Healthcare Transformation

A grounded systematic literature review into the conceptual explanation of healthcare transformation

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Abstract

The healthcare system faces several challenges; demographic change, fragmentation of care, disruptive technologies, and economic and political influences. These challenges are so significant that the healthcare system needs to transform to meet these challenges. However, this is not easy. The healthcare system is a complex adaptive system in which everything is interrelated, with high uncertainty and low agreement. This makes the system vulnerable when changes happen too quickly, resulting in instability. Therefore, it is important to better understand the meaning of healthcare transformation.

However, the literature on healthcare transformation is limited because transformation is seen as a contractionary concept, and there is little consensus about how to transform. This research aims to fill this knowledge gap by conceptually explaining healthcare transformation through the Grounded Theory Literature Review of Wolfswinkel et al. (2013) from an epistemology perspective. These results are tested on the Healthcare Transformation Vodcasts from practice. Conceptualisation refers to the specification of the meaning of healthcare transformation based on the definition, elements and methods of healthcare transformation.

The Grounded Theory Literature Review is performed according to the five stages of Wolfswinkel et al. (2013). From the selection of 7520 articles, 23 articles were included. These articles focus on transformations within healthcare from a multi-level perspective where the study setting is complex and empirical or theorising concerning research with a strong theoretical foundation.

In scientific literature, healthcare transformation is conceptualised as collaborations between and within all healthcare system levels. The definition depends on the theoretical lens, but all articles emphasise the importance of incorporating the complex system lens. With this dominant lens, healthcare transformation is defined as a planned continuous change by means of an intervention that aims at a system-wide change to improve the efficiency and quality of the healthcare system. Nine elements determine the healthcare transformation; collaboration, leadership, engagement, culture, communication, technology, vision, time, structure and trust. All these elements are important on and between all levels of the system. Collaboration is the key element of transformation and is predominantly in the literature and Vodcasts. The process of healthcare transformation can be described in three stages; 1) unfreeze the status quo, 2) build a movement to new arrangements, and 3) monitor and evaluate. This is a circular and continuous process.

Content

1 Introduction

The healthcare industry faces significant challenges; the population is getting older, and there is an increase in chronic diseases, work pressure, expensive therapies, infection diseases, and personnel shortages (Luijs et al., 2020; Barello et al., 2020; Kraus et al., 2021). Hospitals and other healthcare organisations can barely handle the care, medical staff is exhausted, and regulatory care is postponed. The healthcare industry seems to lag in today's world of the efficient, data-driven, fast, and on-demand environment; the explosive technological innovations and their introduction disrupt the healthcare system (Barello et al., 2020; Luijs et al., 2020). New stakeholders such as tech, telecommunication and retailer companies are joining, impacting the system's mechanisms (Kraus et al., 2021). Next to this, new strategies, and methods within healthcare, such as quadruple aim, value-based healthcare, integrated care, and the new transdisciplinary principles, are impacting the healthcare processes (Keijser & van Monfort, 2020). These developments in demographic, economic and epidemiological trends, upcoming technologies, and changes in the environment trigger the healthcare system transformation (Keijser & van Monfort, 2020; Kokshagina, 2021; Lee et al., 2013).

The challenges faced in the healthcare industry can be described as 'wicked problems' (Head & Alford, 2015). Wicked problems link to social pluralism, institutional complexity and scientific ambiguity (Head & Alford, 2015, p. 116). In other words, wicked problems are associated with complex systems that consist of numerous stakeholders with different interests and values in inter-organisational collaboration and multi-level governance. Within a complex system such as the healthcare system, there is a high level of connectivity between the actors, resulting in interdependence on one other (Khan et al., 2018). It also means that an action of one individual actor will have a broader impact on the whole system. These interdependencies make the healthcare system complex and highly dynamic (Khan et al., 2018). A complex system comes with a high level of uncertainty and a low level of agreement (Khan et al., 2018).

For the healthcare system to respond to complex challenges in scope and scale, a transformative change in methods and attitudes is required (Nalau & Handmer, 2015). However, according to Nalau & Handmer (2015), human society has little experience steering itself rapidly and deliberatively in radically new ways. When the transformation occurs too rapid, it can lead to an unstable system. Therefore, it is a challenge to determine the right extant and level of transformational change within a practice and system. Suppose structures are transformed by only introducing a new framework, but the different actors within the system continue in their old ways of doing. In that case, the transformation will only be an appearance of change (Nalau & Handmer, 2015). The fact that transformative activities can occur independently inside a complex system, at any level, from the individual to the collective, industry, or region, makes it more challenging to define, identify and manage the elements of transformation (Nalau & Handmer, 2015; Park et al., 2012).

The literature about large-scale healthcare transformation is limited (Greenhalgh et al., 2012). There are several reasons for this. First, healthcare transformation is seen as a contractionary concept because it implies that when a system is transformed, it will stay the same, which is not always the case. Second, there is little consensus about transforming methods (Greenhalgh et al., 2012). More recent literature by MacLeod et al. (2020) emphasises that little is known about how transformation can be directed. So how individuals and organisations can work together to set the transformation in motion. Holton (2020) recognises the same problem and describes it as a fundamental problem. This research aims to fill this knowledge gap by

conceptually explaining healthcare transformation through the Grounded Theory Literature Review of Wolfswinkel et al. (2013) from an epistemology perspective. The epistemology perspective provides a basis for the study of knowledge (Steup & Neta, 2020). A grounded theory method is chosen because it sets out different concepts, puts them into relation, and provides a conceptualisation of them (Wolfswinkel et al., 2013).

The following chapter explains the developments that drive the system to transform. Chapter four will elaborate on the research design with the introduction of the research questions. After which, the implementation of the method is explained in chapter five. Chapter six presents the results of the articles by presenting definition, theoretical lens, intended transformation goals, strategies, interventions, and collaborations to bring about transformation and the evaluation of transformation. Chapters seven and eight represent the discussion and conclusion.

2 Developments that drive the healthcare transformation

The healthcare system is challenged by many factors, such as environmental pressures and system design flaws (Greenhalgh et al., 2012; Hunter et al., 2015). These pressures trigger a movement in the system in the form of healthcare transformation. This chapter explains different external and internal pressures to understand why a healthcare transformation is needed.

2.1 The 2030 agenda for sustainable development

In 2015 the United Nations (UN) presented the 2030 agenda for sustainable development, consisting of 17 goals representing the transformational vision for the world (United Nations, 2015). These goals pledge that no one will is left behind and that every individual can realise their full potential in a dignified and equal manner (United Nations, 2015). One of these goals points out the need for change within healthcare. Goal three states: "*Ensure healthy lives and promote well-being for all ages"* (United Nations, 2015). This goal consists of 13 targets focusing on different topics, resulting in reorganising and reinvigorating healthcare systems. Mainly target eight: "*Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all."* (United Nations, 2015) will put pressure on the structure of the healthcare systems, and due to this, social adaptation is being put to the test.

2.2 Demographic and epidemiological transition

The environment around the healthcare system is facing a demographical and epidemiological transition due to a shift in the population's age structure (Hunter et al., 2015; Urtaran-Laresgoiti et al., 2018). According to the World report on Ageing and Health from the World Health Organization (WHO) (Beard et al., 2015), the number of people around the world aged > 60 years increases drastically, at a pace that is higher than ever. Due to a larger proportion of the population reaching older ages, the leading causes of death have switched from childhood infectious diseases to non-communicable diseases linked with ageing (Corbett et al., 2018). However, infection diseases continue to be a significant public health concern. The non-communicable diseases such as chronic diseases, cancer, and dementia are associated with higher healthcare utilisation, increased multi-mobility, and higher costs (Beard et al., 2015; Corbett et al., 2018). The increase in lifestyle-related illnesses also impacts the system (Hunter et al., 2015). These demographical and epidemiological pressures emerge with many issues that countries must adapt to (Beard et al., 2015; Corbett et al., 2018).

2.3 Digital transition

Since the mid-20th century, technologies have impacted the healthcare system. Catalysing new possibilities for creating operational efficiency and for tech companies to engage in the healthcare domain (Kraus et al., 2021; Ostern et al., 2021). Digitalisation is seen as one of the triggers for healthcare transformation. Digitalisation is "*a social transformation triggered by the mass adoption of digital technologies that generate, process and transfer information*" (Katz & Koutroumpis, 2013). It refers to incorporating new technologies within different healthcare organisation levels, enabling a shift towards high-quality and secure care (Kraus et al., 2021). Implementing technologies impacts all levels, including society, processes, organisational coordination, and how professionals do their jobs. It has the power to transform all traditional contexts and how the healthcare system operates (Ostern et al., 2021). Digitalisation mainly impacts the internal processes of a health organisation and the healthcare ecosystem due to new stakeholders (Kraus et

al., 2021). The traditional ecosystem consisting of the patients, policymakers, healthcare providers and third-party creditors such as insurer(s) is changing, impacting the mechanisms between the various stakeholders and the patient's position (Kraus et al., 2021). Patients become active in their own medical process and decision-making. Nevertheless, digitalisation within the healthcare sector is still lagging. This can be explained by the fact that researchers have concerns about data security, which leads to low user rates (Kraus et al., 2021). There are also regulations and constraints for data use. However, the spread of the COVID-19 virus in 2019 has given an extra push for technology adoption. The virus pushes the whole healthcare system to the edge, which has opened the doors for technology that generally would not be actively used or allowed (Ostern et al., 2021). For example, the use of service robots within hospitals. This digital transition within the healthcare transformation comes with a new view of what health is and how it is valued and organised.

2.4 Challenges within the healthcare system

Healthcare services are increasingly fragmented, making it more challenging to focus on the patient (MacLeod et al., 2020). Three causes can explain this fragmentation. At first, fragmentation of care is caused by an increase in subspecialties, external parties such as laboratories, competition in practices and insurance plan providers (Patrício et al., 2020). A positive side of this is that complex healthcare procedures can be realised. A downside is that the team around the patient becomes more extensive, which leads to more complex workflows (Patrício et al., 2020). This results in complex healthcare pathways for the patient characterised by significant wait times, limited access to care, and multiple healthcare providers, organisations, and points of contact (Halsall et al., 2020). Moreover, for professionals, it is challenging to coordinate and organise such a complex, diverse and extant team. A breakdown in the coordination and communication between the actors involved with the patients' care can occur (Patrício et al., 2020). This misalignment is a severe problem in the healthcare system; it can result in a less-effective care delivery due to ineffective use of resources (Halsall et al., 2020). A second factor that influences the fragmentation of care is "data silos" (Halsall et al., 2020). The healthcare team around the patients often consists of many healthcare providers such as the hospital, general practitioner, home care, pharmacy, and many more. These healthcare providers collect and store medical data in their individual data silos (Bolmer et al., 2019). Over time data get scattered, resulting in incomplete and possible inaccurate records. It is often unclear where specific information is stored for clients and health organisations and how to access it (Bolmer et al., 2019). Based on these records, medical decisions need to be made, possibly resulting in bad medical decisions. To solve these problems, a call for more integrated units is present (Patrício et al., 2020). The third factor is the influence of market forces and competition between healthcare organisations for resources and financial constraints for collaboration (Hunter et al., 2015; Maniatopoulos et al., 2020). Regulations have a big influence on these causes.

Another challenge within the healthcare system is political decisions. Political initiatives to modify the healthcare system are not inherently neutral; they reflect specific political values, views, and ideologies (Maniatopoulos et al., 2020). Political decisions influence the system's dynamics, not always for the better. In such a complex environment that is influenced by political decisions, economic growth or recession, and social and cultural factors, attaining whole-system transformation is more sensitive to political vicissitudes, especially since that system is subject to the same forces (Greenhalgh et al., 2012; Hunter et al., 2015; Maniatopoulos et al., 2020). Due to an increase in professional and administrative fees and healthcare

utilisation, healthcare spending is expected to grow further at an alarming rate, pressuring decisions (Patrício et al., 2020).

These system challenges do not make it easier to provide healthcare. There is, therefore, a call for transformation from clients, patients, policymakers, practitioners, and researchers (Halsall et al., 2020). Transformation comes with a new way of doing things.

2.5 The new focus of healthcare and intended transformation goals

The demographic, epidemiological, digital transitions and system difficulties have changed the focus of healthcare, and a transformation of healthcare systems can be observed all over the world (Maniatopoulos et al., 2020). It can be said that healthcare is moving into the third era of transformation. In this era, more emphasis will have to be placed on integrating healthcare, public health and pooling services around the patient and community in need of support. Therefore, a collaboration between all possible levels and stakeholders needs to be established. But also, sharing knowledge and support structures need to be improved to realise collaborations. It should focus on health and well-being to strengthen social and health care integration (Maniatopoulos et al., 2020).

