimizing the inherent business model risk of being a mHealth provider, and 3) the public debate”.

In elaborating on the challenges that Kry has faced when establishing themselves as a private healthcare provider within a heavily regulated sector, the representative explained:

“The political sensitivity regarding private providers business models has been a challenging factor. We know that out of all primary health care provisions in Sweden approximately 50% is carried out by private providers and the remainder by regional providers. Regions are providing a similar type of service, but the public debate casts suspicion on private providers”

In conclusion, the two companies shared the experience of the challenges that entering the market as a private mHealth provider incurred, but have opted for two differing approaches in their business model innovation. Kry has chosen to pivot from a digital to a digiphysical business model, whilst Doktor24 started Platform24 and expanded on their offering by tapping into a B2B SaaS business model.

5.4.2 National coordination of the digitalisation of healthcare

When approaching the topic of national coordination within the digitalisation of healthcare, the decision of talking to stakeholders like Inera and the Swedish eHealth Agency, whose value proposition revolves around facilitating national coordination within this process, was relevant. The representative from the Swedish eHealth Agency problematized the prospects of national coordination by stating:

“We can see that there is a clear development and wish for national coordination - however, there is a problem set with the fragmentation between regions. And approaching the topic of municipal autonomy is a politicized debate that oftentimes is too sensitive to even bring up”.

However, in elaborating on their assignment as a governmental authority working with national coordination, the representative elaborated by saying that:

“Coordination is possible from many different perspectives. Our [Swedish eHealth Agency] role is to simplify the exchange [between regions]. However, we can not force or steer anyone [regions] in their decision-making process. We can recommend based on the assignment that we have. But national coordination is challenging when different stakeholders are developing in completely different directions”.

When conversing with Inera, the discussion was centred around their recent procurement process where they have purchased Platform 24's SaaS solution to offer regions a triage and communication system engine, where the Business Area Manager at Inera stated that:

“Through the communication platform that we [Inera] are developing, we will simplify the regional coordination between varying levels of healthcare. Where our vision is regional coordination where patients can be transferred between healthcare counselling, primary care to specialist care in one unified process to be able to deliver the most efficient healthcare provision, even if this is going to take a long time to implement”.

When further elaborating on the feasibility of national coordination and the timeline for this process the representative further argued that:

“There are challenges with getting all regions onboard with national coordination due to a “*can do it ourselves*” approach. Where regions want to have ownership over their own IT departments and additionally have regionally “specific” conditions. An unfortunate case of knee-jerk reactions”.

When asked about the reasoning among regions who are hesitant to Inera's solution and the future prospects of coordinating 21 regions' digital infrastructure, the representative said:

“I believe that there is a major interest in national coordination. 10 regions have already committed to our system in the procurement process, and the remainder has committed through option. They want to wait until they have seen the actual results. I believe that more regions will jump on board in the long run and that this will be a nationally coordinated solution at the end of the day”.

However, when discussing Inera's role and procurement process, the representatives at the Swedish eHealth Agency countered by saying:

“The regions that opt to use Inera's digital healthcare solutions usually have an aligned perception of the services they want to offer. But by only targeting regions and municipalities, there are other

stakeholders that are excluded from Inera's coordination efforts. Therefore our [Swedish eHealth Agency] role as a government authority is to see toward the national demand and coordination, which Inera in their role can not take on - they should just target regions and municipalities"

The representative from Platform24 explained that the company wants to launch a "digital first, physical second" solution where their triage system would be a way to reduce the pressure on and guide the patients to the right physical healthcare authority. Arguing that establishing a triage system for all patients and achieving interoperability in how physicians share patient data, would be detrimental components to enable national coordination in the digitalisation of healthcare, stating:

"We know that predictability is important for the experience of symptoms among patients. Where being able to book an appointment, read up on symptoms, do a symptom check or have a simple chat with a nurse - anything that is self-service and possible to fully automate is the big task. It is this automated filter between the front door and human-to-human interaction that should not be as accessible as it is. And that's also how we package our [Platform24's] product."

In conclusion, it can be said that there is a stakeholder interest in having a nationally coordinated digital healthcare infrastructure. However, political sensitivity, stakeholders evolving in different directions and the challenges of getting all regions on board, are some of the perceived obstacles to establishing national coordination.

5.4.3 Vision eHealth 2025

The area of Vision eHealth 2025 and the varying stakeholders' attitudes towards the vision's feasibility was a point of discussion. The representative from the Swedish eHealth Agency brings up interoperability as one of the main challenges to achieving the vision, by stating:

"From our role as coordinators, the focus is on coordination and getting organisations and their digital systems to communicate with each other on different levels - the interoperability aspect."

