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TITLE: The role of patients in responsible innovation process
A multiple case study of a Norwegian and a Brazilian Hospital

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University of Stavanger

Master in Business and Innovation

**The role of patients in responsible innovation process -
A multiple case study of a Norwegian and a Brazilian
Hospital**

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Abstract

This master thesis is designed to deliver academic conversation and new knowledge on the innovation game plan and methods of patient-initiated innovation in the health care sector. The purpose of the study is to explore how the healthcare professionals receive and react to patient feedback. Later, what happens to those ideas, what flow they follow until changes are implemented, and also, does it involve the responsible innovation concept? The inclusion of the patients (the users) in the innovation process is a way of doing innovation responsibly. To achieve that, observations, research and interviews with healthcare employees of two different hospitals were conducted. The hospitals were located in very different environments, one in Norway and one in Brazil. Results were considered in a cross-case analysis and they highlighted the differences and similarities between each environment. Anterior studies argue that innovation is a broad perception which has been explained and practiced in different territories and situations (Pavitt, 2004). The data collected by this study will help researchers to prepare recommendations to both the health sector and leaders within the industry on what can be done to speed up innovation so that the health sector can fulfill its mission and interests.

Acknowledgements

After studying for two years in Innovation, it is clear that tools to improve quality in the health sector are available and ready to be used. However, these tools need to be comprehended to be able to use them. We are becoming more elderly and younger people with disabilities. More and more people will have to master their lives with a chronic illness. Besides, we all want to live an active life. It is a vocation for many, and there is a real sense of desire to make things better. So there is no shortage of ideas and input from people and employees, but not many organizations manage to support those ideas correctly. To rejuvenate, simplify and improve health services, changes in organization, culture, and management are necessary.

This report presents our master thesis and is the final stage of our educational degree in the Master of Science in Business Administration: Business Innovation. The work corresponded to 30 academic credits and was conducted during the spring of 2018 in the Business School in the University of Stavanger.

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List of Abbreviations

ANS – The Brazilian National Agency for Supplementary Health Services (*Agência Nacional de Saúde Suplementar*)

EMR – Electronical Medical Record

IBGE - The Brazilian Institute of Geography and Statistics

NSF – The Norwegian Nursing Occupational Ethics (*Norsk Sykepleierforbund*)

RI – Responsible Innovation

RRI - Responsible Research and Innovation

SSB – the Norwegian Statistics Agency

SUS – Brazilian Public Health System (*Sistema Unico de Saude*)

SUS - Stavanger University Hospital (*Stavanger Universitetssykehus*)

UNN – University Hospital in Northern Norway (*Univesitetssykehuset i Nord-Norge*)

WHO - World Healthcare Organization

WHS - World Health Statistics

1.0 Introduction

Hospitals are institutions responsible for taking care of people's health and in the most extreme cases, save lives. Therefore, the need for innovations – both in medical science and institutional – are more critical in this sector than in others because of life expectancy and quality of life. A maximum rate of production in a hospital is defined by Couture et al. (2009) as "getting patients admitted, treating their illness and getting them home or to a different level of care". The authors describe this in the project at the Sacred Heart Medical Center & Children's hospital in Washington. The project is focused on operations from a strategic and organization-wide perspective to improve quality and patient and physician satisfaction levels. It was considered successful since objectives were met, but some modifications were necessary for further improvements. In China, Ing-Long Wu and P-Jung Hsieh (2015) wanted to understand the relationship between hospital innovation and customer-perceived quality of care. Because of the limited health insurance budget in Taiwan, hospitals have begun to compete to retain and attract more customers brutally. The research showed that practitioners should recognize the importance of hospital innovation by prioritizing allocation of their resources towards the target of building a long-term customer relationship.

Adaptation to the growing demands in the Health Sector is a significant challenge facing society today. At the same time, the development of technology, digitalization and artificial intelligence, allows for more scale, integration, new possibilities and new methods of operations for such significant structures such as Hospitals. As defended by evolutionary theorists and presented by Nelson and Nelson (2002, p. 267), "a country's level of technological competence is seen as the basic constraint for its productivity." Drawing a parallel with a hospital as an organization, one can suggest that an increase in the technological competence of a hospital will also increase its productivity level

Healthcare professionals working in hospitals face a multitude of difficulties on a daily basis, ranging from higher demand for beds to aging infrastructure, procedures that are not the most efficient, and patients that are frustrated for having to wait to talk to a doctor. When the demand for care is continuously growing at a rate which the infrastructure is unable to compete with, health professionals are forced to push home inpatient health services and outpatient ambulatory

facilities. Nevertheless, emergencies, new diseases, acutely ill patients and complex cases will always increase as the population keeps growing. When a person gets sick or has an accident and become injured, a treatment will be a necessity. Suddenly, healthcare needs that are not part of everyday life will appear. When this happens, people with special health conditions will face even more special needs, as medical procedures will vary.

Medicine can change a lot with novel technologies (Roman-Belmonte et al., 2018). Nowadays, people are starting to wear smart watches which provide information about their heart rate, their level of activity, and even about women's fertility. Robotics are being used to teach children with Autism subtleties of communication (Forsking.no, 2017). This type of technology used with responsibility has enormous potential to substitute and enhance traditional methods of monitoring patient's information and medical treatments. The use of electronic medical records (EMR) is another example. It was only allowed by the increased number of internet users that has provided patients with a greater understanding of their ailments and conditions. Patients have never been able to track down all their medical information. The information is gathered in the patient's journal allows the patients to have open information regarding tests performed, doctors' notes and a history of prescribed medicine. More than that, connected networks can share information regarding demographics and health information from populations, which facilitates studies of medical records and medical research. This tool can be extremely powerful and therefore, must be used with wisdom and with respect to patients' information and health (The Norwegian Health Minister, 2018.)

There is great pressure from all over the world to create growth and the ability to generate advance comes through innovation. Innovation processes are often complex and depend on the ability of the manager or individual to assure the quality of the process. The International Standardization Committee for Innovation (ISO / TC 279) is therefore working to develop a global tool that will help organizations implement and follow up on innovation efforts, and in 2017 37 experts from 32 countries gathered in Norway to develop the frameworks for a new standard, ISO 50500 Innovation Management. The goal is to develop a tool that will enhance innovation skills. This international meeting takes place at a time when many countries, public and private actors are challenged both centrally and locally to create growth and development. To succeed, there is a growing need for innovation. For many players, this is challenging. More industries and organizations are characterized by cost cuts and downsizing, and standardization

is emphasized as an important tool for increased efficiency and reduced risk. The use of “two-case” case study may therefore be the best way in leading this research, as it could strengthen the findings even further by illustrating contrasting situations in represented results (Yin, 2014).

In this sense, modern literature present projects that have produced benefits to society but the necessary change process is far from easy to implement. In the health sector, Couture et al. (2009) explored their processes to improve patient flow. The study identified strategic priorities using five key strategies consistent across different hospital departments. Caccia-Bava et al. (2009) proved in their study the importance of competitive intelligence, strategic leadership, management of technology, and specific characteristics of the hospital’s change process to the success of business innovation regarding products, business processes, organization structure, and organization culture. Ing-Long Wu & Pi-Jung Hsieh (2011) considered in their research only the performance of quality of care but did not expand to include financial performance in an integrative manner. As mentioned by Laudal et al. (2016), prior research has shown the lack of studies on the relationship between patient feedback and hospital innovations. The majority of the studies have focused on entrepreneurship, access to finance and or cost-minimization. At the same time as new technologies evolve, they can produce benefits and harm (Groves, 2006). Therefore, responsibility must be a concern. A framework for performing Responsible Innovation (Stilgoe, Owen, and Macnaghten, 2013) will be presented in this study for that purpose.

1.1 Problem statement

Nowadays, many innovation courses have been offered by universities all over the world. A new generation of professionals has been educated to apply innovation as a routine in their fields to create new paths among industries. However, today's leaders received their education at the end of the last century (Andreassen, 2016). Then, neither innovation nor business models were prominent on the curricula. Confronted with disruption or increased competition, they follow what they think is correct: cost-cutting. Market innovations or business model innovations fall outside the repertoire. Students at leading learning institutions today learn that innovations that increase customer-contributed values (such as better market offerings or new business models) are of far higher value for shareholders than innovations that reduce costs

(Andreassen, 2016). Unfortunately, we see a general restraint among executives for this recognition and especially within innovations in business models. The reason is due to uncertainty associated with reallocation of capital. However, management and strategy are about choosing something good for the benefit of something even better (Andreassen, 2016).

Hospitals are organizations that follow a different logic compared to other sectors. Most businesses perceive the process of creating value for customers so they can build solid relationships with its customers in the sense that the customer always return and provide some value back (Kotler and Armstrong, 2016). Hospitals are organizations that provide services that are a basic need. In the hospital sector, the organizations are highly demanded and not necessarily concerned about acquiring more customers. Instead, their concern is to be able to supply enough service to cover the existing demand. Healthcare professionals have an intensive flow of meetings with patients, sometimes on a daily basis. The high level of responsibility in the routines of taking care of health and life make those professionals focus mostly on the final goal. We see an opportunity in this situation where patients can contribute to improving their treatments and conditions. Including patients in this innovation process leads to the concept of Responsible Innovation.

UK Engineering and Physical Sciences Research Council describes it properly:

"Responsible Innovation is a process that seeks to promote creativity and opportunities for science and innovation that are socially desirable and undertaken in the public interest. Responsible Innovation acknowledges that innovation can raise questions and dilemmas, is often ambiguous concerning purposes and motivations and unpredictable regarding impacts, beneficial or otherwise. Responsible Innovation creates spaces and processes to explore these aspects of innovation in an open, inclusive and timely way. This is a collective responsibility, where funders, researchers, stakeholders and the public all have an important role to play. It includes, but goes beyond, considerations of risk and regulation, important though these are."
(Framework for Responsible Innovation - EPSRC, 2018)

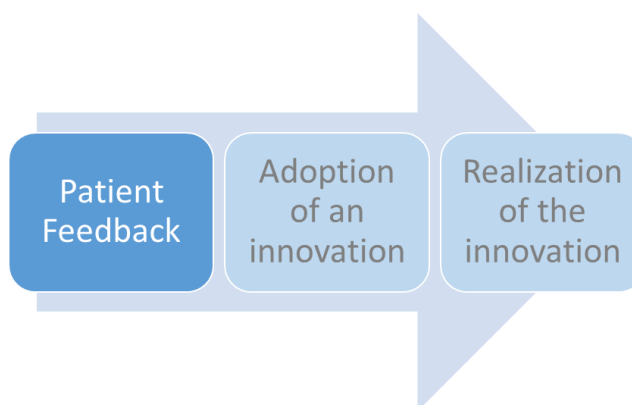
As everybody will have an illness and be a patient at some moment of life, professionals in hospitals are fortunate to have the opportunity to receive feedback from an entire community. On the other hand, that opportunity is so huge that it becomes hard to tackle and to address it to innovation outcomes. The question is if they recognize and acknowledge the potential of an input and lead it further. From the perspective of Responsible Innovation and its four dimensions - anticipation, inclusion, reflexivity and responsiveness (Stilgoe, Owen, and

Macnaghten, 2013) - This master thesis aims to understand whether hospitals include patients in their improvement processes. Responsible innovation implies, among others, the inclusion of patients. To achieve the objective, a case study of two different organizations was performed: one was a hospital in Stavanger, and the other was a hospital in Brasília. By doing this, it became possible to explore in a specific way if the innovation system in which those institutions operate allow patient feedback to stimulate hospital innovation. After the explanation above, the research question for this study is:

How patient feedback encourages responsible innovation in Hospitals?

This question denotes that when an idea or opinion of a patient is presented, a changing process has a potential to get started. The idea will evolve from being an idea and might end in becoming an improvement of a system. The figure below illustrates an overview of this study. This frame will handle as a basis for the upcoming theoretical framework for this study.

Figure 1 Overview of the Research Question



The following sub-questions have been formulated to investigate the above research question:

- I. What type of feedback healthcare professionals receive from patients?
- II. How do healthcare professionals treat patient feedback?
- III. What can contribute to a better feedback process?

Kotler (2016) identifies customers as a key source for generating ideas. Innovations and improvements directed at the hospital sector go through complex decision processes before they are finally approved or refused. From an innovation management point of view, this study seeks to explore the conditions for making these decisions and the needed actions as they are a trigger for innovations to happen (sub-question II). Secondly, this study aims to understand if digitalization strategies not only stimulate feedback, but they could also target the particular kinds of feedback that stimulate change (a link between sub-question I and III).