Traditionally, healthcare providers pursue a repair-focused (Patrício et al., 2020). This is a focus on curing illness rather than incorporating the well-being aspects of the person, such as the emotional, physical, contextual, and cognitive aspects. A shift can be observed from a repair focus to a more people-centred one within an integrated healthcare delivery system (Patrício et al., 2020). The people-centred focus motivates persons to be active members in their own well-being instead of passive receivers. It puts the person and their community at the centre of the healthcare system. Next, the health professionals and their patients will engage in a relationship based on the respect of equals. An integrated healthcare delivery system can establish a continuum of care within the full cycle of care.

The role and deployment of the multi-disciplinary team and digital solutions will mediate the collaboration between healthcare organisations (Aggarwal & Williams, 2019; Chrysanthaki et al., 2013). It is causing a shift in the working methods of different professional groups, whereby, for example, district nurses take over the workload of general practitioners in connection with daily patient monitoring. In addition, digital solutions can be used to move care from the hospital to the patient's living environment to promote self-management (Aggarwal & Williams, 2019; Chrysanthaki et al., 2013). A shift from curative care to more preventive care is also expected (Aggarwal & Williams, 2019; Farmanova et al., 2019).

Building collaborations and relationships between healthcare organisations, sectors, stakeholders, and geography is, therefore an important feature of the new healthcare models of transformation (Halsall et al., 2020; Maniatopoulos et al., 2020). The drivers of these collaborations can be frontline professionals and a national healthcare transformation program (Maniatopoulos et al., 2020). The frontline professionals should exhibit novel behaviours driven by different leadership styles that emphasise collaboration. This also relates to the creation of new structures from above (Maniatopoulos et al., 2020). Having a national healthcare transformation program helps to amplify local change initiatives and helps to increase understanding of the issues of service integration (Maniatopoulos et al., 2020).

However, the healthcare system is now not ready for this new approach. A profound healthcare transformation is needed to move forward and get the healthcare system healthy again. As stated, many triggers on different levels are evolving within the healthcare industry. Countries need to adaption to these transitions and challenges (Patrício et al., 2020). The above listing of healthcare shifts is just the beginning of the healthcare transformation process. As Holton, (2020) described, it is difficult to predict the precise transformation movement of a complex system. What is clear is that the system must prepare itself to transform

2.6 Multi-level perspective

A multi-level perspective is identified as important for the success of a healthcare transformation process (Maniatopoulos et al., 2020). A multi-level perspective incorporates the interrelated levels of macro, meso and micro (Hewison et al., 2021). The macro level is the system level where policies, rules and regulatory frameworks are aligned. The organisational level is the meso level where the appropriated system of governance and structures are developed. The micro level is the clinical level, and it is about the coordination of care across the disciplines, place, and time and focused on healthcare pathways. Around these levels, normative actions can be performed through shared culture, vision, and values (Hewison et al., 2021).

3 Research design

The call for healthcare transformation is present and acknowledged throughout the healthcare system. The reason why transformation is necessary is apparent, but what and how is still vague (Kokshagina, 2021). This research aims to conceptually explain healthcare transformation. Therefore, the research question is:

How is healthcare transformation conceptually explained in extant literature?

The process of conceptualisation refers to the specification of the meaning of the concept of healthcare transformation. The explanation of this concept will be based on the definition, characteristics, and methods of healthcare transformation. Therefore, the sub-questions are:

- Which definitions of healthcare transformation are described in the literature?
- What are the elements of the healthcare transformation?
- Which methods are used to establish healthcare transformation?

A systematic literature review is performed according to the Grounded Theory Literature Review of Wolfswinkel et al. (2013) from an epistemological perspective to conceptualise the healthcare transformation.

3.1 The grounded theory literature review

The grounded theory is a method to generate a theory based on the systematic generation of data (Holton & Walsh, 2020b). This method aims not to summarise facts but to conceptualise an abstract or phenomenon. It sets out the concepts of the research object, defines the relationships between those concepts, and provides a conceptual explanation of the research object (Holton & Walsh, 2020). The Grounded Theory Literature Review provides a systematic way of conducting an accurate review in five stages: define, search, select, analyse, and present (Wolfswinkel et al., 2013).

3.2 Philosophy of Science – Epistemology

Epistemology provides different routes to knowledge and focuses on the proposition knowledge (Steup & Neta, 2020). It is interested in understanding cognitive successes. A cognitive success can be the success of a theory or research program. When reaching cognitive success, it does not automatically mean that it is perfectly cognitively optimal in all possible ways, and other kinds of cognitive successes often explain it. Cognitive success is a success when it reaches knowing, understanding, and mastering (Steup & Neta, 2020). In this case, the research is successful when "we" know, understand, and master healthcare transformation.

When an abstract is known, it does not automatically mean that it is a fact (Steup & Neta, 2020). The knowledge of facts is bounded to three conditions: the truth, beliefs, and justification. Belief consists of knowledge that exists in one's mind. It can be seen as a condition of knowledge. When a belief is true, it can account for knowledge. Justification is necessary to avoid the beliefs being based on luck. "*A knower knows p if and only if p is true and the knower has justifiably believed that p is true."* (Steup & Neta, 2020). Justification knows two forms internalism and extranlism. With internalism the only criteria that matter in the justification of beliefs are the believers' mental states (Steup & Neta, 2022). And externalism considers some other criteria's than the individuals' beliefs. This is the only way of avoiding the isolation arguments

and ensuring that knowledge does not contain luck. In other words, truth and justification are two independent conditions of beliefs (Steup & Neta, 2020). The fact that a belief is true does not determine whether it is justified; this is determined by how it was formed.

Next to this, all knowledge necessitates some kind of thinking (Steup & Neta, 2020). Scientists collect data, which must be examined before knowledge can be gained, and humans make assumptions based on senses. Moreover, reasoning will be the exclusive source of knowledge for non-empirical truths or abstracts. Intuition, for instance, is frequently thought to constitute a kind of direct access to prior knowledge (Steup & Neta, 2020).

In this research, the beliefs of the knower obtained from qualitative research about healthcare transformation are the truth. It is justified by externalism in the grounded theory literature review.

3.3 Healthcare Transformation Vodcasts

After the Grounded Systematic Literature Review is performed, the results will be compared to six Vodcasts. The Healthcare Transformation Vodcasts is an initiative of the University of Twente, the School of Regional Healthcare Transformation (SoRHT), and DIRMI institute (DIRMI Institute, 2021a,b,c,d,e,f). In this Vodcast series, Wouter Keijser, healthcare transformation coach, talks to various healthcare professionals about healthcare transformation, what this means, and how they deal with it. It will provide an insight in the current healthcare practices. The six Vodcasts that will be incorporated are for the macro level Maurice van den Bosch, chairman of the board of a hospital (DIRMI Institute, 2021e), and Erik Gerritsen, the secretary general of the ministry of health, wellbeing, and sport (DIRMI Institute, 2021c); for the meso level, Joep de Groot, the chairman of the board of a health insurance company (DIRMI Institute, 2021f), and Miriam Hutten, professor of healthcare technology (DIRMI Institute, 2021b); and for the micro level, Fedde Scheele, a gynaecologist and professor Health System Innovation and Education (DIRMI Institute, 2021d), and Linda Kruize with the head of COVID-19 and acute admission at a hospital (DIRMI Institute, 2021a). In this chapter, the definition, elements and possible strategies and interventions from the results chapter are discussed based on the Vodcasts.

3.4 Theoretical contribution

This research has scientific relevance because it provides insights into how to deal with healthcare transformation from a broad sector-crossing and multi-level perspective. A systematic literature review creates an overview of the scientific insights surrounding the concept of healthcare transformation.

3.5 Practical contribution

The practical contribution of this research gives direction to the various actors in the system to set the healthcare transformation in motion.

3.6 Social contribution

The social contribution of this research is to contribute to improving healthcare services and the 2030 agenda of sustainability (United Nations, 2015). This topic guides achieving the goal of the 2030 agenda for sustainable development to improve healthcare. This concerns goal three target eight, in which healthy lives and the promotion of well-being are central.

4 Method – Grounded Theory Literature Review

The systematic literature review is performed according to the Grounded Theory Literature Review of Wolfswinkel et al. (2013). This method aims to arrive at a detailed and theoretically meaningful study of the topic, highlighting well-established and beneficial new relationships between variables. Incorporating the grounded theory enables the systematic way of conducting an accurate theory-based review in five stages (Wolfswinkel et al., 2013). In this chapter, the five stages of the research will be elaborated on.

4.1 Stage 1 & 2 - Define & Search

Before setting the scope of the review and defining the inclusion and exclusion criteria, a preliminary search is performed. This search aims to get familiar with the topic and explore terms often used to describe any form of healthcare transformation. Various scientific databases such as Scopus, Web of Science, and Google Scholar and documents from Deloitte and PwC are used to gain this knowledge. It has provided input for making the search string, defining the scope, inclusion, and exclusion criteria, and providing a list of 30 articles that should emerge from the search string.

The search will focus on transformations that influence healthcare on the micro, meso, or macro level and which are cross-sectoral. The databases Web of Science and Scopus are used because, according to Alryalat et al. (2019), these databases provide an expanded spectrum of journals and a detailed citation analysis. And for completeness in the research field of healthcare, the database PubMed is also used (Alryalat et al., 2019). The research areas are healthcare professions, social science, medicine, business, and management.

The establishment of the search string is a process of try and error. At first, all explored terms during the preliminary search were incorporated in the search string based on title, abstract, and keywords. This resulted in more the 480000 articles, meaning that the search terms need to be altered to increase the accuracy of the search. Step by step, all terms have been reviewed and specified the search terms. Different articles were assessed to whether they fit the research scope; when this is not the case, the term is removed from the search string. Next to this, the selected articles from the preliminary search need to be present. This resulted in the following search string:

(((TITLE-ABS-KEY ("health care" OR healthcare OR cure OR "curing patients" OR "patient care" OR "value-based care" OR "integrated care" OR "health* profession*" OR "health service" OR "care service" OR "deliver* of health care" OR "health* system") AND TITLE-ABS-KEY ("*care transit*" OR "*care transform*" OR "health* transform*" OR "digital transform*" OR "*system* transform*" OR "institut* transform*" OR "profession* transform*" OR "process* transform*" OR "cultur* transform*" OR "organi*astion* transform*" OR "transform* change" OR "radical change" OR re-invent* OR reinvent* OR re-engineer* OR reengineer* OR re-institutional* OR reinstutional* OR re-design* OR redesign*))))*

According to the document analysis of Scopus presented by the search string, an increase can be observed from 2000. Therefore, all articles from 2000 until 2021 are included. Next to this, only English articles and reviews published in journals from western countries are included. Only western countries are selected because they are comparable in social-economic status and the level of healthcare (Beard et al., 2015). In table 1 the search criteria can be found. The specific search string for each database can be found in Appendix 1 – Search string.

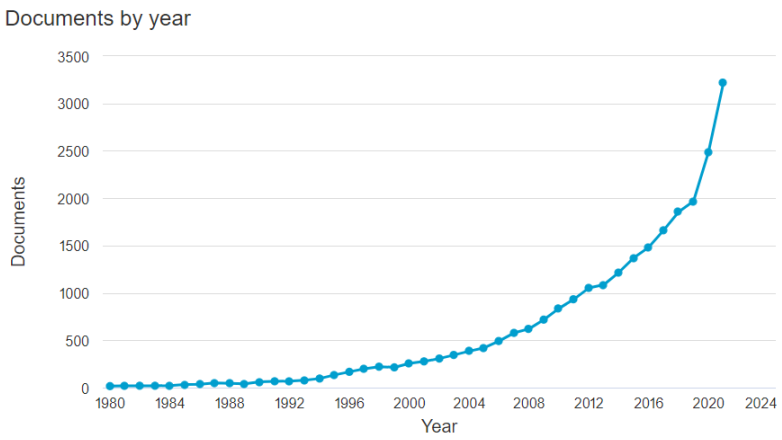

Figure 1- Analysis of documunts per year (Scopus, 12 January 2022)

Table 1 - Search Criteria

Search String criteria	health* OR care* OR cure*	To explore all forms of healthcare
	*system OR organi*ation* OR profession* OR institution	Representing the micro, meso and macro level.
	Transit*	Transition refers to radical non-linear change within sub-systems caused by modern society's problems (Johansen et al., 2018).
	Transform*	Transformation refers to creating an entirely new context for the whole organisation or system (Appelbaum & Wohl, 200)
	re-invent* OR reinvent*	Re-invention refers to creating something that is not (Appelbaum & Wohl, 2000).
	Re-engineer* OR reengineer OR re-design* OR redesign*	The focus on re-engineering lies in the redesigning and rethinking business processes (McNulty & Ferlie, 2004).