The Unit Manager at Region Stockholm described the targets of the Vision as "extremely ambitious", but further noted that there is great potential in Sweden as there is a lot of health data accessible that can be analysed. However, the representative noted that there are legal obstacles and longer decision-making processes within the public sector that presents a challenge:

"It would have been easier if we [Region Stockholm] were a large American cooperation that had the capacity to decide that "now we are doing this". However, we are not and there is therefore a risk if we get back to the targets [of Vision eHealth 2025] at this stage, that we will fall behind."

Similar statements were made by the Head of Administration at Region Örebro. The representative highlighted that the goals of Vision eHealth 2025 are ambitious and that there are challenges of leading change processes within a heavily regulated organisation, suggesting that:

“We [Region Örebro] have a strategy that reflects the goals within the Vision and are working towards those ideas. However, the targets are extremely ambitious. The thing to remember is that we have legislations which makes it difficult to facilitate this type of development within the health sector. We are perceived as being slow - but we are probably not slower than others. It is a question of the regulation complying with the development.”

The deputy CEO of Platform24 explains the importance of the high volume of users who are opting to utilise digital healthcare and argues that utilisation is the most important KPI for reaching Vision eHealth 2025, stating:

“The only KPI I would consider relevant if I were supervising and leading the work towards Vision eHealth 2025, would be to look at customer behaviours, the ability to automate, simplify and increase the accessibility of eHealth.” and continued “As long as you do not get the volumes up for the digital front door, it does not matter what you do afterwards because you do not have enough mass to work with.”

In conclusion, there are highly set ambitions for the future prospects of how Sweden can utilise the opportunities of digitalisation and eHealth within the healthcare system. However, a number of stakeholders suggest that the current challenges they are facing in terms of interoperability, bureaucratic inertia and legal barriers, imply difficulties in implementing an effective decision-making process to actually achieve the vision. Furthermore, there are additional challenges than just implementing digital healthcare technologies and adopting eHealth solutions, rooted in the challenges of incentivizing people to using digital healthcare as their primary option.

6. Discussion

Rooted in the empirical findings and the proposed theoretical frameworks, this section of the study aims to summarize the key findings in relation to the research questions and to provide an account of the challenges that stakeholders are facing within the digital healthcare ecosystem.

RQ1) What is the current landscape for public and private healthcare providers within the Swedish digital healthcare ecosystem?

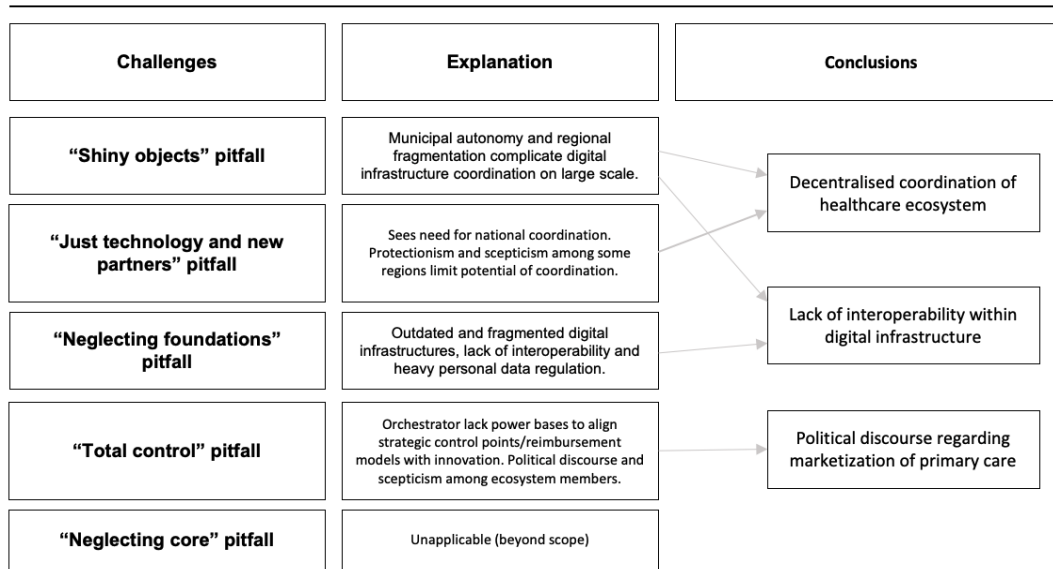
6.1.1 Digital disruption spurred misalignment between stakeholders in the ecosystem