1.2 Structure of the thesis

The presented master thesis is divided into seven chapters with associated subsections. Table 1 shows the structure of the paper and a short introduction of every division is available in the beginning of every chapter, linking together the content to fulfill the purpose of the thesis.

Table 1 Disposition of Thesis

1 Introduction					
Background	Problem Statement		Research Question		Outline
2 Theory					
The Innovation Concept	Process Innovation	Inn. Processes in Hospitals	Responsible Innovation	Patient Feedback	Summary
3 Methodology					
Research Design	Phylosophy Of Sciences	Data Collection	Data Analysis	Quality of Analysis	Ethics
4 Context of study					
Health Care Systems		Norwegian Context		Brazilian Context	
5 Empirical Findings					
Sub-question 1		Sub-question 2		Sub-question 3	
6 Discussion					
Research Question					
7 Conclusion					
Summary of Findings		Contribution to Theory		Limitations Future Research	

2.0 Theory

To get an understanding of this master thesis, task and its action from beginning to end, we have started by dividing our theoretical framework into five main pieces. First, we will begin with the meaning of our backbone element Innovation and explain how this definition has changed upon a time without losing its interpretation, followed by a brief description of different types of innovation. Afterward, a deep understanding and focus on process innovation will be presented since this study is based on this field, moving further to the hospital concept supporting our study cases. The next part of this chapter contains the broad foundation of the

entire project, relevant concepts of responsibility applied to innovation healthcare sector. So, in conclusion, we will go into feedback and its meaning before summary.

2.1 The innovation concept

Innovation is in today's society an essential and widely discussed theme. The concept of this word comes from the Latin word *Innovare*, which means to renew or create something new. The traditional concept of innovation is mostly based on Joseph Schumpeter's widespread innovation perception. In 1934, Schumpeter argued that innovation is about combining different types of knowledge, capabilities, skills, and resources. Later, (1942) he continues his discussion that innovation most of the time happens in firms and is driven by large corporations that have the required capital to invest in research and development. Marshall (1980) added "it is even further about luck," to the equation. What is known as "Entrepreneurs," and this theory is supported by many creative and popular managers like Toyota Eiji and Steve Jobs. Torstendahl (1990) reminds that of society's development, changes will happen, and consequently, professional activities will also change. In the environment where changes are always boosting, Innovation is perceived as a need for competitive advantage, "the organization's theory of the business must be continuously tested" (Dess and Picken, 2000, p 26).

While Schumpeter's definition has focused on the novelty aspect, in recent years public documents, innovation definition has been formulated in different ways. One should not confuse Innovation with Invention. The Invention is the first appearance of an idea, while innovation is the first movement to carry it out in use (Fagerberg et al. 2005). The innovation process is defined by Crossan and Apaydin (2010) as beyond of changing a process or a product. It is the whole process of applying a new idea, from its conception to the confirmation, including application and dissemination of the new idea. The literature can also refer to process innovation as innovation management. Tidd and Bessant (2014) define innovation as "the process of creating value from ideas." Moreover, if innovations occur mostly in firms, we can assume that they may also occur in different types of organizations, such as public schools and hospitals. Furthermore, it assumes that innovation has not taken place before the solution has been implemented and gains are achieved. Stortingsmelding/NOU in 2015-2016 explained as:

“Innovation is characterized as something new and typically something that goes beyond being a pure idea or theoretical knowledge and that this innovation has been taken into use. This “new” can be a product or service, process or organizational form. To be an innovation, the new one must usually also bring positive value. In the health service, improved health for the users represents a particularly important value”.

It follows from the fact that the overall benefits for the sector and society are not realized before innovations provide dissemination in services (Center for Public Innovation, 2015). The Norwegian research council (2018, p. 5) defines: “Innovation is new or significantly improved goods, services, processes, organizational and governance forms or concepts that are used to achieve value creation and community benefit”.

Tidd, Bessant & Pavitt (1997) present innovation as a five steps process in which: (i) the first phase consists of a research phase to analyze innovation possibilities; (ii) defining potential innovations according to internal variables; (iii) defining innovations taking into consideration the external variables and the internal dynamic capabilities; (iv) implementation phase of innovation; and (v) an assessment of the process and other previous experiences.

The performance and realization of firms even in the same industry are hugely biased, and this heterogeneity in performance is to a high degree persistent over time (Karlsson et al. 2015). With no exception, in every industry, we can see firms that innovate persistently, and we can also observe firms that do not invest efforts in innovating. Although it is observed companies that do not innovate, the persistence of innovation intensifies the influence of past and present innovation in future innovation (Karlsson et al. 2015, p.2). The ability to innovate over more extended periods of time is an element of environmental, organizational, process and managerial characteristics of firms (Kolberg, Detienne & Heppard, 2003). However, till now, we have little perceptiveness of what determinants firms include in their investments in different types of innovation, such as products, processes, markets, and organizations (Karlsson et al. 2015).

Traditionally related to inventions of new products, Schumpeter (1947) expanded the innovation concept to new product and services, a new process (production methods), new organizations, new markets, and sources of supply. The OECD has established a manual for obtaining and interpreting innovation data. The Oslo manual for measuring innovation presents

fours definitions for types of innovation: (i) Product innovation, (ii) Process innovation, (iii) Marketing innovation and (IV) Organizational innovation. In the next section, those innovation types are briefly described.

2.1.1 Types of Innovation

2.1.1.1. Product Innovation

A product innovation is defined as the inauguration of a good or service that is new or significantly improved as regards to its usage and form. These improvements could be technical specifications, components, and materials, incorporated soft wares, user-friendliness or other functional characteristics (Oslo Manual, 2005). Product innovation is equivalent to service innovation, what differs them is that service innovation processes imply intangibility and co-creation, while a product innovation is tangible and can be presented by the creator (Fitzsimmons & Fitzmmons, 2008). Therefore, what does service innovation mean? Which would be the usual expression in the welfare field? According to Osborne (1998b), the production of welfare services cannot be understood exclusively as a technological process that can be transformed through the use of new scientific knowledge, but as an interpersonal and to some extent also an inter-organizational process. However, the production of welfare services can still change if the introduction of new knowledge provides the desired results. “New knowledge can transform service organizations. Hence, service innovations involve organizational innovation - the transformation of organizational practice or form” (Garmann J., 2011). The service provided for the user is based on the perception of the patient and the role of the service-provider, known as “Treatment Ideology” (Scheid, 1994). It refers to the interpretation of what the clients and their problems consist of, and about the understanding of what is the goal of the treatment, and thus the role and task of the service provider. It often implies a constraint on the patient and the client for a diagnosis or a particular problem situation, not a person, and a limitation of the service provider's task (Abbott, 1988; Lipsky, 1980). Through social movements of welfare services, patients and clients have challenged social identities and their attributions and fought for others - and less stigmatizing - comprehensions of disability, mental, or social problems (Høgsbro, 1992; Oliver, 1990).

To be identified as a potential user-group for a service, the group must be accepted and understood as having specific characteristics or problems that legitimize a need for service, assistance or treatment. People with problems and conditions are everywhere, and they may already be users of others health and welfare services. However, for them to become or enter into a new user group for a new or established service, they must be recognized as legitimate. Quality of service is regarded as a firm basis for ensuring customer satisfaction in the healthcare sector, a particular type of service industry (Wu et al. 2011).

2.1.1.2. Process Innovation

"Process innovation means the implementation of a new or significantly improved production or delivery method (including significant changes in techniques, equipment, and software). Minor changes or improvements, an increase in production or service capabilities through the addition of manufacturing or logistical systems which are very similar to those already in use, ceasing to use a process, simple capital replacement or extension, changes resulting purely from changes in factor prices, customization, regular seasonal and other cyclical changes, trading of new or significantly improved products are not considered innovations." (Oslo manual, 2005, .49) A more in-depth definition of Process Innovation will be presented further as it is the type of innovation in focus for this study.

2.1.1.3. Marketing Innovation

Schumpeter (1934) developed sources of value creation through innovation, such as the introduction of new technologies, and one specific category was the creation of new markets. The basis for all the changes is that they represent "something new" and that this new is created by combining existing or new knowledge in new ways. Market innovation entails creating new markets by combining existing and new knowledge in new ways. However, we need to have in mind that the actual interpretation of "market innovation" is associated with how we comprehend "markets" (Kjellberg et al., 2014). Johne (1996:6) defines market innovation as bettering the mix of target markets and how these are served. The definition starts with referring principally to the identification and choice of target markets, better known as customer segments, and therefore, it is equivalent to Schumpeter's concept. The second part of Johne's

definition proposes that by being vigilant to customer's "form of purchasing," a firm can separate the same core product toward how it is being sold (Kjellberg et al., 2014). Although this amplifies the concept of market innovation by affirming that markets can be provided in diverse ways, it holds the customer focus characteristic of how innovation literature conceives markets (Mowery & Rosenberg, 1979; Rogers, 1962; von Hippel, 1986). "Market innovation concerns changes on the surface rather than in the core of what constitutes markets" (Kjellberg et al., 2014, p 5).

Han et al. (2017) present in their research that marketing innovation, in addition to government support, plays real parts as the critical elements for good firm performance, and new job creation. However, what used to be traditional marketing strategies are not so effective anymore, due to advancements in the business world as well as advancements in technology. Considering changes in flow in the business sector on a daily basis, changes in marketing strategies must occur to the same degree. Establishing something new often causes both cognitive, moral and interest challenges, as well as being economically demanding. An example of market innovation can be the introduction of e-commerce if the company previously only sold through the regular store, introducing a new product in a market where the company has not been present before. It can be products for the hospital sector, which are now also for sale to the public in general, one example is the case of blood pressure gauges.

2.1.1.4. Organizational Innovation

"Organizational innovations are innovations involving changes in the routines of firms aiming at improving the efficiency, productivity, profitability, flexibility and creativity of a firm using disembodied knowledge" (Karlsson & Tavssoli, 2015, p. 12). It can be difficult to distinguish organizational innovation from process innovation since they often have the same goals. Particularly in cost reduction and quality improvements. While process innovation is linked to investments in new physical equipment, organizational processes can be: (i) introduction and practice of new strategies; (ii) introduction of knowledge management systems that upgrades the skills in searching, adopting, sharing, coding, storing and diffusing knowledge; (iii) introduction of new internal designs and types of work organization with their related encouragement structures including disperse decision-making and teamwork; and, (iv) Hiring personnel for key positions in the firm. (Karlsson & Tavssoli, 2015, p. 2).

Creating policies to decrease medical spending is a continuous discussion within nations and continents around the world. However, sometimes it is necessary to spend more, especially when it comes to the development and expansion of new technology. In a profitable industry, spending more on a subject or operation is not a motive for preoccupation. Cutler reminds us that “alongside valuable innovation, there is an enormous amount of inefficiency” (2010, p.2). “Low patient cost sharing combined with generous provider reimbursement means that neither patients nor providers have incentives to limit care. Thus, too much is done” (2010, p.2). Another point of inefficient spending is inadequate coordination of care. Acute conditions that could have been prevented are not, leading to increased costs and adverse outcomes. For instance, in 2016, a total of 15, 9 percent of patients who was 67 years of age or older were re-hospitalized within 30 days of a hospital stay. Patients with cholestasis or heart failure are most likely to relapse with 28, 9 percent for charcoal and 23, 8 percent for heart failure. Patients with asthma have a recovery rate of 13 percent. This year's analyzes show a marginal, but significant increase in rehabilitation from 2012 to 2016. It appears to be due to increases in postpartum pneumonia and fractures, explains researcher and statistics director Doris Tove Kristoffersen explains at the National Institute of Public Health (Folkehelseinstituttet, 2017). Inadequate care coordination can cost lives and likely dollars.

Another explanation for inefficiency could be the fact that doctors and nurses are spending their time doing other things, like administration tasks that could be done by other less trained personnel. The downfall of medical care is not because mistakes are made, but because the system has not framed structure to minimize those mistakes (Cutler, 2010).

The previous elements were presented as an introduction to the topic. As the process is the type which is the main objective of the investigation, a deeper description is found in the next section.