	Re-instutional* OR reinstutional	Re-institutionalizing is defined as *"Transitioning from one institutional form to another based on different principles or rules"* (Kohansal & Haki, 2021)
	*design	Design is part of the re-engineering perspective and therefore excluded.
Search string exclusion:	change	Change is used when an existing organisation system is altered, but it does not affect the bigger context of the organisation (Appelbaum & Wohl, 2000)
Research areas	• Social sciences • Business management and accounting • Health professions • Medicine • Economics, econometric and finance.	
Filters	• Language: English • Document type: articles and reviews in journals • Year: 2000 – 2021 • Western countries, according to the ministry of foreign affairs (2021)	

4.2 Stage 3 – Select

During the select stage, the articles obtained from the different databases are collected and judged based on the inclusion and exclusion criteria (Wolfswinkel et al., 2013). To keep track of the process, the PRISMA model (figure 2) is used (Page et al., 2021).

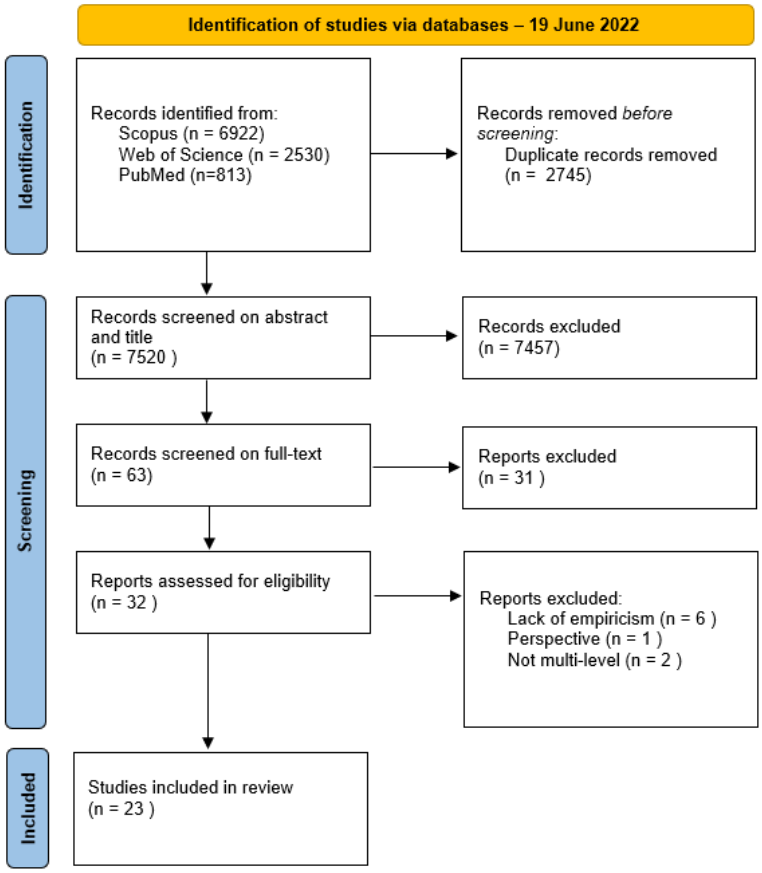

Figure 2 - PRISMA Model

First, the duplicates are filtered out based on DOI and title. After which, the articles are judged based on title and abstract. A team of three researchers, two senior researchers, and a junior researcher has made step by step a selection based on title and abstract for the articles that were included for full-text evaluation. The inclusion criteria have been established in discussion with each other. At this stage, the inter-rater reliability is conducted, where there must be a minimum of 90% overlap between the raters. To measure the inter-rater reliability, a derivative of Cohen's Kappa, the Fleiss kappa, is used (McHugh, 2012). The Cohen's kappa can only be used for a maximum of two raters; three or more raters use Fleiss Kappa. The Fleiss Kappa takes into account the chance agreement, which refers to the fact that there is a possibility that the individual raters agree by chance based on individual behaviour. Therefore, rather than assessing the overall proportion of agreement, it assesses the proportion of agreement over and beyond what would be predicted by chance (McHugh, 2012). The Fleiss Kappa values can range between -1 to +1. Whereas -1 means no agreement is observed, and a kappa van 0 represents only an agreement by change. +1 represents a perfect agreement. The Fleiss Kappa has one observed weakness: it cannot be compared unless the marginal distributions match.

Table 2 - Kappa Values

Kappa Value	Strength of agreement
<0.20	Poor
0.21-0.40	Fair
0.41-0.60	Moderate
0.61-0.80	Good
0.80-1.00	Very good

The inter-rater reliability test is conducted by three tests. The first test is the rating of 100 articles that are randomly selected. All researchers rate independent of each other the same 100 articles, where the researcher can choose per article between include, doubt, or exclude the article. Afterwards, the researchers discuss the ratings and further define inclusion and exclusion criteria. The second and third test is the rating of 200 randomly selected articles, where the same procedure of rating and discussing. After four tests, the interrater reliability was >90% which means that the strength of agreement between the raters is very good (McHugh, 2012). In total, four inter-rater reliability tests were performed (Table 3 – IRR tests results).

Table 3 - IRR tests results

	Inter-rater reliability – Fleiss Kappa
Test 1 – 100 articles	0.8400
Test 2 – 200 articles	0.8483
Test 3 – 200 articles	0.9200
Test 4 – 200 articles	0.9317

As stated, after every test, the inclusion and exclusion criteria for selecting the articles were adjusted based on a discussion between the researchers. After four tests, the raters agreed on the following criteria for selection:

Table 4 - Inclusion and Exclusion Criteria

Inclusion	Exclusion
Perspective: Multi-level; micro, meso, macro	Commentaries, opinion articles, book chapters, conference papers, narrative reviews
Theme: Transformation, transition, co-design, re-institutionalisation, re-engineering, radical change, etc	Theme: improvements, innovation, implementation, small changes, tech-driven changes.
Stetting: Complex setting, ecosystem, region, network, involving different parties/ disciplines/domains within the healthcare context.	
Empirical or theorising concerning research with the theoretical foundation, including SLR and practical studies with the incorporation of research methodology.	

After test 4 with a Fleiss kappa >90%, the remaining articles were screened on abstract and title with these criteria. The articles are divided among the three raters. After screening all articles based on title and abstract, the included articles will be judged on full text. A total of 63 articles were judged on full text based on the inclusion and exclusion criteria. The articles were randomly divided between two of the three researchers. These two researchers have read the articles and made a judgment based on the criteria. The third researcher has read all the articles after one of the first two researchers has finished reading and highlighting them. To keep all researchers on the subject and the criteria sharp, the research team has come together on a regular basis to read and review the articles together. Of the 63 articles, 23 are included for coding in stage 4. See Appendix 4 for the references to the 23 selected articles (Appendix 2 - included articles).

4.3 Stage 4 – Analyse

For analysing the selected papers, the method of Wolfswinkel et al. (2013) is used. All included articles are coded. To start this process, the researches has stated by selecting a random publication to read and underline any results and ideas that appear pertinent to the topic and research question of the review (Wolfswinkel et al., 2013). Every highlighted phrase, paragraph, or sentence in each document is relevant. Open coding, selective coding, and axial coding are used to review the studies for excerpting. These highlighting techniques will be applied to all the selected studies at least once.

4.3.1 Open coding

Open coding is used to conceptualise and articulate the frequently hidden characteristics of a collection of extracts that they noticed as significant during carefully reading a set of excerpts (Wolfswinkel et al., 2013). Each set of excerpts is then combined into a collection of notions and insights. This stage of open coding is the researcher's initial abstraction step. It is crucial for identifying, (re-) labelling, and/or constructing a collection of concepts and insights based on the extracts supported by the articles (Wolfswinkel et al., 2013). The purpose is to identify a collection of categories or a bird's eye view of the study's findings, together with a set of methodological and theoretical insights. Open coding is based on the stake of excerpts, where the researcher reads each excerpt over again (Wolfswinkel et al., 2013). While reading them, a number of 'concepts' emerge in one's head that encompasses the aspect of the excerpted data set and the research that underpins them.

4.3.2 Axial coding

Axial coding is used to identify the interrelationships between categories and their sub-categories. The primary themes or patterns of the studies' findings in the data will eventually be represented by high-order categories.

4.3.3 Selective coding

Selective coding combines and refines the previously recognised groups/codes (Wolfswinkel et al., 2013). The 'main category' of the review is either the subject of the study or directly one or more of the particular research questions. Although axial coding is concerned with recognising and establishing relationships between categories and their sub-categories, selective coding identifies and creates relationships between the major categories (Wolfswinkel et al., 2013). At this phase, the most important objective is to create a single reasoning line that might explain one or more events.

To summarise, open coding produces categories of a higher-abstraction level from a set of concepts/variables (Wolfswinkel et al., 2013). Axial coding is the process of expanding categories and connecting them to sub-categories. The categories are combined and enhanced through selective coding. The purpose of the review and how it is related to the results of an area determine whether categories and sub-categories come to form the textual material itself, previously known classification schemes. The process of connecting categories may necessitate a mix of deductive and inductive reasoning. As a result, the individual codes serve as inspiration and confirmation (Wolfswinkel et al., 2013). For the codes, see Appendix 3 – Codes.

4.4 Stage 5 – Present

The fifth stage is the present stage, where the content is structured and represented (Wolfswinkel et al., 2013). The area's content must first be represented and structured using a set(s) of empirical results and the accompanying insights stored in log- and codebooks. It is possible that specific previous noted insights or even factual data only become more significant towards the conclusion of the analytical process when the acquired information, including points of development and theoretical, must be presented in a relatively integrated manner (Wolfswinkel et al., 2013).

For the execution of stage 4 & 5, a structured approach has been taken. Two researchers have coded all articles to ensure a thorough examination of the articles. After finishing 4 to 6 articles, the researchers met to discuss the articles; What can be observed, what has been noticed, which codes are used, is a grouping of codes possible, what does the article mean, and what insights can be gained from it. There is a focus not only on what is said verbatim but also on what is meant by it. After the articles have been coded and discussed, a division has been made for processing the quotations. The articles are divided between two researchers who meet regularly to share and discuss the findings.

5 Results

In this chapter, the results of the Grounded Theory Literature Review are presented. In total 23 articles are coded, with 808 quotations spread over 37 codes. First, the definitions and the different theoretical lenses used in the literature on healthcare transformation are explained. Then the elements and strategies are elaborated on.

5.1 Theoretical lenses and definitions of healthcare transformation

The literature shows different theoretical lenses to approach the healthcare transformation process. Still, almost all lenses acknowledge the importance of a system-wide view. A transformation process can occur on any level within the system, but it will have an influence on all levels. Therefore, most articles approach healthcare transformation from a complex (adaptive) system lens or a multi-level perspective. Those articles that choose the population health approach, social movement approach, or organizational lens acknowledge that the system cannot be ignored. In table 5, the different theoretical lenses per article can be found.

Table 5 - Theoretical lenses per article

Author	Complex system lens	Organisational lens	Social movement lens	Population health lens
(Aggarwal & Williams, 2019)				•
(Beech et al., 2013)				•
(Best et al., 2012)	•			
(Best et al., 2016)	•			
(Bussu & Marshall, 2020)	•	•		
(Charlesworth et al., 2016)	•			
(Chrysanthaki et al., 2013)	•			
(Embuldeniya et al., 2021)	•			
(Farmanova et al., 2019)				•
(Fitzgerald & Biddle, 2020)	•			
(Fleury & Mercier, 2002)	•	•		
(Greenhalgh et al., 2012)	•			
(Halsall et al., 2020)	•			
(Hewison et al., 2021)	•			
(Holton, 2020)	•		•	
(Hunter et al., 2015)	•			
(Hussey et al., 2021)	•			
(Hutchison, 2015)	•	•		
(Kash et al., 2014)	•	•		
(MacLeod et al., 2020)	•			
(Maniatopoulos et al., 2020)	•			
(Nyström et al., 2014)	•			
(Urtaran-Laresgoiti et al., 2018)	•			
n =	20	4	1	3

These theoretical lenses present elements of healthcare transformation, that influence how healthcare transformation is defined. In the literature about the definition of healthcare transformation, a distinction is made between healthcare transformation, healthcare transformation interventions, and integrated care. The definition of Best et al., (2012), who identifies healthcare transformation as an intervention, is often used by the authors. Integrated care is seen as a healthcare transformation intervention. Therefore, the definition of integrated care and that of healthcare transformation interventions can be seen as the definition of healthcare transformation. In this section, the theoretical lenses toward healthcare transformation and the corresponding elements and definitions are elaborated on.