In delineating the current landscape within the digitalisation of healthcare, our findings suggest that the repercussions that marketisation has inferred have affected the alignment structure within the ecosystem. Referring back to Larsson's (2019) hot-cold continuum, the market entry of mHealth providers has propelled a movement toward a "hot" situation within the primary care sector; where the market entry has shifted the traditional physical delivery model towards a "digital-first" model. This shift has caused an ambiguity regarding mHealth providers' roles and objectives within the primary care sector. Where orchestrating members were unable to keep up with the rapid market development; in terms of establishing strategic points, structures and reimbursement models to create an environment where marketisation would be beneficial for establishing a digital healthcare ecosystem. Even if the current landscape has moved away from sole mHealth provision through business model innovation, ecosystem members are facing a number of challenges in aligning the digital healthcare ecosystem.

6.1.2 Challenges in facilitating an aligned digital healthcare ecosystem

To concretize the challenges in co-creating patient value, facilitating automation and efficient digital provision in the digital healthcare ecosystem, the list of common pitfalls that Friesdorf et. al. (2019) suggests is useful to summarize our findings.

Figure 6: Identified challenges among participating stakeholders



Note: Based of Friesdorf, et. al. (2019)

The “*shiny object*” pitfall encapsulates the problem that municipal autonomy implies for coordinating a digital infrastructure on a larger scale. Each region has a plethora of digital architectures and systems in place within the primary healthcare sector and the semantic and technical interoperability between these systems is lacking. Additionally, there are high switching barriers for regions in exchanging digital systems, due to the heavy investments that have been made in establishing the current infrastructure. Some regions are therefore hesitant to commit to a national digital infrastructure, like the one Inera is offering through their contractual agreement with Platform 24. The Swedish eHealth Agency, despite its governmental assignment rooted in the national coordination of digitalisation, lacks the power base and negotiating power to enforce regions to invest in a nationally coordinated system due to the decentralized healthcare system and municipal autonomy.

The “*neglecting foundations*” pitfall further strengthens the notion of the issues of fragmentation within the regional digital infrastructure. The Business Area Manager at Inera stated that “*Sweden was an early adopter in terms of digitalising the healthcare system - which has resulted in us having a number of outdated systems that are not standardised*”. This notion clearly illustrates the lack of scalability with the profusion of outdated digital systems that are in use nationally and their lack of interoperability. Where the heavy regulation surrounding personal integrity and data security further complicates coordination. In our empirical findings, interoperability was touched upon frequently and described as a problem exacerbated by outdated digital systems and municipal

autonomy. Where regions are able to maintain a decentralised regional digital infrastructure rather than coordinating nationally.

In regard to the “*total control*” pitfall, the Swedish digital healthcare ecosystem is open to new innovation through the free establishment right that LOV entails. However, there is a lack of strategic control points to dictate the integration process for new ecosystem members. This openness has facilitated the marketisation of the healthcare system, a process in which there has been a lack of control points to manage the alignment of ecosystem members. Clearly illustrated in SALAR’s slow-moving readjustment of the reimbursement model for digital providers, which incentivized private providers to take advantage of the out-of-county reimbursement loophole; causing political controversy. Even if the reimbursement model is being adapted incrementally to align with the new digital healthcare provision model, the political discourse and misalignment that the marketisation has caused still affects the perception among some public healthcare providers regarding the objectives of mHealth providers.

This aligns with the “*just technology and new partners*” pitfall. Even if the vast majority of interviewees saw a need for national coordination within the digitalisation of the primary healthcare system, there still are a number of public providers who have a negative perception of private mHealth providers' profitability incentives. When conversing with mHealth companies like Kry, the representative conveyed a competitive stance towards the public sector, and rather than describing themselves as a complementor argued that Kry was a challenger toward the typical healthcare provision model. As Larsson (2019) and the empirical findings suggest, this points towards a level of protectionism within the public sector and a hesitant view towards public-private collaboration. Where some public providers are threatened by the market development and rather adopt a “do it yourself attitude” in regard to their digitalisation strategies. However, this is not the case across all regions, where the cost of national digital coordination within the public sector can be an incentive for regions with larger populations to opt for cooperation with private providers. Where some regions opt for a combination of in-house development and private m-/eHealth providers, as a cost-efficient alternative in comparison to Inera’s solutions which are based upon a capitation pricing model.