2.2 Process Innovation

For Davenport (1993, p 1) “business must be viewed not in terms of functions, divisions, or products, but of key processes.” Moreover, when the improvement affects one area of

manufacturing production, it does not necessarily result in an improvement for the final customer, but when an improvement is implemented in a process within a service, the customer welfare is improved instantly. Nelson and Nelson (2002, p 268) define routine as a practice, and “widely used routines are widely used because they are effective, and they are effective because over the years they have been widely used.” Further, to change this practice, one would have to accept taking risks and also face significant consequences. However, even the fact that accepting changes to implement an innovation involves risks, they intend to benefit the customer, or in the hospital case, the patient.

The main reason for process innovations is the reduction of the unit costs of the products that are produced (Karlsson et al. 2015). Process Innovation is defined by Law (2016) as a methodology that reviews the business processes and rearranges its structures with the final goal of reduce costs and increase the quality of the production. Law (2016) defends that information technology is required nowadays to execute an analysis of the main processes and then, a redesign. Also, those radical changes are challenging as employees will have their own jobs as a concern and create resistance to the changes.

Process innovation requires the understanding of the current design of the process, the perspective of the future design, and implementation of desired changes. The last one includes all the aspects of the change: the people involved, the technology utilized and other dimensions of the organization (Davenport, 1993). Tidd and Bessant (2014, p 9) point out that “innovation involves a moving target” therefore, the development of a successful innovation management strategy today is no guarantee that it will succeed in the future. Dynamic Capabilities become a tool for the continuous reassessment of routines and strategy. In this phase, we involve the introduction of new forms of production, along with new ways of treating a good or a service in demand. Innovation in the Health Care services needs to be demand-driven, just like any other innovation. This drive means that the innovation process must be based on the needs identified by the recipients of health and care services, their relatives, the service's own needs and national goals and reforms. Besides, the services must take on a role as facilitators for business actors and volunteer and ideal actors (The Norwegian Health Minister, 2018, p 9). It emerges from the report of the Norwegian Health Directorate 2018 that "The goal of a future national innovation system is to create new solutions to meet future health and care challenges, and more effective and user-oriented health and care services." The Directorate of Health

assumes that the goal is achieved by increasing the health and care services' innovative capacity and innovation activity. This includes increased awareness of usefulness assessments and value liberalization. Thune (2015, p. 41-45) published in the University of Oslo a study about the hospital as an innovation arena. The purpose of the project was, among other things, to develop knowledge about the roles of hospitals in the health innovation system. The main findings can be summarized as follow:

- In a broader innovation perspective (beyond research-driven innovation), hospital employees are little involved in commercial development and utilization of their ideas. Hospital employees are most active in idea generation and implementation work.
- Hospitals have a broad innovation mission and are contributors to many phases of innovation processes, both linked to new medical products and into a service innovation. Hospitals are in themselves essential venues for new ideas through research, clinical work, and experimental activity. The introduction of new technology entails service innovation. Different innovations must, therefore, be seen in context and cannot be strictly distinguished between different types of innovation.

The researchers conclude that the healthcare sector has an unclear concept of innovation, but a good understanding, practice, and tools for research-driven innovation. It may further indicate that hospitals do not adequately see different forms of innovation in context. The universities are the most crucial innovation partners, but where interaction with the business community can be better. It concludes that interaction between research communities and health enterprises is essential and well-functioning for innovation in health (Thune T, 2018).

Figure 2 Process Innovation



“Knowledge plays an important role in the innovation of healthcare practice” (Hertog et al., 2005). Knowledge can be defined as what a person knows, meaning that knowledge is a

dynamic and ongoing process (Nonaka I, 1994). Knowledge is dynamic since it is made in social interactions among individuals and organizations. Knowledge is context-sensitive, as it depends on a specific time and space. Without being put into context, it is only information, not knowledge (Nonaka I, Toyama R, & Konno N, 2000). Information becomes knowledge when combined with experience, put together, processed, reflected and interpreted. Knowledge becomes competence when one also includes experiences and personal abilities (Von Krogh G, Ichijo K, & Nonaka I, 2001). Asheim et al. (2007, p.657) presents the topic "Face-to-face" as a communicative advantage of physically co-present communication, and be understood as two persons being "physically co-present in a way that allows for mutual visual and physical contact" (p. 657). This topic helps the knowledge or information to be interpreted, co-developed and transferred through several means of communication, allowing it to be relevant knowledge of the objectives of a unique arrangement. Taking this into consideration, Bacon (2010) determines that a fundamental prerequisite for increased innovation is that employees in Health Care services have a common language and understanding of what innovation is and is not, what opportunities innovation can provide and how innovations are stimulated, created and implemented. It is also a prerequisite that there is a sufficient number of employees in the sector that have innovation competence - that is, the ability to transform knowledge into action, through being motivators and process/implementation managers for innovation and conversion work. In addition to this, health professionals should also know what other actors (business, academia, voluntary sector) can bring about value in the innovation work (The Norwegian Health Minister, 2018, p.18).

Value creation in organizations takes place by putting effort resources such as knowledge, technology, products, information, energy, into products and services that are of higher value than input factors (Gjelsvik, 2007). The patterns of interaction, coordination, communication, knowledge transfer, learning and decisions that are part of this transformation are called processes. These processes form vital parts of the structural context, consisting of products development, market research, and resource allocation mechanisms, among others. Some processes are formal; they are precisely defined, visibly documented and deliberately followed up. Other processes are informal; routines and working methods that have evolved merely because people have found that they work. Some working methods or patterns of interaction have proven to be so effective for a long time that people unconsciously follow them, they form part of the organizational culture. Regardless of whether the origin is formal, informal or

cultural; processes define the organization's value creation activities (Gjelsvik, 2007). According to Gjelsvik (2007) processes are either formally defined or naturally grown in response to the task that is to be solved. When formal processes are used on tasks they were intended for, efficiency will usually be high. It is precisely for that purpose that quality programs are developed and graded. However, when similar solution techniques are applied to new and different tasks, they can become bureaucratic and ineffective. Strictly speaking: A process that constitutes a competence and possibly a competitive advantage under normal circumstances becomes a disability under other conditions. That is the reason why Gjelsvik (2007) confirms that processes are developed for stable conditions and are difficult to change, they are designed to help employees to design dependable tasks consistently, time after time. Leaders often try to launch new growth areas using the same processes developed to run the traditional core business as cost-effective as possible. Programs of quality and improvement have high internal visibility, high validity and are supported by management. It is convoluted and difficult for leaders and managers to break the rules themselves, and why should routines and processes that have proven effectiveness be broken? In the definition phase, critical vital processes are not related to the usual value creation activities related to production, logistics and customer service. Gjelsvik (2007) declares that in this phase, the crucial tasks are related to developing a credible and realistic basis for decision making, as the conventional marketing techniques and decision-making procedures are not valid.

In the top performing case of process redesign of the Sacred Heart Medical Center, Couture et al. (2009) pointed out that when quality was already in a satisfactory level, there was still a concern with the bottom line level of the Hospital. It was essential to overcome different challenges like the number of hours in a specific department, create better patient capacity in the hospital and manage the hospital's patient volume efficiently. "If you do not have your processes identified, mapped out for the organization and monitored in real time, you are going to have variability in processes leading to failures in quality of care, patient safety, and handoffs." Couture et al. (2009, p 31). Process improvements are operations that often happen within a department level, causing almost never sustainability. Staff and managers would consistently defeat change initiatives, which often come wrapped up in the ideas and opinions of members attending classes and seminars. Couture et al. (2009) believed that implementing an enterprise-wide process redesign-rather than limited department efforts would help them

change the culture and accomplish their goals. Because processes would focus on the overall needs of patients rather than the efficiency of a single department.

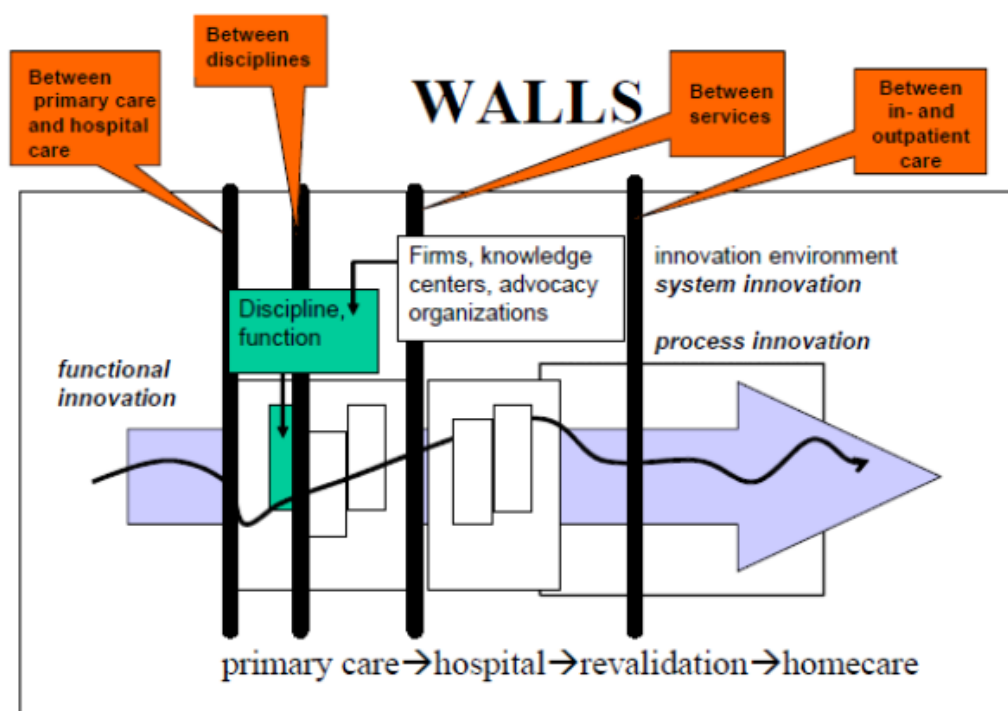
2.3 Innovation Processes in Hospitals

Assertedly, innovation work is not a statutory task for the prosecutors in the healthcare services but can be part of the service's work on quality improvement and professional service development. Quality improvements can be about testing innovative ideas, and innovation can create winnings for the services in the form of increased service production through better resource utilization. Having this in mind, needs and expectations of service receivers can be better respected, and therefore, the services should have a self-interest in increasing their innovation capacity and innovation activity (The Norwegian Health Minister, 2018).

Traditionally, in the field of national innovation systems, a Trippel Helix system cooperation has been stimulated – meaning innovation cooperation between academia, industry and public authorities (Leydesdorff L & Zawdie G, 2010, cited in The Norwegian Health Minister report, 2018). A system for innovation in health and care services should be demand-driven and based on the needs of service and service recipients. A future system of innovation in health and care services must, therefore, be based on a Quadruple Helix approach - where interaction occurs between users, academia, industry and public authorities (Cavallini S, Soldi R, Friedl J, & Volpe M, 2016). In the innovation work, early involvement of various actors, open innovation processes (Gabriel M, Stanley I, and Saunders T, 2017) should be facilitated (The Norwegian Health Minister, 2018, p.10).

Den Hertog et al., (2005) point out that to understand how different innovation processes work, it is essential with a detailed understanding of micro-innovation systems and the structure around connected series of problems and opportunities. “The map of the health care system is the background, and the story of the innovation process is the foreground” (Den Hertog et al., 2005, p.4). This mapping model is useful when recognizing the interfaces in the innovation system, to describe the fundamental process, and to “relate innovation processes that take place at different system levels.” He refers to the use of two basic dimensions.

Figure 3 Interfaces along the horizontal dimensions



Source: Den Hertog et al., 2005, p.4

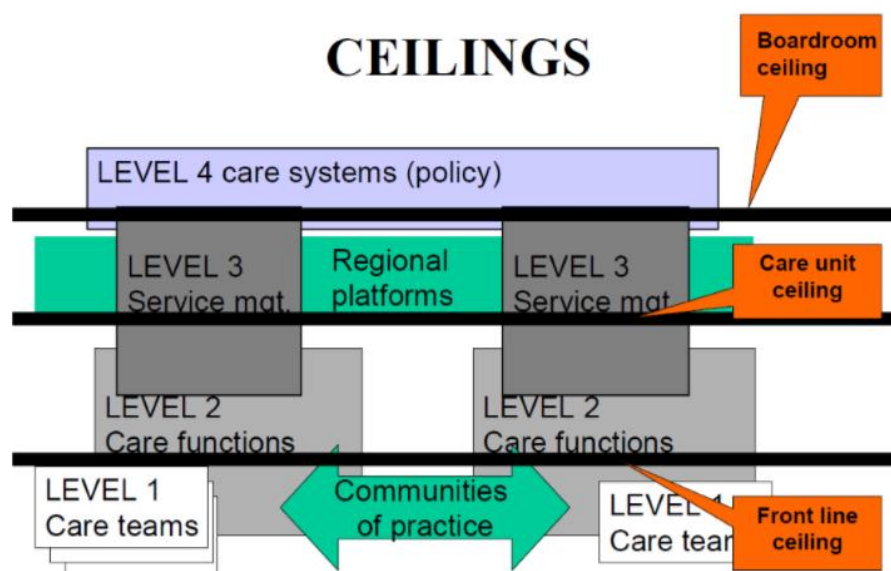
The first dimension, the horizontal dimension, expresses the process where the system transforms inputs into outputs, referring to the treatment and care of people. Various functions assist this transformation (disciplines, technologies, and techniques) which becomes a process, the process where patients go from diagnosis to treatment, care, and aftercare. Two kinds of innovations are observed in this process (Den Hertog et al., 2005, p5):

- Functional innovations, which appears from disciplines and technology, and can be a new treatment; and,
- Process innovations, which “concerns the design of the healthcare organization” and can be a new procedure.