5.1.1 System lens

Healthcare transformation is approached by 20 of the 23 articles from a complex (adaptive) system lens. Different properties of the complex system lens can be identified in the literature on macro, meso, micro, or all system levels that determine how healthcare transformation is dealt with. Aggarwal & Williams (2019) emphasises that the direction of change in healthcare needs to be viewed from the whole system. Best et al. (2012, 2016) add the adaptive character of the system to the approach. From a complex adaptive system lens, the system is constantly in motion (Best et al., 2016; Fitzgerald & Biddle, 2020; Hussey et al., 2021; MacLeod et al., 2020). The system's movement is unpredictable, non-linear, and self-organising (Best et al., 2016). This resonates at all levels of the system that needs to adapt to the changing environment and pressures constantly. Therefore, constant monitoring and adaption to a new context are crucial when implementing change. The system is driven by interactions between the actors on all levels, where collaborations are built in random nature (Best et al., 2012; Hussey et al., 2021). According to Greenhalgh et al., (2012), this approach uncovers the story of how various interacting systems produce specific results over time. The local conditions and working mechanisms are a starting point to identify what works in which circumstances and which interactions lead to specific outcomes (Best et al., 2012, 2016). On the macro-level, Chrysanthaki et al. (2013), emphasises the importance of the complex system lens. Through this approach, a blueprint can be made of how change can be realised concerning policy frameworks, processes, care pathways, management structures, financial agreements, and information exchange systems. On a meso-level, the complex system lens is associated with complicated methodologies to implement transformation (Greenhalgh et al., 2012). And when zooming in to the micro-level, the complex system lens views individuals as highly heterogeneous and capable of using their creativity to adapt to the changing context (Best et al., 2016). Different healthcare transformation elements are present in the complex system lens. These elements are monitoring & evaluation, collaboration, the flexibility of structure and policies, integration, and leadership.

5.1.1.1 Definition *of healthcare transformation through a complex system lens*

Different authors form the definition of healthcare transformation from a complex system approach. (Best et al., 2012, 2016; Charlesworth et al., 2016; Greenhalgh et al., 2012; Hewison et al., 2021; Hutchison, 2015; Kash et al., 2014). Healthcare transformation is then identified as a planned change through interventions such as integration that is difficult, complex, expensive, and challenging to implement and evaluate. That aims to coordinate a system-wide change that affects all organizations and care providers in the system (Best et al., 2012, 2016); to improve the efficiency and quality of healthcare delivery and patient care with population-level patient outcomes (Best et al., 2012; Hewison et al., 2021; Nyström et al., 2014). The population health approach is highlighted as a goal from the complex system lens, in which improving the quality of care for the entire population is important. Embuldeniya et al. (2021) focus more on the micro-

level of the healthcare transformation, which empathises that: *"Change does not refer merely to a new model of healthcare delivery but also shifts in participants' understanding of their own identities, their relationships across organisations and sectors and the value attributed to a new way of doing things."* (Embuldeniya et al., 2021)

A distinction is made in literature in the degree of change. Charlesworth et al. (2016) view the result of healthcare transformation as *"a fundamentally new system rather than 'tinkering' within the existing model."* Whereas MacLeod et al. (2020) are focused on *"making changes within the healthcare system itself… in an ever-changing context".*

The focus on the ever-changing context of the healthcare system represents the movement of healthcare transformation and sustainability of the change. Sustainability is the process of exploring new ways of working, resulting in new norms that improve the outcomes (Greenhalgh et al., 2012). Not only the procedures and results will be changed, but the underlying assumptions and viewpoints have also undergone significant change, as have the supporting systems. Greenhalgh et al. (2012) view the healthcare transformation in three stages that are connected to sustainability: 1) the unfreezing of the status quo; 2) movement to the new health care system; 3) freeze of the new situation. This suggests that the new situation will be both steady and desirable and that transformation an one-time process is. However, Hunter et al. (2015) emphasise that healthcare transformation is a never-ending process in which continuous structural changes occur.

5.1.2 Organisational lens

The organizational lens (meso level) is used in 4 of the 23 articles (Bussu & Marshall, 2020; Fleury & Mercier, 2002; Hutchison, 2015; Kash et al., 2014). Noticeably, these authors do not have a tunnel vision on the meso level, but they acknowledge that healthcare organisations depend on the whole system. Fleury & Mercier (2002) emphasise that healthcare transformation is shaped at the organisational level by strategies and models, with strong ties to the other system levels. Within the organisations, a bottom-up approach to change is mostly supported. Bussu & Marshall (2020) opts for a bottom-up approach from the organisational perspective, in which there is coordination with the local circumstances, needs, and capacities to realise the transformation from a systems lens. Urtaran-Laresgoiti et al. (2018) emphasise the need for a bottom-up approach, where management techniques based on command and control must make way for more consensual, cooperative, and 'messier' decision-making procedures.

5.1.2.1 Definition

Kash et al. (2014) describe the transformation from the organisational perspective. Transformation is then described as a radical, profound change or reform of the performance and behaviour of the organisation and its people. Transformation interventions are deployed at the organisational level to improve prestation's through planned changes throughout the organisation by changing the behaviour of people in the organisation (Kash et al., 2014).

5.1.3 Social movement lens

From a social movement lens, healthcare transformation is a new way of doing things based on mutual engagement (Holton, 2020). It is a process for exploring openness, shared values, and concerns. Regarding social movements, a shift in the existing ways of doing things, a culture shift, is necessary. In reaction to changing community demands, a change in the established order within the community and inside the system will occur. The position of power changes from an institutional hierarchy to an environment in which formal positions of power relinquish control by joining forces with those who are fully committed to realising the change in a community (Holton, 2020).

The social movement lens consists of elements that are focused on the people within the system, their emotions, and culture and can be identified as a micro-level lens. The elements of shared value, culture, trust, leadership, and engagement are crucial for healthcare transformation from the social movement point of view.

5.1.4 Population health lens

The population health lens considers a wide range of factors and interrelated conditions that affect the health of populations over the life course, identifies systematic variations in their patterns of occurrence and applies the resulting knowledge to improve the health and well-being of those populations, with a greater focus on preventive care (Farmanova et al., 2019). This approach's core properties are population-oriented, community engagement, focus on the health of vulnerable groups, and inter-sectoral partnerships (Aggarwal & Williams, 2019), which represents the healthcare transformation element engagement.

5.1.4.1 Definition of healthcare transformation through a population health lens

The definition of healthcare transformation through a population health approach is focused on the multi-dimensional construct of the healthcare system. A transformation occurs on all level of the system where "*reform models 'bundling' key reform dimensions in different ways.*" (Aggarwal & Williams, 2019).

To sum up, the different lenses stated above determine how healthcare transformation is approached and what the definitions and elements are of healthcare transformation. Every lens has its own elements, which are crucial for understanding the phenomenon of healthcare transformation. A connection can be made between the lenses because they all acknowledge the system's interdependency. The definition of healthcare transformation is diverse when looking at the degree of change and what kind of process it is. For this research, the complex adaptive system lens is followed. This implies that the system is constant moving and adapting in a non-linear way in order to follow the rhythm of stakeholders' needs and environmental pressures. Healthcare transformation is defined as an ongoing movement of changes that aims a coordinated system-wide change to improve efficiency and quality of healthcare. The elaboration of the different elements identified can be found in the next chapter.

5.2 Elements of healthcare transformation

In the literature on healthcare transformation, different elements can be identified. Elements are factors that determine healthcare transformation. In table 6, the different elements can be found.

Table 6 - Elements of Healthcare Transformation

Author	Collaboration all levels	Leadership all levels	Engagement all level	culture all levels	Communication all levels	Vision all levels	Technology all levels	Time all levels	Structure all levels
(Aggarwal & Williams, 2019)	•	•	•				•		
(Beech et al., 2013)	•								
(Best et al., 2012)	•	•	•	•		•			
(Best et al., 2016)	•	•	•	•		•	•		
(Bussu & Marshall, 2020)	•								
(Charlesworth et al., 2016)	•	•			•	•	•		
(Chrysanthaki et al., 2013)	•								
(Embuldeniya et al., 2021)	•						•		
(Farmanova et al., 2019)	•		•	•	•	•			
(Fitzgerald & Biddle, 2020)	•	•							
(Fleury & Mercier, 2002)	•								
(Greenhalgh et al., 2012)	•			•	•				
(Halsall et al., 2020)	•								
(Hewison et al., 2021)	•	•	•		•		•		
(Holton, 2020)	•	•	•	•	•	•		•	
(Hunter et al., 2015)	•	•	•	•				•	•
(Hussey et al., 2021)	•	•							
(Hutchison, 2015)	•	•	•		•	•			
(Kash et al., 2014)	•	•		•	•		•		•
(MacLeod et al., 2020)	•								
(Maniatopoulos et al., 2020)	•		•						
(Nyström et al., 2014)	•								•
(Urtaran-Laresgoiti et al., 2018)	•	•				•		•	
n =	23	12	9	7	7	7	6	3	3

As observed in table 6, according to literature the elements need to be present at all levels of the healthcare system. The element of collaboration is a key element because it is pointed out by all articles that were included. In other words, collaboration is a constant in this Grounded Theory Literature Review, and the other elements are related to collaboration. As can be seen in the article of Aggarwal & Williams (2019) where they emphasise that structure, leadership, and information technology can facilitate collaboration.

Collaboration between all system levels is represented in the healthcare transformation literature. Collaboration with the community (Holton, 2020), between healthcare professionals (Aggarwal & Williams, 2019; Hutchison, 2015; MacLeod et al., 2020; Maniatopoulos et al., 2020), between professionals and healthcare authorities (MacLeod et al., 2020), within organizations (Hutchison, 2015; Maniatopoulos et al., 2020), between organizations (Greenhalgh et al., 2012; Halsall et al., 2020; Maniatopoulos et al., 2020), inter-sectoral collaborations (Greenhalgh et al., 2012; Maniatopoulos et al., 2020; Nyström et al., 2014), whole system collaborations and networks (Greenhalgh et al., 2012; Hewison et al., 2021; Hunter et al., 2015).

All the other elements are elaborated on in relation to collaboration and how it influences the success of the collaboration. Where possible, a distinction between macro, meso, meso, and all levels will be made. And as Hewison et al. (2021) emphasise, the policies and rules need to be aligned at the macro-level. On an organisational level, meso-level, the focus needs to be on developing an appropriate system of governance and organisational structures. And on the micro-level, care coordination should be across the departments, time, and disciplines (Hewison et al., 2021).

5.2.1 Leadership

Strong leadership is an element for the achievement of transformational change and collaboration (Charlesworth et al., 2016; Holton, 2020; Hunter et al., 2015; Hutchison, 2015; Kash et al., 2014). Hutchison (2015) emphasises that successful change stands or falls with the key leaders' abilities and characteristics. In the literature different qualities of leadership within healthcare transformation processes are present:

- Essential characteristics of strong leaders are belief, trust, transparency, commitment, and vision (Hutchison, 2015; Urtaran-Laresgoiti et al., 2018).
- It will require trustworthy leaders embedded in every level of the system who have a personal commitment to the cause (Holton, 2020).
- An overarching vision of the transformation, combined with a clear delineation of responsibility and appropriate performance measures and incentives, is also required (Charlesworth et al., 2016).
- Applying deep learning skills to understand and engage the community, organisations, and individuals with clear goals in the transformation process is critical (Holton, 2020; Urtaran-Laresgoiti et al., 2018).
- The demand for honest, open, and engaged leaders closely related to their counterparts was an important factor and commitment to the integration agenda (Hutchison, 2015).
- The distribution and allocation of resources are linked to the transparency of leadership. Strong dedication and belief in the transformation are needed to motivate employees to adopt a similar attitude (Hutchison, 2015).
- A long-term vision co-created by partners is an important characteristic of the sustainability of the health care system (MacLeod et al., 2020). But this requires leaders with a complete dedication and opportunism to stick to the power of the vision and change the system in the challenging real world.
- The type and style of leadership, as well as the capacity to transmit such changes across the organisation, are critical considerations (Hunter et al., 2015; Hutchison, 2015; Kash et al., 2014; Urtaran-Laresgoiti et al., 2018).

Leaders on the macro-level, in charge of local and national policies, must be aligned with each other to ensure progress in transformation (Chrysanthaki et al., 2013). Sitting back and hoping that these kinds of disruptive and transformative changes will appear organically and magically through the implementation of new technology is not a viable option, according to Chrysanthaki et al. (2013). National policies should balance providing direction and certainty and creating the freedom to develop solutions from the ground up at the local level (Embuldeniya et al., 2021). Hutchison (2015) identified the local implementation of a national integration agenda as a success factor for policy implementation. It is important that the government gives space to local initiatives, thereby dissolving certain goals and results. This makes it easier for the organisation to manage and plan the integration initiatives (Hutchison, 2015). However, Hunter et al. (2015) sees the importance of setting strict goals. Choosing a particular transformation method is not the decisive factor for the successful transformation of a system (Hunter et al., 2015). Most importantly, set strict goals that can demonstrate measurable and clear improvements and a genuine commitment to improving care (Hunter et al., 2015). There must be flexibility and time to deploy resources, but the goals must remain clear. Without a complete change to cohesive terms of service, a signal can be sent that there

is no overall involvement in the transformation process (Hutchison, 2015). This, in turn, can have harmful consequences for the future.