With consideration of the identified “pitfalls”, we can point towards a number of challenges that hinders the establishment of an aligned digital healthcare ecosystem. Three underlying dimensions provide an overarching understanding of the main challenges that ecosystem members perceive in establishing themselves and coordinating the digital healthcare ecosystem: 1) *the decentralised coordination of the healthcare ecosystem*, 2) *the political discourse regarding the marketisation of the primary care sector*, and 3) *the lack of interoperability between digital infrastructures*.

RQ2) How has the landscape within the Swedish healthcare ecosystem influenced the business model innovation of private eHealth companies?

6.2.1 The rationale behind business model innovation

The empirical findings supports the notion of how mHealth providers' market entry has propelled a shift in the current landscape within the healthcare ecosystem. With regard to this shift, and the aforementioned challenges it has set in motion, the participating eHealth companies described how they have innovated their business models to cater to the new landscape. Kry has gone from being a digital provider to a digiphysical provider, and Doktor24 has expanded its business model by starting Platform24 and offering a SaaS-based software solution for developing digital infrastructure for other healthcare providers.

The empirical findings revealed that the reasoning behind Kry's business model innovation stemmed in *"1) redefining the notion of what type of provider we wanted to be, 2) minimizing the inherent business model risk of being a mHealth provider, and 3) the public debate"*. Factors presumably rooted in the politicized nature of the marketisation and the misalignment in regard to the reimbursement structure for digital providers. Where the decision of going digiphysical and offering services across all parts of the value chain, allowed Kry to escape the politized nature and suspicion toward their digital provision model. Platform24 has on the contrary opted for expanding its value proposition and target audience; in going from a B2C mHealth provider to a B2B SaaS solution. Or rather, by maintaining their mHealth services through Doktor24, and additionally expanding their business model and Doktor24 Group by establishing Platform24.

6.2.2 The adoption of different ecosystem strategies

Referring back to the digital ecosystem strategies suggested by Kamaldin et. al. (2021), one could argue that both mHealth companies entered the digital healthcare ecosystem by adopting a protector strategy. Where their mHealth business models challenged the traditional and physical healthcare provision model. Furthermore, the companies did not seek out any cooperation with other ecosystem members; by aligning their offering with public providers or cooperating with the ecosystem orchestrators to facilitate increased value creation for all involved parties. Rather, the mHealth providers adopted a competitive approach with the intention of *"challenging the traditional"*.

When analysing the business model innovation of the two providers, one can argue that even if Kry has extended its value chain to a full-service offering and scaled its digiphysical offering nationally, the company continues to adopt a protector strategy. The digiphysical offering has allowed for a more competitive offering compared to the digital provision model - where the value proposition

has been broadened by offering a digiphysical service towards patients. Thus, Kry's cooperation with other ecosystem players has been and continues to be limited.

In contrast, with the formation of Platform24, the prior mHealth provider has chosen an alternate ecosystem strategy. Where the company rather than challenging the public sector's provision model and slow-paced digitalisation, opted for shifting its competitive focus by instead complementing the public sector's digitalisation process through a SaaS solution. With Platform24's collaboration with Inera, the company has enabled a move towards a complementor strategy, with the aim of co-creating value through public-private collaboration. Where the empirical findings suggest that the reasoning behind innovating the business model stemmed from the SaaS models stickiness and additionally an intrinsic motivation within Doktor24 Group to redefine the narrative of being perceived as a competitor to the public sector and instead establish themselves as a complementor within the digital healthcare ecosystem.

RQ3) What is the future outlook for the Swedish digital healthcare ecosystem and are private eHealth providers a facilitator for national coordination?

When exploring the future trajectory of the Swedish digital healthcare ecosystem, there were a number of prevalent emerging themes identified throughout the interview process regarding what stakeholders consider to be an "ideal state" or beneficial development areas within the digital healthcare ecosystem.

6.3.1 The prospects of national coordination of governance and digital infrastructure

A majority of the interviewed stakeholders suggested that there are challenges with the decentralised coordination of the Swedish healthcare system in regard to utilizing the possibilities of digitalisation and eHealth. Coordinating 21 regions and 290 municipalities with different IT systems, political regimes and varying incentives and strategies for digitalisation implies a complex situation in achieving the highly set ambitions that Vision eHealth 2025 proposes. Even if there is a polarization of opinions regarding national coordination of the healthcare system in terms of governance, since municipal autonomy is a core value among a number of regions, the attitude towards national coordination of a unified digital infrastructure was more optimistic.