The functions performed can be allocated to different points in the healthcare value chain; hospital care, home care, rehabilitation centers or and GP’s.

The vertical dimension of the system looks to the levels of management and ministerial (Den Hertog et al., 2005):

Figure 4 Interfaces along the vertical dimensions



Source: Den Hertog et al., 2005, p.5

Den Hertog (et al., 200, p5) categorize four levels:

1. The operational level where the treatment and care of patients are dialed, by doctors and other professionals;
2. The level of health care functions, "where disciplines are managed";
3. The management level of the organization; and,
4. In the care systems level, policies for regional or national healthcare systems are formulated.

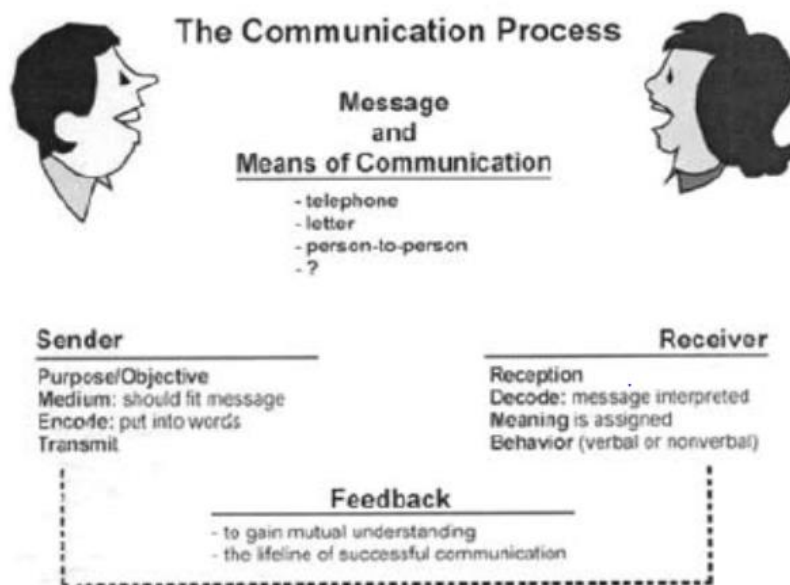
At most levels, lateral links are observed with professionals and determinants, working through the services provided. Den Hertog et al. (2005 p 5-6) explains that "every process has its own language, standards, procedures and dynamics." While the first represents the care for the patient, the second one describes the hierarchical power and economic considerations. These processes are interlaced within the same organization and the quality of this interlacement determine the complexity of innovation implementation. As the process has a language, understanding communication becomes a relevant topic in this stage.

2.3.1 Communication Process

“According to a patient-centered approach to healthcare, communication has to be oriented to patient needs and it has to allow patients and their families to participate in medical decisions” (Murante et al., 2014, p.273). Communication corresponds to numerous complicated processes but can be easily outlined as an information-transfer from one point to another. Flusser (et al., 2004 p.3) describes communication as an artificial process since “people do not make themselves understood through ‘natural’ means” but relies on codes and symbols. There are different types of organizational communication, but the most important role is the “relationship building in order to achieve its strategic objectives” (Grunig, 1992, cited in Spaho, 2012 p.311). The process of organizational communication has four elements; (Beckham, King, 1992, cited in Spaho 2012).

sender – receiver – the message – feedback

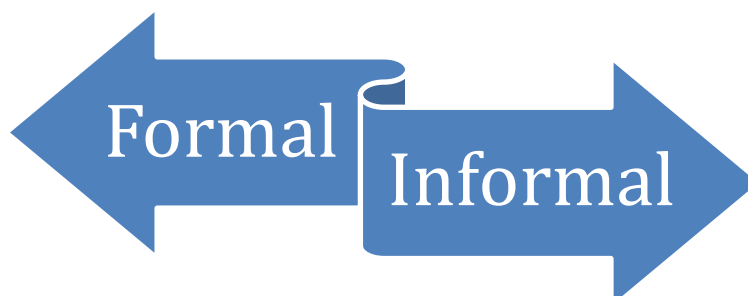
Figure 5 The communication process



Source: Beckham, King (1992) cited in Spaho (2012).

When people interact, there are two types of communication: formal and informal (Weihrich, 1998, cited in Spaho, 2012 p.313). Both are used on a daily basis and differ on appropriation depending on the situation.

Table 2 Differences in Formal and Informal Communication

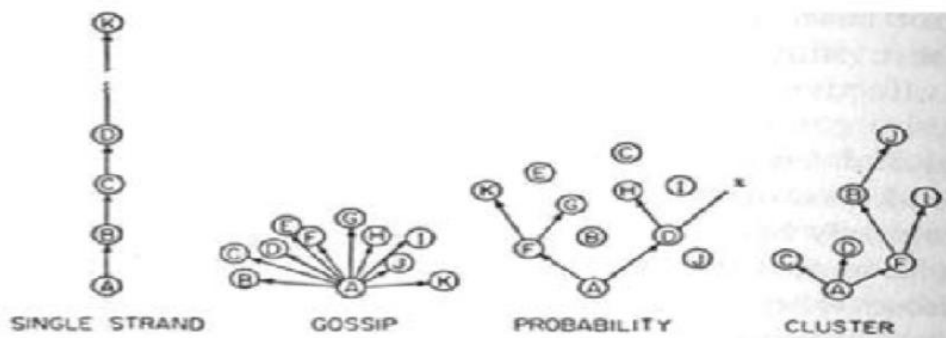


Scheduled	Unscheduled
Arranged participants	Random participants
One-way	Interactive
Formal Language	Informal Language

Source: Wehrich, 1998, cited in Spaho, 2012 p.313

According to Dow (1988, cited in Johnson, 1994), formal approaches focus on the configurations produced from formal superiority relationships in the organization, from separation of labor into particular activities, and from formal systems to planning of work. The formal communication process is often used in meetings, emails, and similar activities regarding organizational work. Falkheimer and Heide (2011) state that this type of communication is suitable in situations determined by routines and the concept includes employee communication and formal feedback to management. Informal approaches admit that social and other needs underlie communication in organizations transforming the actual communication relationships into less rational ones than formal systems (Johnson et al., 1994). “Informal structures function to facilitate communication, maintain cohesiveness in the organization as a whole, and maintain a sense of personal integrity or autonomy” (Smelser, 1963, cited in Johnson et al., 1994 p. 112). According to Falkheimer and Heide (2011) informal dialogue, according to volume, is the biggest form of communication within an organization and still manage to be an important role in modern organizations. This type of communication occurs during coffee breaks, in the hallway and in social media. Informal communication can have an official character, which refers to conversations among employees, and private character, known as “hearsay” communication (Davis, 1993, cited in Spaho, 2012 p.314).

Figure 6 Types of “hearsay” informal communication



Source: (Davis, 1993, cited in Spaho, 2012 p.314)

- **Single strand:** is an endless chain where person 1 gives a message to person 2, and person 2 gives the same message to person 3, and so on;
- **Gossip:** refers to a message sent by a person to everybody, unknowing if the message will have a further path;
- **Probability:** is when an individual communicates randomly to other persons; and,
- **Cluster:** refers to when a person gives a message to a selected person, and this person forwards the message to a group of selected persons.

Managers have a critical role in controlling the “hearsay” model by providing all vital communication to the right people, as well as labor unions by informing the facts (Spaho, 2012). Research related to the area has shown that poor interpersonal relationships between leaders and employees result in job dissatisfaction (Kekana et al., 2007) since it appears as one-directional. Communication being a major ethical pillar (Landman, 2001), lack of staff participation and decision making, as well as limited constructive communication will lead an organization to be unsuccessful, when the internal capacity for formal or informal communication is absent. There are today many meeting places where many of the same people meet. Managers today emphasize the need to get more out of meeting places - not just one-way communication, but more interactive dialogue for motivation and stimulus (The Norwegian Health Ministry, 2018 p.41). The health Directorate also points out that it is essential that there is concrete cooperation out of meeting places and networks. Very many players emphasize the need for support to facilitate co-operation, i.e., the need for environments that can assist with process guidance, support in benefits realization processes as well as in implementation processes.

2.3.2 Internal Communication

Public relations scholars (L. Grunig, Grunig, & Dozier, 2002, cited in Men 2014) have suggested that symmetrical internal communication is one of the most effective communication strategies for relations among employees. What could affect this context is structure, management behavior, culture, and diversity. Regardless of the type of leadership, style, size or context of the organization, communicating to influence followers and employees is not realizable without an internal communication channel (Men, 2014). Therefore, to address effectiveness in internal communication within the organization, four functions are recommended to implement in the system (Van Riel & Fombrun, 2017, p188-192):

1. **Structure:** Relates to the formal and informal channels through which internal messages are conveyed;
2. **Flow:** Here we want to identify how the information flows within the communication channel; vertically or laterally, downward or upward;
3. **Content:** Ensuring the proper and specific content for the information that is distributed; and,
4. **Climate:** Describes the organizational climate developed within the company, the employee's perception about the companies' professionalism, breadth or open-mindedness.

“An effective employee relations function is one that manages internal communications within and between groups in the organization by systematically addressing structure, flow, content, and climate with a view to improving the implementation of the organization's strategic goals” (van Riel & Fombrun, 2017, p.189).

According to Den Hertog (et al., 2005), investment in dialogue is required when new perspectives are introduced in a hospital. Their case, of Vijverdal hospital in the Netherlands, showed a significant amount of distrust and cynicism in management, as a result of years of incompetent management. The findings reflected the colossal effort it takes to break this attitude and move people for the leaders rather than against the leaders. Therefore, communication should be one of the main priorities in defending the credibility of a change program.

2.3.3 Change Management

The effects of research can not only be reduced to ideas, inventions, patents, and licenses. One must also look at how the culture and organization of work encourage new forms of work, knowledge sharing and changes in the use of equipment and technological solutions (Ministry of Education, 2012, p. 40). According to Denis (et al., 2005, cited in Den Hertog et al., 2005, p.3), the “organization learning capability plays a key role in determining the change readiness of health care services.”

Since a process of change management always follows an idea or feedback implementation, it is crucial to investigate how this change affects the department and employees. The implementation of change usually involves employees-resistance and overseeing priorities (Allen, 2016). Therefore, “effective implementation of change in organizations is often perceived to be challenging, and organizations frequently do not manage change projects successfully” (Daft and Armstrong 2009, cited in Allen 2016 p.59). Difi (2016) reported that on streamlining in the state draws a clear top management as an important driver for the efficiency and lack of change culture that impedes efficiency. The report is evident in its recommendation that leaders must go ahead and create a culture of change, suggesting that intermediaries must be given better access to competence in innovation and change management.

Wright (2009, p.279) mentions four reasons for the difficulties in making a change last: 1) lack of insight, 2) top management giving up too fast, 3) managers do not understand the urgency for change, and 4) the organizational culture does not support the new strategy. Therefore, “change communication proves value of communication” (Write, 2009). A communication plan must be monitored as one proceed.