5.2.1.1 Types and approaches to leadership

A multi-level approach to leadership enables a greater understanding of a healthcare organisation's genuine leadership state, independent of the attributes and actions of a few executives analysed in traditional leadership behaviour research (Kash et al., 2014). A difference can be made between transformational and transactional leadership. Transformational leadership is leadership which facilitates transformational changes within behaviour and processes. These leaders can express a shared vision and motivate others to go beyond their own self-interest to work together for the sake of the whole group while completing the necessary transactions (Kash et al., 2014). Furthermore, good leaders learn from their surroundings, realise when change is required, solicit input, keep an eye out for new possibilities and continue to learn and improve. Transactional leadership is authoritative leadership, which is active simultaneously with transformational leadership (Kash et al., 2014).

When using a top-down approach, new initiatives may not hold, especially when important elements or individuals are removed or relocated (Hunter et al., 2015). Using a distributed or shared leadership model decreases the risk that a transformation effort will collapse because it engages all stakeholders throughout the whole system in the change initiatives. Especially when dealing with a complex and interdependent system, distributed leadership appears to be most effective (Best et al., 2012, 2016; Hunter et al., 2015; Urtaran-Laresgoiti et al., 2018).

Rational leadership is essential for community engagement (Hunter et al., 2015). It is a way of dealing with the "what" seems irrational and complex characteristics of transformational change. Hunter et al. (2015) also state that individual and shared leadership was necessary to go through a transformational change successfully. Individual leadership is needed to align the organisation with the vision and method of the initiative. Shared leadership is essential to sustain the embedding and preservation of the initiative (Hunter et al., 2015).

5.2.1.2 Leadership balances

The healthcare system experiences much external pressure in a rapidly changing environment (Urtaran-Laresgoiti et al., 2018). Therefore, leaders must commit to long-term goals and achieve changes in the long run, but they should also focus on and address the acute short-term problems. Leaders should therefore manage a double agenda(Urtaran-Laresgoiti et al., 2018).

As stated before, an open culture needs to be created, and leadership is a key factor in this (MacLeod et al., 2020). Leaders must strike a balance between cautioning, encouraging, moulding, and being flexible to change while preserving accountability and avoiding excessive repetition (MacLeod et al., 2020).

5.2.2 Engagement

Engagement of people within all system levels is crucial in the healthcare transformation process and building collaborations (Best et al., 2012). Engagement takes place mainly at the micro-level, where professionals, patients, clients, communities, etc., are involved with the healthcare process on the macro and meso level. Hutchison (2015) emphasised this role of individuals within the transformation process. Effective change stands or falls with the intrinsic motivation of the people involved (Holton, 2020). People

must be engaged in transformation initiatives, persuaded by the case, and motivated to implement the change in their actions and thoughts. This is determined by how well the change message resonates with their personal beliefs and values (Best et al., 2012, 2016; Holton, 2020).

5.2.3 Culture

A supportive and innovative culture on all levels is an important element (Farmanova et al., 2019; Urtaran-Laresgoiti et al., 2018). Best et al. (2016) emphasise the importance of a humanistic and constructive culture on a meso level when implementing transformation initiatives such as collaborations. Organizations that support a culture of constructive inter-professional relationships, open communication and openness, the perspectives and involvement of all workers, and chances for lifelong learning are more likely to accept the transformation. Urtaran-Laresgoiti et al. (2018) also recognize the importance of an organisational culture that is supportive of changes. When zooming in to the micro-level, it is important to create a culture with room for trying new ideas and pushing the established boundaries to transform (MacLeod et al., 2020).

5.2.4 Communication

Developing a good communication flow is critical for collaboration in a complex healthcare system environment with diverse and opposing interests (Urtaran-Laresgoiti et al., 2018). Inclusiveness, a shared story, clear and common goals, constant learning, unambiguous communication, trust, and interaction throughout all levels and with all involved stakeholders are important conditions (Best et al., 2012, 2016; Urtaran-Laresgoiti et al., 2018). An exciting and distinctive narrative on which all stakeholders could focus to captive people's minds and emotions and drive all stakeholders towards a single common purpose (Nyström et al., 2014; Urtaran-Laresgoiti et al., 2018). According to MacLeod et al. (2020), a focus on language is critical for achieving meaningful relationships that are creative and supportive. In this regard, language can be seen as an approach to facilitating collaboration (MacLeod et al., 2020).

5.2.5 Technology

Technology can facilitate a transformation in healthcare. Through all system levels, the integration of a central health information communication technology is required (Charlesworth et al., 2016). This will make collaboration within the whole system easier. On all levels is, a well-designed information system that supports decision-making, patient identification, coordination, and planning essential (Aggarwal & Williams, 2019). Also, Beech et al. (2013) emphasises that having a well-designed patient management system with shared patient records is a pre-condition for transformation and integration activities. Communication problems that cause delays between professionals or organisations can be reduced. Charlesworth et al. (2016) specifically focus on deploying health information communication technologies in the park that are required for system transformation. On a micro level, support from information technology is essential for analysis, data gathering, and decision-making (Best et al., 2016).

5.2.6 Vision

For all levels of the system, a clear and shared vision of how things will change due to the healthcare transformation is required (Charlesworth et al., 2016; Farmanova et al., 2019). The establishment of collaborations between organisations and the community, where the patient is central, ab collective strategic vision in which the community is fully informed is needed (MacLeod et al., 2020).

Developing resilient and healthy communities and adopting a patient-centred approach to healthcare are moulded by a clear vision and appropriate goals (MacLeod et al., 2020). Without community involvement in goal setting, the new transformation initiative cannot be expected to succeed (Holton, 2020). An initiative must resonate with the community's norms, values, and goals. When this vision is clear, shared, and brought as a unified message, the collaboration between different stakeholders will be promoted (Hutchison, 2015; Urtaran-Laresgoiti et al., 2018). Organisations and communities become increasingly interdependent in the transformation process. However, organisations should prevent the community from being overburdened by the collaborations (Holton, 2020).

5.2.7 Time

Holton (2020), Hunter et al. (2015), and Urtaran-Laresgoiti et al. (2018) acknowledge that transformation takes time. Time is needed to embed change in the system.

5.2.8 Structure

Healthcare transformation will result in more collaboration between all levels. A re-orientation of healthcare services and resources is required, implying a good structure's importance (Farmanova et al., 2019).

5.2.9 Trust

Moreover, when working with the community, it is crucial to build a trustworthy and effective relationship with other organisations in the community to create a schedule for patient service (Best et al., 2012, 2016; MacLeod et al., 2020). Attention must be paid to the character of the communities, which can be very different from each other. A rural community will work differently than a community in a city, which will make the delivery of healthcare services different (MacLeod et al., 2020). Trust between the micro and macro level is hereby important. Respecting different points of view is important in collaboration between physicians and the health authorities because problems are experienced in developing a trusting relationship (MacLeod et al., 2020). However, this collaboration is seen as a crucial step in the transformation process. As physicians collaborate with administrative and local authorities at the community level, it will lead to a new way of resource allocation, transforming the healthcare services (MacLeod et al., 2020).

To sum up, collaboration is the key element of healthcare transformation. The other elements are linked to the establishment of collaboration between and within the system levels but are at least as important. So, in all healthcare transformation initiatives, strong leadership, the engagement of all levels, supportive and innovative culture, a shared and clear vision, good communication, clear structure, enough time, and trust are essential. These elements should be incorporated into the strategies/interventions of healthcare transformation. The next chapter discusses the potential strategies and interventions for healthcare transformation.

5.3 Strategies and interventions for healthcare transformation

This literature study also reflects on the "how" question of healthcare transformation. What strategies and interventions can be observed in the literature? To transform, an impulse must be released throughout the whole healthcare system (Holton, 2020). The system must become synchronised with the frequency of the environment. Leading change in a complex healthcare system environment is about letting go of the present, challenge the status quo, embrace diversity, and open up to challenges (Holton, 2020). Due to the influence of the contextual factors, as stated in Chapter three, a transformational change that affects multiple levels takes time, patience, and dedication (Holton, 2020; Urtaran-Laresgoiti et al., 2018). Hunter et al. (2015) acknowledged that changing culture, let alone changing a whole system, entails a long journey with no end in sight. Moreover, within all levels, action is needed to transform and reach the integration of care within and between organisations and the whole system (Hewison et al., 2021).

A three-stage strategy can be observed in the article of Greenhalgh et al. (2012); 1) unfreeze the status quo, 2) build a movement to new arrangements, and 3) freeze new arrangements. Holton (2020) agrees with the first two stages. However, Holton (2020) identified the healthcare transformation as a never-ending journey and acknowledged that the healthcare system is complex, unpredictable, and non-linear. Freezing within the system is not desirable (Aggarwal & Williams, 2019; Charlesworth et al., 2016; Holton, 2020; Hussey et al., 2021). Stage 3 will become monitoring and evaluation of the situation, which will result in adaption and unfreezing the new status quo again (Hewison et al., 2021).

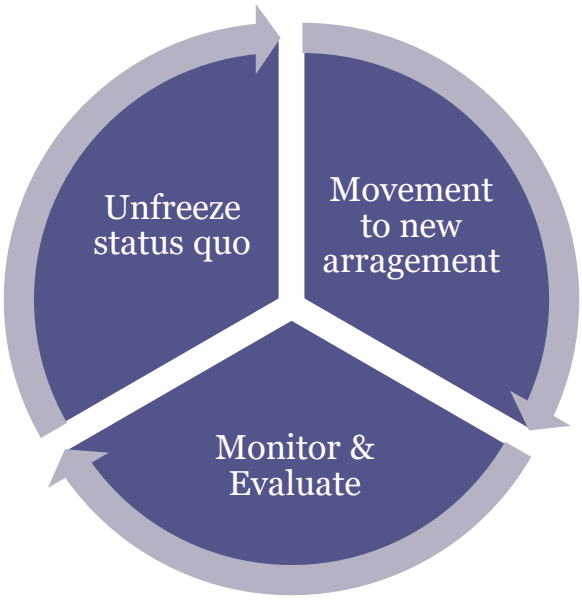

Figure 3 - Stages of Healthcare Transformation

5.3.1 Stage 1 - Challenging the status quo

Challenging the status quo is recognising the flaws, indifferences, and cynicism that keep the system bound to ingrained beliefs and practices (Holton, 2020). By challenging the status quo, an energy shift will be present within the community to build momentum based on shared values and goals, which will result in a fundamental culture shift (Holton, 2020).

To increase the chance that the community will challenge the status quo and become involved in the change process, authentic leadership with a personal commitment to the community is needed (Holton, 2020). These leaders are often professionals in the social or health system, or they are renowned community leaders whose personal devotion reflects the community and their ideas. Especially in the initial phase, the leader must send out a signal of willingness and freedom of choice. Only then will a community be able to open up (Holton, 2020). This is a vulnerable phase of the process, as the trust of the community must be won (Holton, 2020). Once this trust is established, the transformation process will have a higher chance of success. So leaders need to be patient and careful so that the community has the space and time to understand and appreciate the change. This will have to be the basis for forming shared values, norms, and goals (Holton, 2020).

A fundamental culture shift can be established by the engagement of individuals at all levels, which leads to discovering and articulating the shared values and purposes of the community (Hewison et al., 2021; Holton, 2020). Engaging the system takes time, patience, skilful guidance and distributed and designated leadership. The method of "deep listening" can be used to engage the community and fully understand the community's needs and wants (Holton, 2020). It is a concept that describes a style of learning, working, and engaging together. And it will open space for the community to share what they want and find and value their lived experience. The community will be eager to engage when they know they will be heard. With this, recognising lingering indifference and scepticism is important to create space for a required cultural change by understanding and embracing the shared ideas of the community. The system and the community may move forward with a common sense of purpose by revealing these shared ideas. As a result, the focus of change turns to mobilise resources, and the system becomes more receptive to new possibilities. When rushing through the transformation process, there is a risk of undermining the importance of the deep listening method (Holton, 2020).

According to (Holton, 2020), listing forums that incorporate the narrative of the community on a micro level can be the basis of creating support and mobilising resources. When listing to the community, there needs to be room for worries and frustrations that prevail. But having the capacity to listen beyond the indifferences and cynicism is critical to recognise, appreciate and comprehend the community's difficulties allowing the community and the system to challenge the status quo. *"Listening to what the community wants to put forward; what it knows that it needs, not what has been assumed or mandated"* (Holton, 2020). Emphasising the community's shared values for defining the collective needs and purpose is a prerequisite to system mobilisation (Best et al., 2012, 2016; Holton, 2020).

5.3.2 Stage 2 - The movement to new arrangements

The movement to new arrangements represents the development of initiatives that transform the healthcare system. All initiatives presented in the literature were focused on collaboration.

5.3.2.1 Strategies for collaboration between professionals

For the collaboration of healthcare professionals from different organisations and sectors, multi-disciplinary teams can be developed. It is seen as a transformation movement provided by sharing knowledge and expertise in multi-disciplinary teams (Aggarwal & Williams, 2019; Hutchison, 2015). This movement takes the form of creating group practices, where virtual collaboration through information technologies can provide support (Aggarwal & Williams, 2019). The professionals who first worked in their own 'information silo' will undergo a reorganisation in which different professionals from different organisations will work in one team around the patient (MacLeod et al., 2020). In the study of Maniatopoulos et al. (2020), using these teams is seen as a success. Learning from each other's points of view and sharing goals has positively impacted the recognition that collaboration is the way to transform care and deal with budget constraints and budget cuts (Maniatopoulos et al., 2020).