A number of interviewees discussed the potential of establishing a national digital infrastructure as a baseline, where all current digital systems in use can be interlinked - to have health data accessible and encourage efficient information flows across regional borders. But further stated that interoperability and the current technological capabilities for developing this type of infrastructure present major challenges. Furthermore, it would need to be coordinated by a government agency,

which with the decentralised governance model that prevails within the Swedish healthcare system would face hurdles in ensuring national implementation.

6.3.2 A fair reimbursement structure that incentivizes innovation

An additional challenge that interviewees touched upon was the current reimbursement structure and its misalignment within the digitalisation of the primary healthcare system. A number of stakeholders argued that the reimbursement model needs to be readjusted to a level that is financially sustainable for taxpayers, while at the same time incentivising innovation for public- as well as private providers. However, there was a level of uncertainty regarding how such a reimbursement structure would be assembled.

6.3.3 eHealth providers facilitating coordination

In regard to the roles that Kry and Platform24 have taken on within the digital healthcare ecosystem, it is apparent from the empirical findings and literature review that the innovation that the market entry of these companies have implied has fast-tracked the digital transformation within the public healthcare sector. However, in considering the companies' respective role in facilitating national coordination of the digitalisation of the healthcare system, the two providers have opted for different approaches. In the case of Platform24 and the complementor ecosystem strategy that they have adopted through their business model innovation, the company is indirectly working alongside governing ecosystem members like SALAR (through Inera). Cooperation through which they are facilitating a joint value creation within the ecosystem, through their SaaS solution that offers regions a coordinated digital infrastructure. However, Kry maintains their protector strategy and has pivoted its business model in a manner that still implies a degree of competition between them and the public sector, and does not like Platform24 postulate that its value proposition is rooted in joint value creation.

7. Conclusions and implications

7.1 Conclusion

Based on the empirical findings, literature review and discussion, it can be concluded that some of the prevalent challenges in realizing an aligned digital healthcare ecosystem are rooted in the decentralised coordination of the healthcare system, the political discourse surrounding mHealth providers and the lack of interoperability between regions digital infrastructure. In regard to how the business model innovation of private eHealth companies has been affected by the current landscape within the healthcare ecosystem, the conclusion is that Kry and Platform24 have chosen different strategic paths. Kry has innovated its business model but retains the same protector ecosystem strategy. The business model does not prompt joint value creation in the ecosystem - and the company rather adopts a competitive approach. In contrast, Platform 24 has extended its business model and redirected its ecosystem strategy. Opting for a complementor strategy - in order to facilitate joint value creation in the ecosystem by collaborating with the public sector.

Finally, in terms of the future trajectory of the digital healthcare ecosystem, there is a wish among ecosystem members for national coordination both through governance and digital infrastructure. Another detrimental future aspect is reformulating the current reimbursement structure towards an economically just provision model that still incentives innovation within the ecosystem. In regard to how eHealth providers might facilitate national digital coordination, Platform24's business model innovation and indirect collaboration with orchestrators in the ecosystem is intended to facilitate regional coordination, which if implemented at scale could be beneficial for the objective of national coordination.

7.2 Limitations

As touched upon in the *Quality of Research* section of this study, there are a number of limitations to its generalizability. Mainly concerning the unpredictability of findings, lack of standardization and author subjectivity, which are commonly voiced disadvantages of adopting a qualitative and exploratory approach. Even if the study's research questions are interconnected, they have different focuses and are ultimately intended to provide an overview of noteworthy insights rather than deep diving into a specific observed phenomenon. However, the qualitative approach was selected from the initiation of the study and the intention has been to explore relatively undefined research questions, where the interview process accordingly has been formatted with an open-ended and exploratory rationale in mind. Where the authors, with support from the existing literature, broadly have categorized the prevalent emerging themes and perceptions of stakeholders within the digitalisation of the healthcare sector.

Furthermore, utilizing grounded theory through the Gioia approach for the data coding process presents a limitation. Since the coding of the empirics is based upon the authors' interpretation of the data - author subjectivity is an inherent risk in regard to the generalizability of the study's findings. However, by including the visualisation of the data coding process, the authors have attempted to include nuances to the empirical findings and in the analysis. Even if author subjectivity poses a limitation to the study, generalization outside of the study's scope has not been the aim given the relatively unexplored area of research, which has been the rationale for the chosen approach.