Figure 7 Six steps for successful change communication



Source: Adapted from Wright (2009, p 280)

1. **Prepare the organization for change** by generating a feeling of urgency, invite employees to take part in the discussion and encourage motivation.
2. **Plan for the change** by making a communication plan being involved from the outset to advice on strategies at an early stage and be aware of different phases of reactions; from top management through middle management to other staff.
3. **Communicate the change** by communicating in different ways and repeat the key message until the staff knows why the necessity of change, “what will be achieved and how they can contribute” (Wright, 2009, p.289).
4. **Monitor the change process** by observing the effects of communication activities during the process. If the process is going in the right direction will be known with analysis and feedback from everyone involved, securing desired outcomes.
5. **Verify the change** by modeling desired behavior and reinforce the personal belief by being visible and open and respectful of different views. “Words mean nothing unless followed by actions” (Wright, 2009, p.293).
6. **Make change stick** involving sustained activities as long as necessary – until the new way of doing things is an integral part of the company culture.

There are several models of changing, starting with the first of them all; Kurt Lewin's 3 – Step model of change from 1947. Wright's step number six can be comparable with Lewin's third and last step of his change model; refreezing, which refers to "stabilize the group in order to ensure that the new behaviors are relatively safe from regression" (Burnes, 2004, p.986). This stage can lead to the misinterpretation that changes are permanent and fixed (Allen, 2016), expressing a lack of flexibility and adjustment. However, Lewin saw a change as a constant, complex process and not only as a planned movement from one point to another. Therefore, for Lewin, "refreezing implied a quasi-stationary state rather than a permanently fixed state" (Allen, 2016, p.60).

Garbayo and Stahl (2016, p 39) believe that "the optimal management of uncertainty as preparedness is a moral epistemic responsibility for the implementer, who can mitigate or avoid system errors in preventable scenarios." In their study regarding implementation of medical guidelines in health care, it is Enlightened the concept that the circumstances in which an implementation is done can change the outcome of the implementation as "moral luck" (Nagel, 1993) effect.

2.4 Responsible Innovation

The process of developing products, services or business innovations, may develop through many different paths. Occasionally it will have a triumphant ending, as other trials may also become a challenge to society. For instance, the use of antibiotics to treat diseases. It is known that in some cases it is the only medicine to treat specific bacteria, but with the continuous utilization, the bacteria will respond in a way that the antibiotic is no longer effective and the bacteria become stronger, continue to multiply and cause more harm and resulting in antibiotic resistance. Another case is the nuclear power. The production of energy that was developed initially for nuclear bombs, the fission of atoms creates energy but releases a lot of radiation. The accidents in Fukushima and Chernobyl in a negative way. Exposed whole communities to radiation which affects people's health. After those incidents, many governments created policies to forbid the use of this kind of energy. "Few would disagree that science and innovation should be undertaken responsibly. Responsible innovation intuitively feels right in sentiment, as an ideal or aspiration" (Owen, Bessant & Heintz, 2013, p 27). In that sense, Porter

and Kramer (2011) defend the idea that companies are able not only to perceive financial profit but, at the same, time that they perceive social responsibility.

Responsibility is a common term in the field of governance, and the last is defined by Rhodes (1996, p 652) as “a new way process of governing; or a changed condition of ordered rule; or the new method by which society is governed”. The expected and unexpected influence of new technologies is a concern that justifies the need for responsible innovation (Morris et al., 2011). A parallel interpretation to innovation can be noticed in this concept. Stilgoe et al., (2013) conceptualize it from the idea that scientist and innovators play relatively independent roles from a political perspective. Therefore, initiatives to promote more responsibility within the field of creating new products, services and process have emerged. “Responsible innovation means taking care of the future through collective stewardship of science and innovation in the present” (Stilgoe et al., 2013, p 1570). Von Schomberg (2011) describes responsible research and innovation as a process where innovators and society work together and with honesty and accountability to provide commercial solutions that are sustainable and desired by society while allowing the enclosing of scientific and technological developments. For Karinen and Guston (2010, p 5):

“Responsible research and innovation is about trying to get better at anticipating problems, taking into account wider social, ethical and environmental issues and being able to create flexible and adaptive systems to deal with these unintended consequences. This is sometimes called ‘Anticipatory Governance’”.

Fisher & Rip (2013) present two affiliated terms to responsible innovation: “Responsible Development” and “Responsible Research and Innovation” (RRI). The terms aim that technological development would be a topic of focus within scientific responsibility. As previous technological evaluations would consider the pros and cons of a new development implementation, here, the concern is also on the political processes. On the other hand, RI and RRI is nominating different practices within an organization, making responsibility a spread practice all over the enterprise. Therefore, Fisher & Rip (2013) concern about the technological development impacts on society triggers the rise of RI and RRI within governance field.

In a policy perspective, different efforts have emerged lately:

- Pellizzoni (2004) address attributes to responsibility within four dimensions: liability, accountability, care, and responsiveness;
- Karinen & Guston (2010) underline regulation center for RI;
- Von Schomberg (2011) announced a “values-based” framework;
- The Research Council in the UK has developed a framework for responsible innovation. The initiative presents four integrated dimensions of responsible innovation: anticipation, reflexivity, inclusion, and responsiveness (Stilgoe et al., 2013).

This study sticks to the novel framework developed by the Research Council in the UK. Therefore, it presents further the four integrated dimensions of responsible innovation: anticipation, reflexivity, inclusion, and responsiveness (Stilgoe et al., 2013).

2.2.1 Anticipation

Anticipation, or “improved anticipation” is based on the adverse effects that innovations can relate, and anticipation must assess risks and benefit and, therefore, provide contingency (Stilgoe et al., 2013, p 1569). It demands professionals think with resilience and care. Guston (2013) believes that anticipation might be the most crucial dimension given its characteristic of being so dubious to manage and still inevitable to not do it. “We can never know about the days to come, but we think about them anyway” (Guston, 2013, p 111). Still, this dimension is not as static that one would not use its capabilities to prepare for it (Guston, 2013). Owen et al., (2013, p.111) agreed with this assumption by explaining that “anticipation is about building a capacity in a way that is prior in either time or position or order”.

Owen et al. (2013) define anticipation as the process of analyzing and reporting the possible results, either positive or negative, of one innovation. It should be done by following a model where one can forecast the potential scenarios that would be an outcome of the proposed change, providing light about scenarios where variables work as expected or not. Further, Rogers (2003) considers that if an organization can anticipate that the implementation of innovation would have as an outcome a relative competitive advantage, the organization is more susceptible to endorse innovative ideas.

2.2.2 Reflexivity

As defined by Stilgoe et al., (p.1571, 2013) “Reflexivity asks scientists, in public, to blur the boundary between their role responsibilities and wider, moral responsibilities”. It considers the outcomes that are desired and not desired, with regards to the desired outcomes, it must also consider the risks that desired outcomes implicate. (Owen et al. 2013). In organizations practice, Reflexivity requires self-referential critique, and “being aware of the limits of the knowledge” which can be achieved by discussion. And in a second-order level, professionals should not only use this self-critique in the enterprise level but in a “public matter” providing standards of professional practices (Stilgoe et al., 2013, p 1571).

2.2.3 Inclusion

Inclusion comprehends wider public to participate in dialogues, going away from the top-down model of policy-making. It comprises concepts such as intensity, openness, and quality. The aim is to confirm that different backgrounds will take part in the discussion promptly, with relevant diversity and quality and continuity of the dialogue (Stilgoe et al., p.1572, 2013). From Pellizzoni’s perspective, care would be the equivalent dimension for inclusion. As he defined “the dimension of care expresses the relationship between the governmental apparatus and its fellow citizens” (p 549, 2004). Von Schomberg (2007) stated that everybody has the “moral obligation” or the duty to participate in social arenas debating the community to make decisions for the best collective outcomes.

2.2.4 Responsiveness

The last dimension is responsiveness, the approaches of responsiveness will vary according to grand challenges, regulation, standards, and stage-gates. Innovation must respond to the new knowledge and it is also connected to the consequences of applying something new and its risks, and the ratio of those risks in relation to the benefits and negatives outcomes (Stilgoe et al., 2013). Pellizzoni (2004) describes responsiveness as a surrounding but still sub-potentially overlooked dimension of responsibility, “a receptive attitude to external inputs to help in deciding what to do” (Pellizzoni, p 557, 2004). It is “the coupling of reflection and deliberation to action that has a material influence on the direction and trajectory of innovation itself” (Owen et al. 2013).

That has been a brief explanation of the four dimensions proposed in the framework (Stilgoe et al., 2013). A concrete example is the case of STIR brought up by Fisher & Rip (2013). STIR “is a form of collaborative inquiry between natural scientists and engineers on the one hand, and social scientists and humanities scholars on the other” (Fisher & Rip, 2013, p 173). The case is a “multi-level soft intervention” and it was considered successful by the fact that advancements were observed in “material practices, research direction and strategic decision making” (Fisher & Rip, 2013, p 174). Also, the fact that it contributed to better frame the scope of work and allowed for a continuing “broad-based modulations.” It has been a direct encounter of the long-lasting isolation among technical and humanists. That can be a good incentive to motivate different players in doing RI and RRI (Fisher & Rip, 2013).

2.5 Patient Feedback

Research is the first phase of the five steps of the innovation process, and it is done in order to analyze the innovation possibilities (Tidd, Bessant & Pavitt, 1997). In an activity such as medicine, feedback is not the only but it is a smart way of doing research; unfortunately, many healthcare professionals bypass this event because they are afraid (Mahmud, 2012). Mahmud (2012, p 2) brought up the most common concerns from the healthcare professionals about an organization-wide feedback system: "adding to patient waiting times, budget pressures, shortage of resources required for staff training, and pressures caused by understaffing."

Juridical, massive changes in human rights, capacity, equality, consent, laws and professional guidance have always highlighted the need for better communication between doctors and patients and their relatives (White, 2014). It has led to an enormous collection of feedback from patients about their view on healthcare services (Davidson et al., 2016, cited in Sheard et al., 2017). "Feedback can provide motivation and spur creativity and collaboration"(Click et al., 2011, p.112). Feedback is data that gives a picture of future steps, and they are used to illustrate an opinion about an action or attitude of an individual or group. The methods used to obtain them can be both qualitative and quantitative, and they go from international macro level to local micro, both in performance expected and exhibited as well as medical aspects. "There is no perfect method for gathering experience data" (Coulter et al., 2014 p.1), so awareness of strengths and weaknesses must be in place.

Other methods to collect patient feedback can be electronically and postal surveys. Social media and websites have made it easy for users and patients to leave their feedback in a trusted way. The feedback service PING is an offer to patients and relatives throughout UNN (University Hospital in Northern Norway) where patients can tell about how they experienced the visit to the hospital. The service is a direct channel into the hospital, and patients can also request feedback from the department where they have received treatment.

Regardless of the richness of feedback now accessible to health care services, there is little indication that providers systematically use the information obtained from data collected to improve services (Coulter et al., 2014). Sheard (et al. 2017, p.20) studied why it is difficult to make improvements based on patient feedback. "Lack of skills and creativity" in untrained staff may explain why change are difficult to achieve since data sources illustrating points which patients have identified can often perceive as complex and perplexing. Cornwell (2015, cited in Sheard et al., 2017, p.20) explains that improvement work "based on patient experience data often draws attention to the attitudes and behaviors of frontline staff, which can cause anxiety amongst individuals". Dixon-Woods et al. (2013), cited in Sheard et al., (2017) express two "behaviors" in hospitals:

- Problem Sensing: seeking out weaknesses in organizational systems by using multiple sources of data, also soft intelligence.
- Comfort-seeking: primary focus on external impression and seeking reassurance that all is "well".

The former could be active listening and or exchange of roles for a short period in order to strengthen the organization and team, while the last show a widespread lack of intelligence rather than lack of data. Consequently, negative signals from staff and elements from the real issues can be missed while demonstrating themselves as "winners". Suchman (1995, cited in Sheard 2017) introduced the concept of legitimacy to understand if the actions of an organization are viewed as acceptable within social norms and structure. Lockett (et al., 2012) took a divergence path from this concept and argued that "a subject's position in the organization will differ depending on two forms of 'legitimacy' that they hold:

1. Normative Legitimacy (NL) defined as a "moral orientation being based on the ability to convince others of 'what is the right thing to do'" (Sheard, 2017 p. 20).