A long-term relationship can be built by developing a partnership between the professional and the client, patient, family, and community (MacLeod et al., 2020). A multi-disciplinary team around the patient can be coordinated and, with the link to the specialised teams, meet the patient's needs. This continuous person-centred care and mobilising more effective healthcare resources help the patient navigate the system (Aggarwal & Williams, 2019).

The introduction of multi-disciplinary teams is accompanied by the emergence of new roles for professionals (MacLeod et al., 2020). The challenge here is to harmonise the positions within the different unions of the new teams. Because collective agreements within unions are based on the old world, they do not steam-line with the new interprofessional teams (MacLeod et al., 2020).

The research of Maniatopoulos et al. (2020) expresses concerns about the adaptive capacity of the multi-disciplinary team. Being able to take care of the patient together and the possibility to engage different professionals is very much appreciated. However, problems could arise when a new actor enters the team. This will disrupt the original intentions and progress, requiring processes and structures to be revised (Maniatopoulos et al., 2020).

5.3.2.2 Strategies for collaboration within organisations

Transformational activities in the organisation and coordination of healthcare services should be key concerns to meet the quickly changing needs (Maniatopoulos et al., 2020). For inter-organisational collaborations, personal connections are essential as the suitable available structures (Maniatopoulos et al., 2020). A solid organisational foundation must be present to transform because it assures that the right conditions are in place (Hewison et al., 2021; Kash et al., 2014; Nyström et al., 2014). To create a solid organisational foundation, several determinants are considered critical; the impulse of change; involvement of staff and stakeholders in the problem-solving process; focus on quality improvement; clear coordination in order to reach organisational goals and integration within all organisation levels (Greenhalgh et al., 2012; Hewison et al., 2021; Hunter et al., 2015; Hutchison, 2015; Maniatopoulos et al., 2020; Nyström et al., 2014). These elements of a solid organisational foundation are influenced by the organisational vision,

mission, strategy, culture, operational functions, processes, and infrastructure (Nyström et al., 2014). In addition, investments and time will be needed to manage the transformational change (Hutchison, 2015).

Orchestrated social movements are well suited for organising change inside organisational structures (Holton, 2020). These movements can form a part of the managerial strategy, although they frequently appear beyond the bounds of the anticipated policy of the organisation (Holton, 2020).

An organisation culture that is supportive of changes is seen as a success factor (Urtaran-Laresgoiti et al., 2018). Therefore, it is vital to create a culture where there is room for trying new ideas and pushing the established boundaries to make a difference (MacLeod et al., 2020).

Staff and stakeholders should be actively involved with problem-solving and improving initiatives (Nyström et al., 2014). This is also the case when these initiatives mean changes in the workforce (Hewison et al., 2021). Especially when changes significantly influence the work that healthcare professionals perform to reduce resistance (Greenhalgh et al., 2012). Next, the commissioners should also be actively involved because the commissioning process is highly skilled and entrenched and must be planned concurrently with the new interventions.

A planned integration of healthcare leads within many organisations to unrest (Hutchison, 2015). Especially the working conditions of the staff and points of concern. The individual's working conditions and terms appear to be important in a transformation process since various terms and conditions may impact the desired state (Hutchison, 2015). Individual staff conditions will influence the implementation of shared accountability. This might be a problem if the status quo is maintained, allowing employees to continue working in their individual organisations under different terms and conditions. Furthermore, it is understood that employee attitudes and beliefs are critical in supporting the transformation process (Hutchison, 2015).

5.3.2.3 Strategies for intra-organisational collaborations

To create integrated care and establish a transformation, intra-organisational collaborations are essential. It is important to develop positive relations with partners based on trust, personal contact, short lines, and the right available structures (Greenhalgh et al., 2012; Halsall et al., 2020; Maniatopoulos et al., 2020). Connecting leaders with interested stakeholders can create new opportunities and exploit complementary work (Halsall et al., 2020). A way to collaborate is to generate shared experiences and undertake joint efforts (MacLeod et al., 2020).

The key figures within the transformation process must be used to form relationships continuously (MacLeod et al., 2020). These relationships are formed through identifying underlying issues, shaping a transformation agenda, and implementing transformation initiatives in practice that focuses on improving health and healthcare services (MacLeod et al., 2020).

Intra-organizational collaborations involve sharing and exchanging knowledge and information (Halsall et al., 2020). However, the current organisational structures and processes hinder this exchange. Due to the highly specialised disciplines and the problem-focused practices, 'information silos' have arisen. Information silos are strong internal regulated systems with specialised language that are not shared with any other organisation because approval layers are created with legal contracts. These information silos

make collaboration and integration of services more difficult and reinforce the fragmentation of care (Halsall et al., 2020).

There is a competitive climate present among the organisations in the healthcare system (Halsall et al., 2020; Maniatopoulos et al., 2020). If an organisation has the sole property of innovation or product, it will not be eager to collaborate with another organisation (Halsall et al., 2020). This competition and the possible development of suspicion and mistrust do not make it any easier for collaboration between organisations (Halsall et al., 2020; Maniatopoulos et al., 2020). Therefore, the need to move away from the competitive climate is endorsed by Maniatopoulos et al. (2020). The competitive climate also influences the experimentation of transformation initiatives. Experimentation is part of transformation (MacLeod et al., 2020). Various organisations have tried transformation initiatives in practice, creating space in communities and services. However, resistance is experienced, partly due to the competitive culture and conflicting priorities. Therefore, organisations must find a balance between taking and managing risks, especially in working with partners and following (regional) guidelines (MacLeod et al., 2020).

Collaboration between organisations can be hampered by conflicting organisational cultures (Hutchison, 2015; Maniatopoulos et al., 2020). It is challenging when an organisation with a flat culture has to work with a highly hierarchical structure such as a government (Maniatopoulos et al., 2020).

5.3.2.4 Strategies for system collaboration

Transforming a system means relocation of resources, but before relocation can be performed, in-depth knowledge is needed about two areas (Hewison et al., 2021). First, a complete picture of the current spending on adults across all levels linked to the population's demographic information is needed. Second, a clear understanding of how more funding would improve community service is required (Hewison et al., 2021). However, it must be taken into account that the system can become unstable due to transformation (Greenhalgh et al., 2012). This instability of the system can be characterised by fundamental differences in interests, values, and knowledge claims for key stakeholders.

On a regional level, a strong identity may enable an ambitious reform program to be implemented with appropriate resources and on a scale that would increase the odds of success (Hunter et al., 2015). When new governance structures and business strategies that span across organisational and industry boundaries are needed, they may frequently be launched or reassembled quite quickly (Greenhalgh et al., 2012). However, it is more difficult to implement a cross-sector service model when there are no warm connections or a history of collaboration between the organisations (Greenhalgh et al., 2012).

When creating an intra-sectoral partnership, the profit motives of commercial organisations should be considered, and strategic meetings should be held regularly (Maniatopoulos et al., 2020; Nyström et al., 2014)

5.3.3 Stage 3 - Monitor & Evaluate

Evaluation of the healthcare transformation is an important part of sustainability (Best et al., 2012, 2016). By means of feedback loops, new innovations and transformation initiatives can be carefully measured (Hewison et al., 2021). But transformation initiatives are often not evaluated based on health research standards (Kash et al., 2014). Evaluating these initiatives is complex because the outcome is highly dependent on various factors, such as the functional nature of the individual or team, the prevailing culture, and the leadership role. The demand for a comprehensive evaluation framework to assess transformation efforts is therefore supported by Kash et al. (2014). According to Best et al. (2012,2016), evaluating transformation processes requires a careful mix of quantitative measurement and accountability with qualitative methods such as interviews, ethnographic observation, and storytelling to fit the transformation efforts that have been made.

To sum up, healthcare transformation can be approached from a three-stage strategy, which must be continuously followed due to the changing and unpredictable nature of a complex system. The first phase is to challenge the status quo with the aim of a fundamental culture shift. Involving stakeholders and listening to the wishes of those involved is essential in this stage. The second stage is moving to the new arrangements in care. Implementing transformation initiatives, where collaboration the key is. The last stage is to monitor & evaluate. During this phase, the new arrangements are assessed and adapted to the new situation.

6 Discussion

Based on the 23 articles that were evaluated for this Grounded Theory Literature Review. A practical check is performed by incorporating the Healthcare Transformation Vodcasts in the discussion to reflect on the results. As mentioned in the research design, the Vodcasts are interviews with professionals who give their vision on healthcare transformation and what this means for them. In total, six Vodcasts are incorporated, two for each system level. On the macro level Maurice van den Bosch, chairman of the board of a hospital (DIRMI Institute, 2021e), and Erik Gerritsen, the secretary general of the ministry of health, wellbeing, and sport (DIRMI Institute, 2021c); for the meso level, Joep de Groot, the chairman of the board of a health insurance company (DIRMI Institute, 2021f), and Miriam Hutten, professor of healthcare technology (DIRMI Institute, 2021b); and for the micro level, Fedde Scheele, a gynaecologist and professor Health System Innovation and Education (DIRMI Institute, 2021d), and Linda Kruize with the head of COVID-19 and acute admission at a hospital (DIRMI Institute, 2021a). In this chapter, the definition, elements and possible strategies and interventions from the results chapter are discussed based on the Vodcasts.

6.1 Definition

Different definitions are given for healthcare transformation, based on the different theoretical lenses. However, despite these differences, all authors acknowledge the system's interdependent character and incorporate the complex system lens. Through a complex system lens, healthcare transformation is defined as a planned change through interventions such as integration that is difficult, complex, expensive, and challenging to implement and evaluate. That aims to coordinate a system-wide change that affects all organizations and care providers in the system (Best et al., 2012, 2016); to improve the efficiency and quality of healthcare delivery and patient care with population-level patient outcomes (Best et al., 2012; Hewison et al., 2021; Nyström et al., 2014). However, a distinction can be made in the degree of change. For Charlesworth et al. (2016), healthcare transformation will result in a completely new system, but for MacLeod et al. (2020), transformation occurs within the boundaries of the current system. Erik emphasises during the Vodcasts that the time of transformation is now (DIRMI Institute, 2021c). Creating a completely new system is not the primary goal because it takes too much time (DIRMI Institute, 2021c,b,f,e). Erik: "*We must become the best within our own healthcare system."* (DIRMI Institute, 2021c). Transformation is about creating new structures within the current system and improving the system's flaws. Making a completely new system will take years before healthcare is completely embedded and costs probably billions (DIRMI Institute, 2021c,f). Joep puts the transformation in perspective: "*Transformative changes are not unique; the system is constantly moving."* (DIRMI Institute, 2021f).

Erik and Joep defines healthcare transformation as a behavioural change and finding new ways to work together throughout the whole system (DIRMI Institute, 2021c,f). This is in line with the definition of healthcare transformation from a population health approach, which defines the transformation as a shift in understanding the stakeholder's identities and relations (Embuldeniya et al., 2021). Fedde defines transformation as collaborations and looking beyond the system's limits to build bridges (DIRMI Institute, 2021d). Miriam, on the other hand, sees transformation more general: *"doing it differently"* (DIRMI Institute, 2021b).

To sum up, the professionals form the Vodcasts define healthcare transformation from different perspectives, which is in line with the literature. But the professionals agree that a completely new system not feasible is.

6.2 Elements

In the results, different elements of healthcare transformation are identified. But according to Joep it does not automatically mean that when an organisation masters all element it is ready for the healthcare transformation (DIRMI Institute, 2021f). Where the literature and Vodcasts do agree is that the collaboration is the core element of transformation. Also, other elements; leadership, communication, technology, structure, trust, and engagement are discussed in the Vodcasts.

6.2.1 Collaboration

"We are the healthcare system, and together we must do everything to become the best." - Erik (DIRMI Institute, 2021c). The importance of collaboration throughout the whole healthcare system is emphasised in all episodes of the Vodcast. Linda emphasises the importance of the "we" feeling (DIRMI Institute, 2021a). This "we" mentality must predominate in all care processes. Throughout the system, the awareness must be created that you cannot do it alone but must do it together. Together we can improve care and initiate transformation. Especially the collaboration with university is not identified in the literature. Even though professionals in the Vodcast frequently mention this (DIRMI Institute, 2021c,f). The knowledge within the university must be shared with professionals in the field.

Collaboration between the macro- and micro-level is acknowledged as essential by Erik and Joep (DIRMI Institute, 2021c). Especially the collaboration and involvement of healthcare authorities. This is also in the literature, where MacLeod et al. (2020) identify this collaboration as a crucial step in the transformation process.