Furthermore, the delimited sample of stakeholders and perspectives that have been explored poses a risk in not representing the perspectives of all of the stakeholders within the healthcare system exhaustively. Where social-context-related factors and contrasting perspectives between regions might have been foreseen due to the small population sample.

7.3 Future Research

With consideration of the number of limitations of the study, there is a possibility to boost theoretical saturation by expanding the study to other relevant aspects and developments of the digital healthcare ecosystem. Since the study has focused mainly on the public and private healthcare providers' role and current perception of the digitalisation of the healthcare system, it would be of interest to broaden the scope by examining the perspectives of other concerned stakeholders. A stakeholder that is and will continue to be affected by the digitalization and adoption of eHealth is the future physician. Because of this, it would be fruitful to gain a better understanding of how the role of the physician and the educational system will change in the future to meet the needs of modern and digitalised healthcare.

Finally, with the initiation of the European eHealth Network, there is future promise in going beyond the scope of national coordination of digital healthcare systems, and rather coordinating health data and digital infrastructure on a cross-national level. By examining the digital healthcare ecosystems and private-public collaboration of healthcare providers within other countries, there are valuable structural, strategic and technical insights to gain in regard to how to bridge or approach the current problems with decentralised governance, digital infrastructure and the lack of interoperability.

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9. Appendices

Appendix 1. Presentation of interviews

Title	Organization	Segment	Date	Duration
CEO	Vaccina	0	28-10-22	00:34:28
Head of Administration	Region Örebro	1	28-10-22	00:39:43
Unit Manager	Region Stockholm	1	01-11-22	00:35:47
Business Area Manager	Inera (1177)	3	03-11-22	00:31:34
Head of Sweden (prior)	Kry (prior)	2	03-11-22	00:52:28
Deputy CEO Chief Revenue Officer	Platform24	2	07-11-22	00:49:47
Investigator Investigator/Specialist GM	eHälsomyndigheten	3	07-11-22	00:53:13
Head of Development	Region Gävleborg	1	08-11-22	00:28:26
Business Area Manager	Capio	2	09-11-22	00:28:25
Unit Manager	Region Östergötland	1	10-11-22	00:30:38
Chief of Digitalisation	Region Skåne	1	23-11-22	00:32:36

* *Segments:* 1) regions/public healthcare, 2) private eHealth companies and 3) authorities
0) pre-study

Appendix 2. Interview guides for varying stakeholder groups

INTERVJUGUIDE (Digitala vårdgivare)

Notifikation GDPR

Informera intervjuperson om GDPR-policyn som efterlevs i intervjuprocessen, hur informationen kommer att nyttjas i uppsatsskrivandet och därtill fråga om personen/företaget vill vara anonym.

Be om tillstånd för att få spela in intervjun, för senare transkribering.

1. Hur kommer det sig att företaget (x) startades?

- Hur utarbetades den digitala vårdmodellen?
- Inspirerades vårdmodellen av någon annan aktör eller upplevde ni att det fanns ett hål i den dåvarande marknaden?
- Hur upplevde ni processen en av att etablera sig som en privat aktör inom en statligt/regionsdriven sektor? Upplevde ni några inträdesbarriärer i ert inträde?
- Hur skulle du beskriva er digitala tjänst? Särskiljer sig modellen från andra digitala aktörers?
- Vilket värde leverar ni till era användare? Vilka av användares behov uppfyller ni?