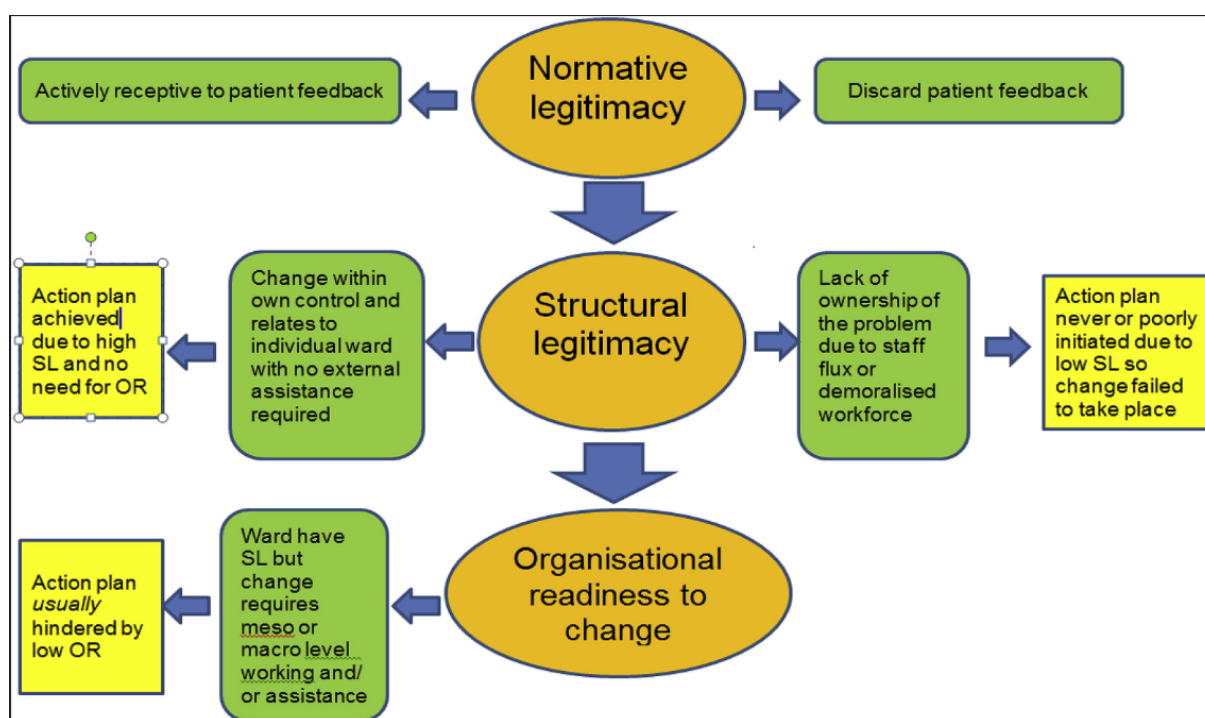
2. Structural Legitimacy (SL) defined as equivalent to "the power that emanates from professional hierarchy and jurisdiction" (p.20) and this view will influence a subject's chances of achieving change.

In addition to these forms, which relates to how behavior relates to a person's context at that moment, Lockett believes that a third term can be added to understand the relationship between an individual's position and the organization as a whole. He refers to Weiner's (2009, pointed in Sheard, 2017) theory of:

3. Organizational readiness to change (OR); referring to what degree 'common resolving actions in pursuing change practice' are present in an organization. "Whoever is leading the change – they need to believe they will find support to be effective in their efforts" (Sheard, 2017 p. 20).

Connecting these three concepts is the optimal choice to understand change performance, looking into what the staff tries to do and do in response to patient experience feedback. Should a 'moral' case be the motive to act on patient feedback, are they able to respond to feedback, and is the organization "ready to facilitate change on behalf of the ward staff?" (Sheard et al., 2017 p.23).

Figure 8 Patient Feedback Response Framework



Source: L., Sheard et al. 2017.

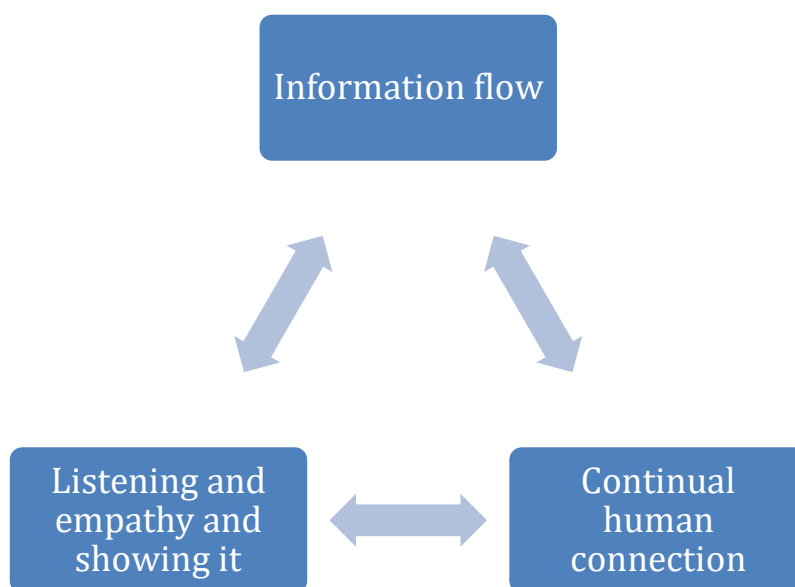
A study to explore the clinicians attitudes towards hospital management activities in order to improve patient satisfaction was made by Rozemblum et al (2012) giving surveys to clinicians in four academic hospitals located in Denmark, the UK, USA and Israel to see if any engagement in this kind of quality process is present and whether approaches differ across cultures (p.243). With 1004 respondents, more than 90% stated that their department did not have a structured plan for managing patient satisfaction, and "half of the responders were certain that such a plan did not exist (p.244). While 83.6% declared that achieving high levels of patient satisfaction was important and achievable, only one-third stated that they had received feedback from hospital management about the level of patient satisfaction in their department. Sheard's (et al., 2017) study verifies that improvements rarely take place if the moral imperative (NL) to listen to the patient voice is absent. If the structural legitimacy (SL) is highly present, then the desired change is within the control of the staff and plans are likely to be implemented. When it is low, the lack of ownership can 'sabotage' plans to be initiated. Poor OR usually stops action planning even for administrative divisions which are high in SL, but can be unnecessary if sufficient levels of NL and SL are present. The captivating part of this analysis shows that minimal SL (ownership) can exist even when NL (moral orientation) is high, meaning that listen to the patient voice does not create what is necessary for improvements to happen.

"It seems like measurement is necessary but that change will not happen without effective leadership improvements" (Coulter et al., 2014, p.2), and a more organized path is needed in order to use better people's reports on their experiences. Asking patients to give their opinion about an experience and then ignore these comments is unethical, and careful analysis of patients' subjective experiences are needed to acknowledge what works, what needs to change and how to improve (Coulter et al., 2014).

According to Murante (et al., 2014) patients are involved in the delivery process, although patient satisfaction is not always included in planning as it is considered difficult to interpret (Fitzpatrick et al., 1983), even in hospitals where feedback processes exist. Therefore, staff and professionals struggles to translate any satisfaction (Murante et al., 2014). Comparing different results across systems, the assumption is that the consciousness of the patients' opinion must be considered to enforce weak areas of service to augment performance (Murante et al., 2014). One study of the communication between GP and patients shows that systematic patient feedback helps improve relational skills (Greco et al., 2001). What makes for good communication practice is argued by many, but common topics that shows up are (Laughey et al., 2018);

- Listening and empathy and showing it, referring to eye contact, open posture, positive body language;
- Continual human connection, referring to the ability to make small talk, personal presentation, handshakes;
- Information-flow, referring to give the patient time to speak, keep calm and relaxed.

Figure 9 the communication trial



Source: Laughey et al., 2018

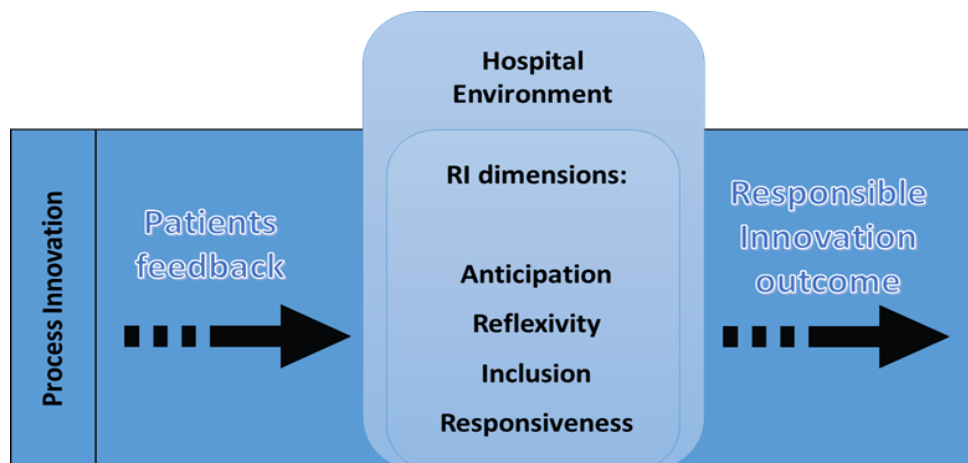
In Murante's study (et al., 2014), a link between patients opinion about healthcare services and the awareness of those opinions in professionals resulting in modify their behavior is established, contributing to previous work that shows that communication is the most important component of patient satisfaction (Sitzia et al, 1997, cited in Murante et al, 2014, p.278). However, although results of different types of surveys and polls are presented in a formal way, and received by professionals, they cannot really know how this receipt is being processed and how these results are used by the same professionals. Therefore, Murante (et al, 2014, p.278) can only presume that "feedback facilitates change in professional behavior by providing the information necessary for self-corrective actions". Healthcare professionals focuses better on improving the quality of care when the awareness of evidence regarding to the quality of the communication perceived by patients is presence.

2.6 Summary of the literature

As we reviewed in theory, to innovate is to create something new and put it into practice for the first time (Fagerberg et.al. 2005) through the combination of different types of knowledge, capabilities, skills, and resources (Schumpeter, 1942) and luck (Marshall, 1980) that creates value (Tidd and Bessant, 2014). As the innovations released are not always successful,

responsibility might be an ingredient to be added in the innovation equation, to provide sustainable outcomes for society.

Figure 10 Doing process innovation in a responsible way



There seems to be no research that links the identification of patient feedbacks with the required alignment which is needed to improve processes and create value improvement. We would, therefore, argue that cost cuts, terminations or innovations that will reduce costs and save business reflect old thinking models of value creation in management and the boardroom. In the last couple of years, we have acquired recognition that development and implementation of innovations depend on many players and resources that are external to the company. As a number of these resources cannot be easily obtained in a market, we have seen a stronger emphasis on networks with suppliers, customers, knowledge communities and other organizations associated with companies (Olsen, B. et al., 2003). If patient inputs can penetrate on all levels of the process architecture, then it is essential that the appropriate “supply chain” reflects these degrees of choice. These apertures in the extant literature have resulted in the evolution of the overall ambition for this study, as defined in the introduction.

3.0 Methodology

In this section a description of the research method and its process will be described. Also, the philosophy behind this type of study and a practical description of the data collection will be presented. There was also a concern to provide a critical evaluation of the approach adopted to conduct the study.

3.1 Research Design

According to Bryman (2004, p 4) “The practice of social research does not exist in a bubble, hermetically sealed off from the social sciences and the various intellectual allegiances that their practitioners hold.” Also, “Qualitative research is situated activity that locates the observer in the world” (Denzin and Lincoln, 2000, p 3). With the idea of going out of the bubble and seeing the world, we opted to conduct qualitative research based on primary data.

The objective of the study is to understand in specific organizational reality an occurring phenomenon from the perspective of those involved by examining it in the natural context (Jonker and Pennink, 2010). A case study is “an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life’ context especially when the boundaries between phenomenon and context are not evident” (Yin, 2009). Further, a case study is the most appropriate methodology when a “how” question is being asked about a contemporary set of events over which the investigator has little or no control (Yin, 2009). Our main research question poses the question how patient feedbacks encourage responsible innovations in Hospitals. The encouragement of feedbacks as a working tool to enrich the innovation process in an organization fits the description of a contemporary event where the investigator has little control.

As presented by Yin (2014) a case study is an appropriate method not only to investigate but also to explain. The design of the “two-case” case study derives from the desire to do research in the local community where we have been based during the master course, and also, to bring some knowledge from a different environment, given the background of the research team. Saunders (et al., 2009) argues for the use of various cases (hospitals in this matter) to be able to establish whether the findings from one case is to be found in other cases as well, and Yin (2014 p, 164) stated that “the findings are likely to be more robust than having only a single case”.