6.2.2 Engagement

The engagement of stakeholders is essential in the healthcare transformation process (Best et al., 2012, 2016; Holton, 2020). Fedde emphasizes patient engagement in decisions making, where good communication is essential, where the social elements of the professional are important (DIRMI Institute, 2021d).

6.2.3 Leadership and Communication

Linda focuses on the leadership elements. It is emphasized that it is precisely the human elements of leadership that are important (DIRMI Institute, 2021a). Listening to the client and staff, having an eye for others, showing genuine interest, being present and accessible in the workplace, becoming a role model, and creating a safe working environment and culture are considered as essential. A leader must be able to communicate well and explain why something is necessary. As is also stated in the literature, transformation stands or falls with the individual's intrinsic motivation (Holton, 2020). It is essential that the leader self has ambition and motivation but can also address and stimulate this motivation by others (DIRMI Institute, 2021a). Erik and Linda encourage professionals to take responsibility and leadership themselves in the transformation process (DIRMI Institute, 2021c). Also, Maurice emphasises that there must be room within the system for leadership, development of new innovations and understanding people (DIRMI Institute,

2021e). Frontrunners must take the lead. These pioneers are important according to the professionals, and this is also emphasised in the literature of MacLeod et al. (2020).

6.2.4 Structure

"*Changes come with the shifting and breaking of interests and structures, which entail a lot of tension."* - Joep (DIRMI Institute, 2021f). New structures mean a new division of responsibility (DIRMI Institute, 2021c,f). Maurice links the technology scale up with the limited character of the structure (DIRMI Institute, 2021e). "*The system is lagging behind the scaling up of innovation."* (DIRMI Institute, 2021e). However, Erik states that within the current system and legislation, sufficient room is for changes (DIRMI Institute, 2021c). But at the same time, many stakeholders feel trapped within the current structure, which hinders the transformation process (DIRMI Institute, 2021c).

6.2.5 The adaptive capacity of the healthcare system

The COVID-19 situation has shown that the healthcare system can make rapid changes with the achievement of collaboration across and beyond the walls of healthcare organizations (DIRMI Institute, 2021a). According to Linda, sometimes a crisis is needed to see that everything can be done differently, and then we are not so stuck in our habits.

6.3 Strategies and interventions for healthcare transformation

In the results, a three-stage strategy is identified to deal with transformation. This strategy consists of challenging the status quo, moving to new arrangements, and monitoring & evaluating. Moreover, because of the adaptive character of the healthcare system, the process will start again after the monitor & evaluate stage. Fedde emphasises that healthcare transformation consists of constant small change steps that are complex in nature, which is in line with the stages (DIRMI Institute, 2021d).

6.3.1 Stage 1 – Challenging the status quo

Challenging the status quo is all about recognising the flaws, indifferences, and cynicism that keep the system bound to ingrained beliefs and practices (Holton, 2020). Fedde emphasises that challenging the status quo will have to come partly from the policymakers but mostly from the professionals in the workplace (DIRMI Institute, 2021d). Education plays an important role in this. The behavioural change as defined in the healthcare transformation can already be initiated during the education phase.

6.3.2 Stage 2 – The movement to new arrangements

In literature, the movement toward new arrangements in healthcare are all about making collaborations throughout the system (Best et al., 2012). Engage in collaboration and establishing partnerships sounds relatively easy for organisations, but Miriam emphasises that a transformation is scary and exciting for everyone in the system (DIRMI Institute, 2021b). The actors in the system are aware that transformation is necessary. However, it is associated with uncertainties and risks because it is about letting go of the established order and choosing a new route. The actors in the healthcare system are highly interdependent; to transform as an organization alone is therefore very difficult. However, if no one dares to take the step, there will never be a transformation. That is why pioneers in the transformation process who dare to experiment are so important, which is emphasises in all Vodcasts. The government can also play an important role in this. Because the government offers space and incentives to the healthcare system to transform, more organizations will dare to take on the transformation. On the other hand, the government

must also ensure that the support structures are in place to promote collaboration between organisations, health care workers, and community involvement.

"Because of the big words of radical changes, it is not surprising that healthcare professionals are concerned about what healthcare will look like and their role" – Miriam (DIRMI Institute, 2021b). Transformation goes hand in hand with adapting working methods. But as also stated by Miriam, the demand for care will drastically increase, and the labour market will shrink. The aim of transformation is to better organize healthcare so that the professional can perform his or her work better. This will mean that current jobs within healthcare will change and not disappear.

In the Vodcasts, the strategies of collaboration between healthcare insurance, education, and the critical role of collaboration on a regional level are elaborated on.

6.3.2.1 Collaborations between healthcare insurances

The position of the healthcare insurer is not included in the 23 selected articles. However, the Vodcasts with Joep and Fedde shows that healthcare insurers can play an important role in the transformation process (DIRMI Institute, 2021d,f). Both Joep and Fedde emphasises that health insurers have the task of thinking about the healthcare of tomorrow, whereby they have to work together with other parties in the system, and they must invest in innovation (DIRMI Institute, 2021d,f). However, this puts the healthcare insurer in two battles. Fedde zooms in on this position of the healthcare insurer and the challenges (DIRMI Institute, 2021d). The insurance system is based on cost price, so when the insurer invests in innovation, the cost price will rise, and those who do not invest in innovation will have the lowest price. The customers will choose the lowest price. This means that when the insurer invests, it will transform healthcare, but it will lose customers. And if an insurer does not invest, it remains in the status quo and does not transform. One solution to this is for healthcare insurers to collaborate. Investments in innovation must be looked at together so that the cost price for all healthcare insurers increases by the same amount. Collective action must be taken, but this will only work if all actors understand its importance. Because when healthcare insurers cannot (or will not) fully focus on innovation, the transformation of health care is hampered (DIRMI Institute, 2021d).

6.3.2.2 Education

The specific role of education in the transformation process is hardly discussed in the literature. However, this learning process for professionals is essential to initiate the movement toward the new situation according to Erik and Fedde (DIRMI Institute, 2021c,d). A joint learning process through which professionals learn from and with each other to get better and motivate the professional is then essential (DIRMI Institute, 2021c). This requires collaboration with universities (DIRMI Institute, 2021c,f).

6.3.2.3 Collaboration on a regional level

The transformation must take place at the regional level (DIRMI Institute, 2021c). "*At this level, everyone comes together to establish collaborations."* – Erik. This can also be found in the article of Hunter et al. (2015), which identified the regional level could enable an ambitious reform program.

6.3.3 Stage 3 – Monitor & Evaluate

Kash et al. (2014) emphasize in their research that there is a need for comprehensive evaluation frameworks to assess transformation efforts. This is also confirmed in the Vodcasts of Miriam and Erik to a certain extent (DIRMI Institute, 2021b,c). Currently, in healthcare, it is often the case that all initiatives must be evidence-based before others support an initiative (DIRMI Institute, 2021b). However, an evidence-based should not always be leading. Transformation initiatives are not easy to substantiate on an evidence-based basis. An example is the shift from curative care to preventive care (Aggarwal & Williams, 2019; Farmanova et al., 2019). More money will therefore be invested in preventive treatments. However, it is not easy to substantiate what the investment in prevention measures yields in the longer term. Erik emphasises that there is a lot of knowledge available that is used in practice but conducting evaluations and monitoring work is almost never done (DIRMI Institute, 2021c).

To sum up, the results from the literature largely correspond to the real-life examples in the Vodcasts. However, new elements and strategies are discussed in the Vodcasts, and a stronger emphasis is placed on the individual/professional in the healthcare transformation process. While in the literature, a more multi-level perspective is taken, where it is sometimes difficult to distinguish between the levels.

6.4 Limitations of the study

In this study, some limitations can be identified. At first, healthcare transformation is described in various ways in the literature and is a relatively new subject. Therefore, a broad search string has been chosen, resulting in low search effectiveness. Only 23 articles of the 7520 (0,31%) were incorporated in this study. Next to this, in filtering the articles, a few specific research areas and multi-level perspectives were incorporated. This may raise doubts that the study reflects all possible perspectives on healthcare transformation. Third, “digital healthcare transformation” is not incorporated in the search string because this study sees digital healthcare transformation as a mediator for healthcare transformation. However, much is written about this subject, and it has become increasingly popular. As can be seen in the codes (Appendix 2), only 39 quotations are about digitalisation. This represents a possible mismatch with the current literature about technology to enable healthcare transformation. Incorporating “digital healthcare transformation” in the search string could have resulted in more valuable insights.

7 Conclusion

Based on the 23 included articles obtained from the Grounded Theory Literature Review and the insights from the Vodcasts, answers can be given to the main and sub-questions. The main question is: "*How is healthcare transformation conceptually explained in extant literature?"* In this chapter, the answers will be provided to the research questions, a conclusion is drawn, and possible directions for future research are stated.

The first sub-question is: "*Which definitions of healthcare transformation are described in the literature?"*

The chosen theoretical lens determines the definition of healthcare transformation. The literature has identified four lenses: complex system, organisational, social movement, and population health lens. Most articles approach healthcare transformation from the complex system lens. However, the other lenses also recognize the interdependent nature of the healthcare system, which means that they partly approach transformation from the system's point of view. By Best et al. (2012), healthcare transformation is seen as an intervention. As a result, healthcare transformation interventions and integrated care definitions are also identified as healthcare transformation definitions. From a complex system lens, healthcare transformation is defined as a planned change through interventions such as integration that is difficult, complex, expensive, and challenging to implement and evaluate. This aims to coordinate system-wide change that affects all organizations and healthcare providers in the system (Best et al., 2012, 2016); to improve the efficiency and quality of care delivery and patient care with patient outcomes at the population level (Best et al., 2012; Hewison et al., 2021; Nyström et al., 2014). A distinction is made between the degree of change and whether it is a one-off change. From an organizational lens, transformation is defined as a radical change in the performance and behaviour of the organization and its people (Kash et al., 2014). The social movement lens approaches transformation as establishing openness, shared values , and norms throughout the system (Holton, 2020). The definition of healthcare transformation from a population health lens focuses on the multi-dimensional construct of the healthcare system (Aggarwal & Williams, 2019). As can be seen, there is no unambiguous definition of care transformation.

The second sub-question is: *"What are the elements of the healthcare transformation? "*

Healthcare transformation elements are factors that determine the transformation. In the literature, nine elements can be identified: collaboration, leadership, engagement, culture, communication, vision, technology, time, and structure. All these elements are necessary at all levels in the system. Collaboration is the core element of transformation and can be found in all articles and Vodcasts. These collaborations must arise between all system levels.

The third sub-question is: *"Which methods are used to establish healthcare transformation?"*

In order to establish healthcare transformation, a three-stage strategy is identified in the literature. The first stage is challenging the status quo and realising a fundamental culture change, which can be achieved by actively involving communities and individuals at all levels (Holton, 2020). In addition, the 'deep listening' method can be used to determine the stakeholders' needs. Creating a safe environment and good listening is therefore essential in this phase. The second stage is the movement towards the new arrangements (Aggerwal & Williams, 2019). This means starting transformation initiatives that focus on collaboration

inside and outside the system. Creating the "we" feel is important in this stage. The last stage is the monitor & evaluate stage (Hewison et al., 2021). The new arrangements are evaluated during this change, and the cycle will restart after this.

The main question can be answered based on the answers to the sub-questions. The main question is: "*How is healthcare transformation conceptually explained in extant literature?"* In the literature, there is no unambiguous definition for care transformation. This depends on the theoretical lens that has been chosen. Nine elements have been identified, all of which are present at all levels of the system. These elements are collaboration, leadership, engagement, culture, communication, vision, technology, time, and structure. Moreover, the main focus of healthcare transformation is on collaboration initiatives.

To sum up this study, healthcare transformation is all about collaboration. However, this transformation should not be the final destination. The healthcare system can be seen as a game, an infinite game. The healthcare game must always be played, no matter how difficult the environment makes it or how fast it changes. Setting up collaboration and using tools to realize these collaborations is not the ultimate goal. The healthcare transformation is an impetus for playing the infinite game. Professionals, healthcare organisations, and policymakers may not and cannot stop innovating and changing once the healthcare transformation has been achieved. The game goes on. The healthcare system must focus on the infinite goal of improving the health and well-being of the world's population. This transformation is a finite goal to keep playing the infinite game.

8 Directions for further research

Several directions can be identified for further research.

First, research can be performed on what the healthcare transformation elements mean per level. Due to the multi-level nature of this research, it is difficult to interpret what the different elements mean when looking specifically at a level, so macro, meso, and micro. Research can therefore be done into which element of care transformation influences a certain level. This research can be done in the form of a case study. At each system level, multiple transformation initiatives can be examined using interviews, focus groups and observations. By going into practice, the different elements can be examined and assessed. To what extent do the elements from the literature study correspond to the elements visible at the micro, meso or macro level in practice? Some elements may be more or less present in certain system levels, and it is also possible that new elements emerge.