- Om företaget är en digifysisk aktör:
 - Hur kommer det sig att ni ville erbjuda en digifysisk tjänst?
 - Hur skulle du beskriva er digifysiska vårdmodell?
 - Hur har ni integrerat ert digitala erbjudande med era fysiska vårdcentraler?
2. Hur skulle du beskriva er verksamhet och hur har ni etablerat er tjänst?
- Vilka är de aktörer som ni samarbetar med för att kunna leverera er digitala tjänst till slutanvändaren?
 - Hur skulle du beskriva er logistik- och distributionskedja?
 - Hur har processen varit att etablera sig inom en statligt driven och reglerad sektor? Vilka utmaningar har ni upplevt?
 - Vilka legala aspekter har ni behövt ta hänsyn till för att kunna etablera er tjänst?
 - Vad har varit den största utmaningen i att skala upp er verksamhet?
 - Hur upplever ni den tilltagande konkurrensen inom digitala vårdsektorn?
 - Hur har ni dragit gränsen för vilka ni ser som era konkurrenter som en digital vårdgivare? (andra digitala vårdgivare, regional primärvård?)
 - Om företaget är en digifysisk aktör:
 - Hur har er logistik- och distributionskedja förändrats i och med övergången till ett digifysiskt erbjudande?
 - Hur ser ni på er relation till regionala primärvårdgivare efter att ha öppnat fysiska vårdcentraler?
 - Skiljer sig relationen/synsättet åt jämfört med hur konkurrensläget såg ut när ni endast erbjöd digitala tjänster?
3. Hur skulle du beskriva den typiska användaren av er tjänst?
- Vilken är målgruppen för er digitala tjänst?
 - Hur kommer det sig att detta/dessa segment var av intresse?
 - Hur avser ni att skapa värde för dessa segment genom er digitala tjänst?
 - Vilken är er viktigaste kundgrupp?
 - Om företaget är en digifysisk aktör:
 - Skiljer sig målgruppen för era fysiska och digitala tjänst åt?
 - Med ett digi-fysiskt erbjudande, hur skiljer sig kundupplevelsen åt från er digitala tjänst kontra er fysiska vårdcentraler?
 - Hur upplever ni att er digifysisk affärsmodell påverkat sammansättningen av er målgrupp?
4. Genom vilka kanaler når ni och hur värnar ni om er målgrupp?
- Har ni stött på svårigheter i att skapa lojala användare av er digitala tjänst?
 - Vilken typ av kundrelation är det ni vill bygga med användarna av er digitala tjänst? Hur överensstämmer/skiljer sig denna relation från patienters förväntningar?
 - Hur värnar ni om kundrelationer/kundupplevelser? Är detta kostsamt?
 - Om företaget är en digifysisk aktör:
 - Hur upplever ni att en digifysisk modell har påverkat patientupplevelsen?
 - Vilken typ av kundrelation är det ni vill bygga på era fysiska vårdcentraler?
 - Har eran patient retention/lojalitet förändrats med ett digifysiskt erbjudande kontra er digital vårdtjänst?
5. Hur ser er finansiella modell ut?
- Hur ser er finansiella modell ut? Hur påverkas er betalmodell av regionala riktlinjer?
 - Hur har framfarten av COVID-19 påverkat er affärsmodell och lönsamhet?
 - Om företaget är en digifysisk aktör:

- Skiljer sig betal- och kostnadsstrukturen mellan era digitala och fysiska vårdtjänster?
- Hur har ert tjänsteerbjudande påverkats av att gå över till fysiska vårdcentraler?
- I och med den digifysiska omställningen var "listning" på digitala aktörers fysiska vårdcentraler ett omdiskuterat ämne. Varför tror du att detta var fallet?

6. Nuläget och framtidsutsikterna för den digitala vårdsektorn?

- Hur ser framtiden ut för den digitala vårdsektorn?
- Hur har patientbeteenden kommit att påverka hur er vårdmodell utformats genom åren?
- Hur tror ni att er affärsmodell kan komma att behöva anpassas framöver?
- Är den digitala vårdsektorn en växande marknad eller befinner sig den i stagnation? Vad tror ni kommer att hända med lönsamheten?
- Hur upplever ni att de riktlinjer och regulationer som finns på privata vårdgivare påverkar vårdsektorns utveckling?
- Hur ser ni på framtidens digitalisering av vården? Finns det några käpphästar eller problem områden som hämmar digitaliseringens framfart?
- Är digifysiska affärsmodeller något vi kommer att se mer av? Hur tror du att detta strategiska skifte kommer att utvecklas framöver?
- Hur ser ni på en framtida internationalisering av vårdsektorn genom internationella digitala aktörer? Ser ni detta som ett framtida hot?

INTERVJUGUIDE (Regionala aktörer)

Notifikation GDPR

Informera intervjuperson om GDPR-policyn som efterlevs i intervjuprocessen, hur informationen kommer att nyttjas i uppsatsskrivandet och därtill fråga om personen/företaget vill vara anonym.