Comparing Brazil and Norway would be like comparing apples and pears, since they contrast both in size and context. We believe that the interviews in Brazil will contribute the thesis in a way that it will give a broader picture of the problem. The issue is an international dilemma and appears in every continent because of human overpopulation as well as macroeconomic effects. Global issues require global solutions through international cooperation. A place to begin would be to participate in the struggle of this paradox by taking the first step; in an academical master thesis.

Hence, a qualitative exploratory cross-sectional study of two contrasting hospitals was carried out to analyze innovation processes in healthcare sector.

3.2 Philosophy of sciences

Remenyi et al. (1998) suggested several significant questions that demand an essential review by researchers such as “how” and “what” to do research. He presented the perspective on the “why research” as a central one. Holden et al. (2004) pointed out the necessity of a philosophical solution, in addition to practicalities, to the question “why research.”

As mentioned by Denzin and Lincoln (2000) there are multiple terms associated with the study research methods that comprises different perspectives. The more traditional paradigm is the positivism, which follows theory, science, and an objective approach. A diversity of other perspectives has emerged later (during the modernist age, 1950's) and they range from hermeneutics, structuralism, semiotics, phenomenology, cultural studies and feminism. Researchers attached to post structural and postmodern paradigms would disagree from the positivistic view of presenting a “one way of telling a story.” Denzin and Lincoln (2000) present some resistance to qualitative studies from more traditional philosophers. They defend that qualitative study is exclusively exploratory and, therefore, not scientific. Burrell and Morgan (1979) defend the need of having both dimensions: “nature of society” and “nature of science” to achieve a philosophical perspective. Objectivism has been labeled in literature as Positivism and has a realistic view, as humans are “born into a world in which there are causal laws that explain the patterns to our social behavior” (Holden et al. 2004, pointed in Easterby-Smith et al. 1991). It is concluded by Holden et al. (2004, p 11) that objectivists (or positivists) center their research on measurement while subjectivist (phenomenologists) center their research on the “meaning of the social phenomena.” In this master thesis, the research relies on the

phenomenology paradigm. In the view of phenomenology, the research is interested in the process where social reality is built, managed and sustained, and in the figures of this process (Berger and Luckmann, 1967).

3.3 Data collection

Qualitative interviews are data collection through conversation (Kvale, 1999). What distinguishes the qualitative research interview from other conversations is:

- A methodological awareness of the questionnaire;
- A dynamic awareness of the interaction between interviews and interviewee; and,
- A critical awareness of what is being said and own interpretations of what is said.

3.3.1 Qualitative interviews

Interviews have shown to be a vital source of case study evidence (Yin, 2014). Since this study focuses on obtaining respondents' actions, behavior and the understanding of why they behave in a specific way, interviews are the best proper access to data collection. Structured interviews with healthcare professionals were conducted to obtain empirical material in this thesis. Structure was necessary to follow the theme and model. Although to catch any mood beyond what was suggested in the model, respondents had the liberty to divagate from the original questions if they had something to add regarding their stories or incidents. The cases were a Norwegian Hospital and a Brazilian Hospital. The Norwegian interviews are part of a more significant project taking place at the UiS Business School called *Digitalize or Die*¹. The Brazilian interviews are exclusively for this master thesis research and the case was selected according to the possibility of utilizing the network of the research team. It was also limited by time and financing given as the finance for the traveling and availability was covered by the researchers. Still, we opt for the "two-case" case study because of the fact that we are in Norway and have the chance to bring a different perspective to the local community.

¹ *Digitalize or Die* is a current project at the Business School of the University of Stavanger that looks into dynamic drivers of responsible research and innovation and healthcare sector. It is funded by the Norwegian Research Council grant number 24 7716/070.

Structured interviews provide detailed responses to a particular topic presented. Also, they are used when an extensible knowledge is present about the research topic and when the need for further information in a specific area is desired (Holstein et al., 2002). According to Punch (2006, p.176), “respondents are asked a series of pre-established questions, with pre-set response categories”. A structured interview is structured in all sections. All questions were determined in advance. Our assessment was structured in advance, with the help of assessment scales and checklist. We asked the same questions and follow-up questions to all candidates. A structured interview provides a high level of accuracy in the assessment, and it is straightforward to compare the candidates chosen since they have answered the same questions. Because the method entails that the conversation follows a precise, predetermined structure, it may seem quite impersonal. It also places high demands on the interviewer. All questions had to be written down, and we had to prepare our self well for all interviews.

According to Burgess (1982) in Ngutshane (2012, p50), “Interviews are particularly appropriate when the focus of the study is on the meaning of a particular phenomenon to the informants or participants, and where individual perceptions of a process or phenomenon are to be studied in an organizational context.” An interview guided was created as part of a collaborative project between the Norwegian hospital and the University of Stavanger, as an interview-based method for measuring this innovation theme. This guide is composed of 7 interview questions. The first two questions were designed to understand better what the participant’s work area is, allowing them to give a brief description of their work day. Question three and four describe the interaction and contact between the respondents and their patients briefly, and under which communication channel this occurs. Question five is the main question and backbone for this study. Here we want to identify feedbacks from patients – possibly via employee – with the potential for improvement or new solution. Of course, the movement of the interview can take different paths. Respondents can present a story in many parallel accounts. For instance, we will start by asking them to describe their job routine throughout a workday. Next, the informant may relate a “story” with the type of patients they see and help along a treatment period. The respondent can also start to mention how they responded to new tips and ideas from persons outside the department (patients). Alternatively, the participant may comparably tell a story, linking it to feedbacks received in different time periods. Hence, question five is divided into

three subdivisions to evaluate and capture every step of the corresponding feedback; what the feedback was about, from which channel of communication the feedback was obtained, and if it led to any change or improvement. For every new feedback or input, we moved back to question 5 and went through our three subdivision sectors. Questions six and seven are formulated as additional topics. Here we want to get an understanding of external parts, what can be included to follow and register feedbacks and how online core records will affect the content of intercourse with patients. The process of determinate and achieve access to department managers and employees at a hospital calls for the embodiment of strategies consistent to a mix of cleverness, social skills, contacts, careful arbitration, and occasion (Holstein et. al., 2002).

3.3.2 Interviews

The first interview was conducted with the project manager responsible for innovation in the University Hospital of Stavanger, Norway. It took place on the 27th of February 2018 at 12:30 at the Hospital. The objective of the interview was to understand in a general picture, how the Hospital is currently managing innovations, to get an overview of the process and insights for the next step of the research, therefore, this interview was guided by a different set of questions than the next interviews.

The second phase of investigation was the execution of eight interviews with employees of the same hospital (The University Hospital of Stavanger). It started by contacting the Research Department and this was conducted by professors of the University of Stavanger through the project already mentioned *Digitalize or Die*. With the acceptance of the data protection officer of the hospital, a cooperation project was signed between the University Hospital of Stavanger (SUS) and the University of Stavanger (UiS). The next step was to contact two clinic leaders that led us to four different departments. We asked for five interviews in each department and therefore, we aimed to obtain twenty interviews at the hospital in Stavanger. Also, we asked to talk to different types of healthcare professionals, with the condition that they had direct contact with patients. The process became longer than expected and given the research deadline, we were able to obtain eight interviews.

The interviews were conducted during the period of 06.03.2018 to 18.04.2018. They were guided by the questionnaire available in the appendix. All the interviews in Norway were recorded with consent from the informants, and later transcribed by the researchers ended up in 30 pages of minutes and transcriptions. The interviewees were informed that the records would be used only as a part of the project, and their names were treated with confidentiality. Below it is presented a table with the profile of the interviewees.

Table 3 Interviews in Stavanger

Interview	Date	Position	Department	Gender
NI1	08.03.2018	Team leader / physiotherapist	Rehabilitation Center	female
NI2	13.03.2018	Physiotherapist	Physiotherapy	female
NI3	13.03.2018	Office staff	Learning and Mastering Center	female
NI4	14.03.2018	Physiotherapist	Rehabilitation Center	female
NI5	16.03.2018	Physiotherapist	Physiotherapy	male
NI6	17.04.2018	Doctor	Children and adolescent psychiatric clinic	male
NI7	19.06.2018	Office staff	Children and adolescent psychiatric clinic	female
NI8	19.06.2018	Doctor	Children and adolescent psychiatric clinic	male

In the end of April 2018 one of the researchers traveled to Brazil and contacted an office staff of a public hospital of the city. The purpose of the research was presented to the director of the organization who allowed a visit to the hospital on the next week. On the 9th of May 2018, one of the researchers visited the hospital. The office staff welcomed our researcher and was nicely prepared for the day. The director met the researcher and heard in person about our aims with the interviews. It was confirmed that the hospital would contribute to the project but given the fact that we did not get a formal project signed (following the standard of Stavanger) given the relatively short visit to the country, we opted to not expose the volunteers that participated as informants in this research. Therefore, no recording of interviews was done, only notes during the meetings, and the hospital name will not be published in a way to avoid any critics to the professionals that contributed to this project.

A whole day was spent in the hospital and with the help of one of the administrative' employee that coordinated the interviews during the day, it was possible to talk to six different employees

among doctors and nurses during that day. The interviews were guided by the same questionnaire as used in the Norwegian interviews and they also happened with different employees from different departments of the hospital. A description of the interviews is arranged in the table below.

Table 4 Interviews in Brasília

Interview	Date	Position	Department	Gender
BI1	08.05.2018	Doctor	undisclosed	female
BI2	08.05.2018	Team leader	undisclosed	male
BI3	08.05.2018	Doctor	undisclosed	female
BI4	08.05.2018	Internship	undisclosed	male
BI5	08.05.2018	Doctor	undisclosed	female
BI6	08.05.2018	Nurse	undisclosed	female

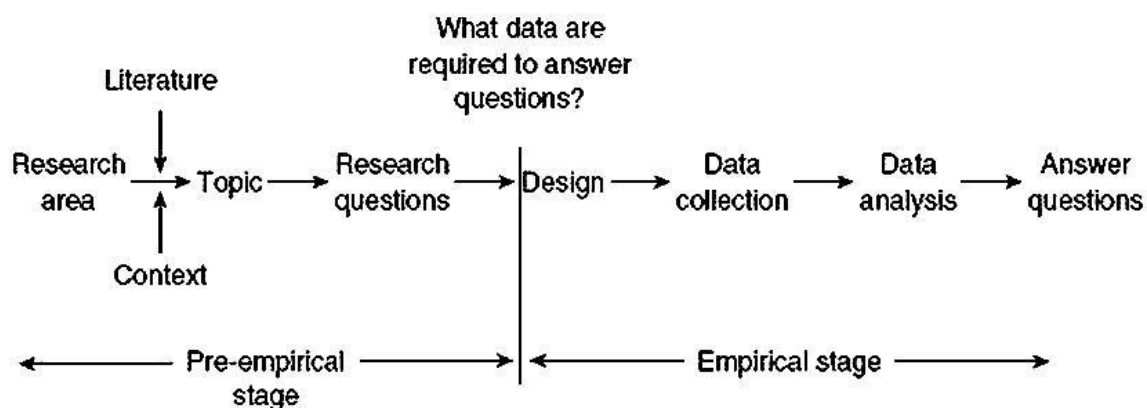
Each interview started with an introduction and a short description of the purpose of study in order to build rapport with the participants. It was also explained how the results would be treated and reported. The length of the interview was of twenty minutes, due to the limited time that the respondents had to attend the interviews. Along the “talk”, notes were taken, and additional questions were kept till the end of an answer. At the end of any story or the end of any interview, to obtain additional details, the researcher took the participant back to the critical juncture by asking, for instance “Remember when you mentioned about this particular feedback process, can you tell me how this is used by others?” The interviewer ended by thanking the participants.

3.4 Data Analysis

To help organize the planning, execution and writing up of the research, counting overload and possible confusions, we have observed Punch’s (2006) simplified model of research, without hypotheses. We can map it as follows:

- Framing the research in terms of research questions,
- Determining what data are necessary to answer those questions,
- Designing research to collect and analyze those data,
- Using the data to answer the questions.

Figure 11 Simplified model of research



Source: Punch (2006)

In order to analyze the data, Punch states that “methods for the analysis of data need to be systematic, disciplined and able to be seen (and to be seen through, as in ‘transparent’) and described (2006, p. 200). According to Miles & Huberman (1994), qualitative data analysis is a comprehensive sourcebook, describing analysis which is directed at tracing out lawful and stable relationships among social phenomena, based on the regularities and sequences that link these phenomena. Yin (2014) suggest that an analytic strategy must be followed when analyzing qualitative data. It can be done by the production of displays for information obtained. This thesis adopted flowcharts and presentation of data in tables as an analytic strategy. Framework Analysis was developed by social policy researchers in the UK (Ritchie & Spencer 1994, Ritchie *et al*, 2003) as a pragmatic approach for real-world investigations (sited in D.J Ward *et al*, 2013 p.2425). An adjusted Ritchie and Spencer’s (1994) framework was used to evaluate, chart and sort data correspondingly to key issues and themes. This framework has 5 steps: (1) familiarization, (2) identifying a thematic framework, (3) indexing, (4) charting, and (5) mapping and interpretation.