Second, research can be done on the influence of education on the healthcare transformation process. The Vodcasts indicated that education could give an impulse to the transformation process. However, this was not clearly stated in the literature. At first, a literature review can be performed specifically on the influences of education on healthcare transformation. After that, it can be tested in practice by monitoring a cohort of students.

The third research possibility is a stakeholder analysis. Research can focus on the identification of the important stakeholders in the healthcare system transformation and how they can influence it. What are the stakeholders' interests? What obstacles do they encounter? Which stakeholder should be the forerunner in the transformation process?

Fourth, research can focus on what transformation means for different sectors of healthcare. Is the degree of transformation the same and are all sectors suitable for transformation? In this case, the research could be done in practice using a healthcare transformation readiness assessment model. This model can be developed from scientific literature and tested in practice.

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10 Appendix 1 – Search string and criteria

10.1 Scopus

6922 results on 18 january 2022 with the following search string on scopus:

(((TITLE-ABS-KEY ("health care" OR healthcare OR cure* OR "curing patients" OR "patient care" OR "value-based care" OR "integrated care" OR "health* profession*" OR "health service" OR "care service" OR "deliver* of health care" OR "health* system") AND TITLE-ABS-KEY ("*care transit*" OR "*care transform*" OR "health* transform*" OR "digital transform*" OR "*system* transform*" OR "institut* transform*" OR "profession* transform*" OR "process* transform*" OR "cultur* transform*" OR "organi*astion* transform*" OR "transform* change" OR "radical change" OR re-invent* OR reinvent* OR re-engineer* OR reengineer* OR re-institutional* OR reinstutional* OR re-design* OR redesign*)))) AND (LIMIT-TO (AFFILCOUNTRY,"United States") OR LIMIT-TO (AFFILCOUNTRY,"United Kingdom") OR LIMIT-TO (AFFILCOUNTRY,"Canada") OR LIMIT-TO (AFFILCOUNTRY,"Australia") OR LIMIT-TO (AFFILCOUNTRY,"Germany") OR LIMIT-TO (AFFILCOUNTRY,"Netherlands") OR LIMIT-TO (AFFILCOUNTRY,"Italy") OR LIMIT-TO (AFFILCOUNTRY,"Sweden") OR LIMIT-TO (AFFILCOUNTRY,"Spain") OR LIMIT-TO (AFFILCOUNTRY,"France") OR LIMIT-TO (AFFILCOUNTRY,"Denmark") OR LIMIT-TO (AFFILCOUNTRY,"Norway") OR LIMIT-TO (AFFILCOUNTRY,"Switzerland") OR LIMIT-TO (AFFILCOUNTRY,"New Zealand") OR LIMIT-TO (AFFILCOUNTRY,"Finland") OR LIMIT-TO (AFFILCOUNTRY,"Ireland") OR LIMIT-TO (AFFILCOUNTRY,"Belgium") OR LIMIT-TO (AFFILCOUNTRY,"Japan") OR LIMIT-TO (AFFILCOUNTRY,"Portugal") OR LIMIT-TO (AFFILCOUNTRY,"Austria") OR LIMIT-TO (AFFILCOUNTRY,"Poland") OR LIMIT-TO (AFFILCOUNTRY,"Greece") OR LIMIT-TO (AFFILCOUNTRY,"Hungary") OR LIMIT-TO (AFFILCOUNTRY,"Slovenia") OR LIMIT-TO (AFFILCOUNTRY,"Slovakia") OR LIMIT-TO (AFFILCOUNTRY,"Cyprus") OR LIMIT-TO (AFFILCOUNTRY,"Luxembourg") OR LIMIT-TO (AFFILCOUNTRY,"Iceland") OR LIMIT-TO (AFFILCOUNTRY,"Andorra") OR LIMIT-TO (AFFILCOUNTRY,"Liechtenstein")) AND (LIMIT-TO (PUBSTAGE,"final")) AND (LIMIT-TO (SUBJAREA,"MEDI") OR LIMIT-TO (SUBJAREA,"SOCI") OR LIMIT-TO (SUBJAREA,"HEAL") OR LIMIT-TO (SUBJAREA,"BUSI") OR LIMIT-TO (SUBJAREA,"ECON")) AND (LIMIT-TO (DOCTYPE,"ar") OR LIMIT-TO (DOCTYPE,"re")) AND (LIMIT-TO (PUBYEAR,2021) OR LIMIT-TO (PUBYEAR,2020) OR LIMIT-TO (PUBYEAR,2019) OR LIMIT-TO (PUBYEAR,2018) OR LIMIT-TO (PUBYEAR,2017) OR LIMIT-TO (PUBYEAR,2016) OR LIMIT-TO (PUBYEAR,2015) OR LIMIT-TO (PUBYEAR,2014) OR LIMIT-TO (PUBYEAR,2013) OR LIMIT-TO (PUBYEAR,2012) OR LIMIT-TO (PUBYEAR,2011) OR LIMIT-TO (PUBYEAR,2010) OR LIMIT-TO (PUBYEAR,2009) OR LIMIT-TO (PUBYEAR,2008) OR LIMIT-TO (PUBYEAR,2007) OR LIMIT-TO (PUBYEAR,2006) OR LIMIT-TO (PUBYEAR,2005) OR LIMIT-TO (PUBYEAR,2004) OR LIMIT-TO (PUBYEAR,2003) OR LIMIT-TO (PUBYEAR,2002) OR LIMIT-TO (PUBYEAR,2001) OR LIMIT-TO (PUBYEAR,2000)) AND (LIMIT-TO (LANGUAGE,"English"))

10.2 Web of Science

2530 results on 18 january 2022 with the following search string on Web of Science:

(TS=("health care" OR healthcare OR cure* OR "curing patients" OR "patient care" OR "value-based care" OR "integrated care" OR "health* profession*" OR "health* service" OR "*care service" OR "deliver* of health care" OR "health* system")) AND TS=(("*care transit*" OR "*care transform*" OR "health* transform*" OR "digital transform*" OR "*system* transform*" OR "institut* transform*" OR "profession* transform*" OR "process* transform*" OR "cultur* transform*" OR "organi*astion* transform*" OR "transform* change" OR "radical change" OR re-invent* OR reinvent* OR re-engineer* OR reengineer* OR re-institutional* OR reinstutional* OR re-design* OR redesign*))

This selection is selected on;

- Research method:
  - Health care sciences services;
  - health policy services;
  - medicine general internal;
  - public environmental occupartion health;
  - management;
  - social work;
  - public administration;
  - business;
  - social sciences interdisciplinary;
  - business finance;
  - sociology;
  - economics.
- Westerse landen
- Vanaf 2000
- English
- Articles and review articles

10.3 PubMed

813 results on 18 january 2022 with the following search string on PubMed:

(("health care"[Title/Abstract] OR healthcare[Title/Abstract] OR cure[Title/Abstract] OR "curing patients"[Title/Abstract] OR "patient care"[Title/Abstract] OR "value-based care"[Title/Abstract] OR "integrated care"[Title/Abstract] OR "health* profession*"[Title/Abstract] OR "health service"[Title/Abstract] OR "care service"[Title/Abstract] OR "deliver* of health care"[Title/Abstract] OR "health* system"[Title/Abstract] OR "health* system" [Title/Abstract])) AND (("*care transit*"[Title/Abstract] OR "*care transform*"[Title/Abstract] OR "health* transform*"[Title/Abstract] OR "digital transform*"[Title/Abstract] OR "*system* transform*"[Title/Abstract] OR "institut* transform*"[Title/Abstract] OR "profession* transform*"[Title/Abstract] OR "process* transform*"[Title/Abstract] OR "cultur* transform*"[Title/Abstract] OR "organi*astion* transform*"[Title/Abstract] OR "transform* change"[Title/Abstract] OR "radical change"[Title/Abstract] OR re-invent*[Title/Abstract] OR reinvent*[Title/Abstract] OR re-engineer*[Title/Abstract] OR*

reengineer[Title/Abstract] OR re-institutional*[Title/Abstract] OR reinstutional*[Title/Abstract] OR re-design*[Title/Abstract] OR redesign* [Title/Abstract]))*

This selection is selected on;

- Humans
- Year: 2000-2021
- Study:
    - Comparative study;
    - Meta-analysis;
    - Multi-centre study;
    - Review;
    - Systematic review.

11 Appendix 2 - Included articles

The following articles are included in the research :

Aggarwal, M., & Williams, A. P. (2019). Tinkering at the margins: evaluating the pace and direction of primary care reform in Ontario, Canada. *BMC Family Practice*, *20*(1). https://doi.org/10.1186/s12875-019-1014-8

Beech, R., Henderson, C., Ashby, S., Dickinson, A., Sheaff, R., Windle, K., Wistow, G., & Knapp, M. (2013). Does integrated governance lead to integrated patient care? Findings from the innovation forum. *Health & Social Care in the Community*, *21*(6), 598–605. https://doi.org/10.1111/hsc.12042

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Best, A., Greenhalgh, T., Lewis, S., Saul, J. E., Carroll, S., & Bitz, J. (2012). Large-System Transformation in Health Care: A Realist Review. *Milbank Quarterly*, *90*(3), 421–456. https://doi.org/10.1111/j.1468-0009.2012.00670.x

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Charlesworth, K., Jamieson, M., Davey, R., & Butler, C. D. (2016). Transformational change in healthcare: an examination of four case studies. *Australian Health Review*, *40*(2), 163. https://doi.org/10.1071/ah15041

Chrysanthaki, T., Hendy, J., & Barlow, J. (2013). Stimulating whole system redesign: Lessons from an organizational analysis of the Whole System Demonstrator programme. *Journal of Health Services Research & Policy*, *18*(1_suppl), 47–55. https://doi.org/10.1177/1355819612474249

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Halsall, T., Manion, I., Mathias, S., Robeson, P., Benlamri, M., Helfrich, W., Iyer, S. N., Purcell, R., & Henderson, J. (2020). Frayme: Building the structure to support the international spread of integrated youth services. *Early Intervention in Psychiatry*, *14*(4), 495–502. https://doi.org/10.1111/eip.12927

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Holton, J. A. (2020). Social movements thinking for managing change in large-scale systems. *Journal of Organizational Change Management*, *33*(5), 697–714. https://doi.org/10.1108/jocm-05-2019-0152

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12 Appendix 3 – Codes

Code name	groundedness	codegroups	comment
Digitalization	39	Transformation movement	
Leadership	78	Condition	
Communication	34	Condition	
Definition	19		
Method: Health Standards	1	Transformation movement	
Collaboration within organisation	26	Transformation movement	
Collaboration between organisation	97	Transformation movement	
System Collaboration	30	Transformation movement	
Inter-sectoral collaboration	13	Transformation movement	
Method: multi-disciplinaire teams	13	Transformation movement	
Perspective	9	Approach	
Network	28	Transformation movement	Merged from Actor-network theory and Approach: Network
Collaboration approaches	45	Approach	Merged from approach: co-creation, approach: co-designed, Approach: Coordination, Approach: Co-production and Approach: collaborative modelling
Community	55	Condition	Merged from Approach: Community-based care and Element: Collaboration with the community
Complex Systems	88	Approach	Merged from approach: complex systems, approach: System Dynamic, Approach: System Thinking, approach: System wide and Approach: Whole system
Theories	28	Approach	Merged from Approach: Critical realist perspective, Approach: Realist view, approach: institutional entrepreneurism, Approach: Neo-institutional theory and Approach: Social movement
Engagement	95	Condition	Merged from Approach: Engagement and Element Transparency
Patient centred care	21	Transformation movement	Merged from approach: patient centered care and Element: Collaboration around patient
Contextual factors	115	Contextual factors	Merged from Deep seated problems in Health Care, Element: Building momentum for change / mobilising resources, Historical setting and Wicked problems
Governance	82	Governance	Merged from Element: Accountability, Element: Financial Resources, Element: Financial Structures, Element: Governance structure, Element: Human Resources, Element: resource

			allocation, Element: Resource Time, Element: Shared Resources, Method: Policy Reforment and Mobilising resources
Integration	109	Transformation movement	Merged from Element: Integration and Method: Integrated Care
Health Shifts	49	Health shifts	Merged from Element: prevention, Element: Quality Improvement, Fundamental shifts and changing roles
Sustainability	26	Health shifts	Merged from Element: sustainability, Sustainability and Method: Feedback loops
Education	13	Condition	Merged from Element: Education, Method: Continuous learning and Method: Shared Learning
Coordination	38	Condition	Merged from Method: Coordinated working and Coordination
Approach	105	Approach	Merged from Population health approach and approach
Method	26	Transformation movement	
Useful Table or Figure: please see paper!	8		
absorpitve capacity	7	Condition	
Change Consequence	2	Barriers	
Barriers of transformation	30	Barriers	
requirements system wide transformation	4	Condition	
Drivers for change	8	Condition	
strategies to facilitate implementations	3	Transformation movement	
Condition	173	Condition	Merged from Uncertainty and Condition