Frågor:

- Bakgrund
 - Hur relaterar ditt arbete till digitalisering och e-hälsa?
- Den regionala digitala vårdmodellen?
 - Hur arbetar region x med digitalisering av er vårdmodell?
 - Hur relaterar detta arbete mot de inriktningsmål som vision E-hälsa 2025 innebär?
 - Inspirerades er digitala vårdmodell av någon annan aktör?
 - Är era digitala vårdtjänster tillgängliga i andra regioner? Finns det regionsöverskridande samarbeten i hur man jobbar mot Vision E-hälsa 2025?
 - Hur har ni integrerat ert digitala erbjudande med era fysiska vårdcentraler?
- Digitala erbjudandet och logistik ?
 - Vilka aktörer samarbetar ni med för att kunna leverera er digitala tjänst till slutanvändaren?
 - Hur skulle du beskriva er logistik- och distributionskedja för er digitala tjänster?
 - Vad har varit den största utmaningen i att skala upp er verksamhet?
 - Hur upplever ni den tilltagande konkurrensen inom digitala vårdsektorn?
 - Hur ser ni på privata aktörer som erbjuder digitala vårdtjänster? Är det en fråga om konkurrens eller jobbar ni mot samma slutmål?

- Hur har COVID-19 påverkat er verksamhet? Hur har utvecklingen av era digitala tjänster påverkats av pandemins framfart?
- Hur skulle du beskriva den typiska användaren av er tjänst?
 - Vilken är målgruppen för er digitala tjänst? Skiljer sig denna från de vårdtagare som uppsöker era fysiska vårdcentraler?
 - Hur avser ni att skapa värde för dessa patientgrupper genom er digitala tjänst?
 - Finns det någon målgrupp som exkluderas eller där en digital vårdmodell inte har skapat det mervärde som ni avsett?
 - Med ett digifysiskt erbjudande, hur upplever ni att patientupplevelsen skiljer sig mellan er digitala tjänst kontra er fysiska vårdcentraler?
- Genom vilka kanaler når ni och hur värnar ni om er målgrupp?
 - Har ni stött på svårigheter i att skapa lojala användare av er digitala tjänst?
 - Vilken typ av patientrelation är det ni vill bygga med användarna av er digitala tjänst?
 - Hur värnar ni om kundrelationer/kundupplevelser genom era digitala tjänster? Är detta kostsamt?
- Finansiell bakgrund?
 - På landstingsnivå varierar ersättningsprinciperna för vården. Vilka ersättningsprinciper tillämpas i region x för primärvården?
 - Skiljer sig ersättningsmodellen åt för era digitala tjänster kontra fysiska vårdbesök?
- Framtidsutsikterna för den digitala vårdsektorn?
 - Hur ser du på framtiden ut för den digitala vårdsektorn?
 - Hur har patientbeteenden kommit att påverka hur er vårdmodell utformats genom åren? Hur tror ni att era digitala tjänster kan komma att behöva anpassas framöver?
 - Är den digitala vårdsektorn en växande marknad eller befinner den sig i stagnation? Hur tror ni att privata aktörer kan komma att påverka utvecklingen av era digitala tjänster?
 - Hur ser ni på framtidens digitalisering av den offentliga vården? Finns det några kaphästar eller problem områden som hämmar digitaliseringens framfart?
 - Med en regionalt baserad vårdsektor, hur ser framtidsutsikterna ut för att etablera digitala tjänster som är nationellt tillämpbara?

Appendix 3: Overview of relevant eHealth industry players based on BMC-framework

	Platform 24 & Doktor 24	Kry
Founded	2016	2014
Target	B2B	B2C
Number employees	179	1300+
Revenue	341M SEK (2021)	1,482M SEK (2021)
Value Proposition	SaaS software company that offers a white label solution for efficient digital health journeys: a triage solution.	Accessible, digiphsical quality care - digitally in their app, and physically in their clinics when needed.
Customer segment	Public sector. Health systems, primary care, specialist care, hospitals, health insurance and pharma companies.	Primary care patients. A primary care practice serves as the patient's entry point into the health care system.
Channels	Public procurement	Public and private procurement
Customer relationships	Assistance in terms of custom solution installations to enable an optimal healthcare service for their clients.	Personal assistance by quick accessibility through their app around the clock and an appealing user-friendliness design.
Key Resources	Software, developers	Software, primary care facilities, healthcare providers
Key Activities	Software development of new technologies, maintenance of existing software.	Running the software development for new projects, maintenance of existing systems and CRM with patients/users.
Key Partnerships	IaaS providers Healthcare providers Inera (indirectly SALAR) Cerner Doktor24	Helsa Regions
Cost Structure	Main costs: <ul style="list-style-type: none"> - Employees - Product development - R&D 	Main costs: <ul style="list-style-type: none"> - Employees - Product development - Health centres - R&D
Revenue Streams	Subscription-based	Transaction-based
Financial Model	SaaS model. Revenue comes from annual carry-in where customers/users pay an annual subscription fee.	Get reimbursed from regions per patient, through patient fees and out-of-county reimbursements.