3.4.1 Familiarization

Data provided from interview manuscripts was evaluated and sorted through a process of captivation. This involve listening several times to the recorded interviews and re-reading interview transcripts. Notes were made as the interviews were conducted, and this way, the

researchers became immersed in the details of each one to gain a sense of majority before dividing and identifying themes.

3.4.2 Thematic Framework

The thematic framework shown in the literature was applied to the interview manuscripts. Paper charts were used, this is a good way to visualize all the data at once. The themes identified were later outlined in a table to make structure and differentiate between key themes and sub-themes, forming the main framework. This work was time consuming.

3.4.3 Indexing

The main framework formed in step 2 was moved back to the interview transcripts and comments were made in relation to which theme was reflected in every section. Themes and sub-themes were combined and refined. Thus, data was coded across the draft framework and beside the correct text in theory. This process involves reading through data and noting the related theme on the draft framework and was undertaken by both researchers. Choices here were made based on similarities and differences between the formal themes and new cleared themes. Some sub-themes belonged under other key themes, so adjustments were in place. Annotations of themes from the draft framework on the transcripts were underlined using different colors. This allowed the researchers to become more immersed in the data so that themes and sub-themes could be refined (Ritchie et al. 2003).

3.4.4 Charting

The data which is related to the themes were rearranged correspondingly to the literature review on chapter 2. Thus, tables were used to present the data in a clear and formal manner in chapter 4. The tables were divided according to each case study, reflecting the geographical locations across all themes.

3.4.5 Mapping and interpretation

In this step, the tables were reviewed to see the whole data set. It was necessary to compare the themes and sub-themes with each other to capture any required changes. After the changes, the

final theoretical framework was agreed. Explanations against the data were provided and strategies were developed.

3.5 Quality of Analysis

In this section, we present a discussion in regard to the quality of methods and sources. We focus on the main area: Validity. Further, we will continue this path commenting in regard to the legal and ethical guidelines of the thesis.

3.5.1 Validity

According to Collis and Hussey (2014), the concept of validity refers to the extent to which research measured brings out what the researcher wants to measure and if the results reflect the studied phenomenon. For this master thesis, we used the work of triangulation in order to strengthen and ensure high validity to defeat the harm of implicit bias (Yin, 2014). Mainly, data triangulation in the form of observations, was adopted when findings were related to the environment and we would be able to search documents and compare with the information obtained in the interviews. It wouldn't be possible to triangulate with the primary source of data (the patients) as ethical standards in both countries do not allow. Another approach to maintain the validity of data was to summarize our findings immediately after the interviews, sharing thoughts and reflections obtained from the researchers. By asking different people from different departments within each hospital the description of a feedback operation, we would get a broader picture of different aspects of the phenomenon. By doing this, the study obtains a more vibrant picture of the way respondents experience the specific aspect of feedback operations.

One important appearance to examine when it is discussed about the width of validity in any study, is the risk of what Adair (1984) called for the Hawthorne effect. This appears when respondents behave above their normally conduct and improve their current behavior when external participators are observing. Therefore, the data collected in this study might be influenced by the Hawthorne effect if respondents only give information they think that the interviewers want to hear, or if the respondents have an already plan expectations for the interview.

A qualitative study must be credible, transferable, dependable and confirmable (Lincoln & Guba, 1985; Silverman, 2010; Creswell, 2014). This is importance for the following reasons:

- *Credibility* refers to whether the researcher operated in such manner that the subject of investigation was identified and described (Collis and Hussey, 2014).
- *Transferability* is concerned with the generalizability of findings to other situations (Collis and Hussey, 2014).
- *Dependability* is the link to the assurance of the quality and stability of the data collected, so a following researcher can draw the findings to similar situations (Collis and Hussey, 2014).
- *Confirmability* refers to the internal integrity of the data regarding findings, explanations and suggestions (Collis and Hussey, 2014).

Different operations were taken to ensure the quality of the study, an overview shown in the table below:

Table 5 Operations to meet principles for research quality

Principles	Operations in the study
Credibility	Methods used in this study are well-established and the participants are knowingly selected. Section leaders have vision in regard to how management operates related to the studied phenomenon as well as the secretary and therapists, who covers aspects of the corresponding target groups.
Transferability	Besides theoretical considerations, the results are not generalizable as the data come from a small sample. The findings are oriented to the contextual uniqueness and significance of the context studied. Where and when the interviews occurred are described, giving a richer and fuller understanding of the research setting.
Dependability	Records were kept of all stages of the research process-case formulation, fieldwork notes, interviews' transcriptions and so on, accessibly for justification. This way, the responsibility for describing the changes that occur in the setting and how these changes affect the way the research approaches the study is present.
Confirmability	A systematic process was followed for collecting, analyzing and interpreting data. It is a work of good faith; no overtly allowed personal values to sway the conduct and findings. The

researchers can document the procedures for checking and rechecking the data throughout the study.
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3.5.2 Limitations of the research methodology

The study presents some limitations

1. The short number of interviews as a result of to the short time and preparatory nature of the study. Leading to low response rates carry a higher risk of producing biased results (Coulter et al., 2014, p.2). One of the problems in searching respondents for an interview, is not being able to find anyone to talk to. This can happen when the topic is stigmatizing or the appearance of needed respondents are rare in the hospital;
2. Qualitative data are usually reported using words, not numbers, and it is harder to make comparisons or generalizations (Coulter et al., 2014, p.2);
3. Following a clear, predetermined structure, interviews may seem quite impersonal;
4. Limited length of the interview (twenty minutes) due to the respondents' busy schedule.

3.6 Ethics

Researchers have universal ethical codes that should be followed. However, the general research ethics guidelines are not intended as a substitute for the subject-specific guidelines, but will act as a gateway to research ethical principles and considerations (Etikkom, 2018). Therefore, it should be considered whether there are ethical issues related to the implementation of this study. On a national level, The Research Council of Norway aims to increase the quality of Norwegian research and to promote innovation and sustainability and stimulates cooperation between the research community, industry and the public sector. General guidelines for research ethics are summarized into four principles; respect, good consequences, fairness, and integrity (Etikkom, 2018).

This is the reason why The National Research ethical guidelines for social sciences have been followed while conducting this study. From other sources, as The Norwegian national Research Ethics Committees, has also been followed; when it comes to plagiarism and research misconduct, since this agency, which is affiliated with the Ministry of Education, contributes to public and private research following recognized ethical standards.

In this study, we have followed the same ethical guidelines that are based on the *Nursing Occupational Ethics*, where it establishes that the basis for all nursing must be respect for the life of the individual and inherent dignity. Nursing must be based on mercy, care and respect for fundamental human rights (NSF-serien 2/2001, s.3). The researchers have confidentiality and have treated confidential information in the same way as the practitioner's staff. The privacy of patients, clients, relatives, staff and the institution have been safeguarded.

This study was conducted with different departments within a Norwegian hospital and a Brazilian hospital. Permissions were requested and consented, so the researchers could attend to the hospitals and do the interviews. It was ensured to all respondents that sensitive information would not be shared with a third party, taking into consideration the ethical codes. The respondents' wishes of anonymity were granted regarding confidentiality. Therefore, their position at each department is the only information provided in the Norwegian case, and not even that, in the Brazilian case.

With regards to the interviews, the national ethic principles were followed as all informants participated voluntarily. The purpose and use of the research study were explained at the beginning of every interview, and contact information was given in case the participants had further questions. This way, participants felt comfortable to talk to the researchers, and consent the use of the information shared in this thesis.

4.0 Context of the study

4.1 Health care systems

A good health system delivers quality services to all people, when and where they need them.

(World Health Organization, 2018)

As defined by WHO, a health care system should provide service to all people, and in the opposite way, all people demand health care at different moments of life. That is a very special characteristic of this sector as health is, or, should be a public good. Public good is defined as the one that everyone has access (Nicholson W., and C. Snyder, 2012) and “health care institutions are an important element in a society’s basic institutional structures” (Weale, 2015, p 433). Health care systems across the world present different models as they are defined according to the policies of each country. The WHO requirements for a good system are: (i) prepared and rewarded professionals, (ii) honest data to support the decision make and policies, and (iii) preserved premises and logistics for delivery of quality medicines and technologies. Two main systems are the most spread over the world: The Bismarck and the Beveridge health care system (Weale, 2015):

Bismarck health care system: is by definition based on social insurance. The insurance is arranged and provided by different private organizations that does not depend of healthcare providers. For example: France, Germany, the Netherlands and Brazil.

Beveridge health care system: is a tax-based system, a system in which the activities are managed and financed by one exclusive organization. For example: Sweden, the United Kingdom, Denmark and Norway.

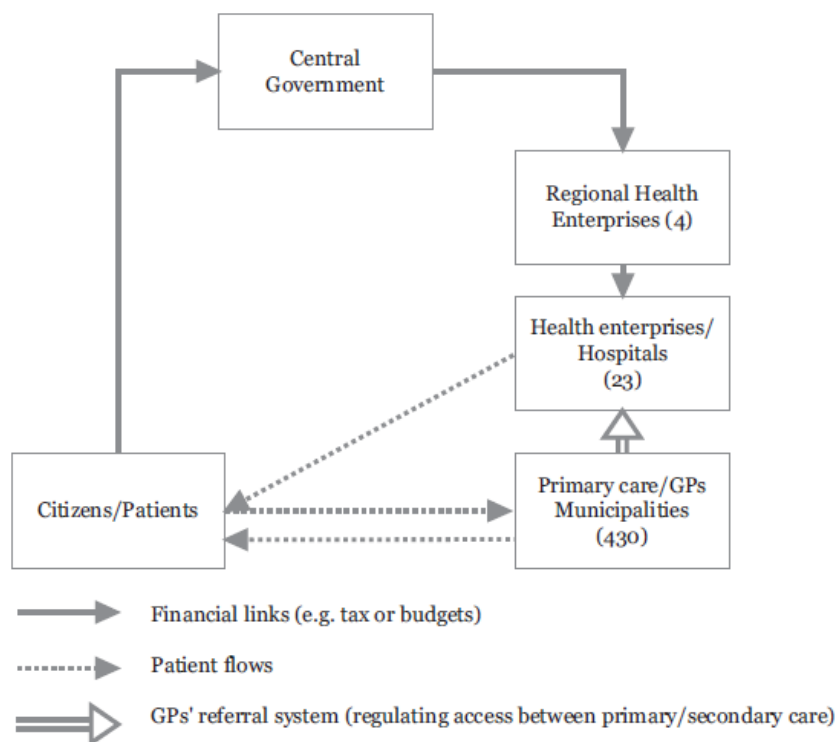
In a European time series analysis provided by The Health Consumer Powerhouse, a comparison among both systems was conducted and the final report indicates that The Bismarck system has historically performed better than the Beveridge system in the context of large populations. The report also stated that the Beveridge system has shown good results when they are applied in countries with small population, for instance, Iceland, Denmark and Norway. (Euro Health Consumer Index, 2017). Weale (2015) presented a discussion about how those systems differ and if there would be a better system. The conclusion is that systems can be evaluated in different aspects and the best system can also differ between countries, as political organization and culture are affecting the way that the system will develop. Just to illustrate, statistics such as the number of hospital beds are one example of evaluation. From 2005 until 2015 in Europe (Eurostat, 2018) were reviewed to understand healthcare capacity. One can observe a trend that the majority of countries present a decreasing number of hospital beds compared to the total population. Norway is the 8th country with the highest decline of hospital beds available in Europe from the period of 2005 to 2015. In 2015, the country presented 376 hospital beds per 100.000 people (full table available in the appendix section). Regarding the

Brazilian situation, the World Health Statistics (WHS), published by the World Health Organization (WHO) in 2014 indicate that Brazil had 20 hospital beds per 100.000 people, the trend has been declining according to the historical data. That indicator is not enough itself to evaluate a system, and also, that is not an aim of this study. The intention is to present a general description of each system regarding the case studies in focus: Norway and Brazil. A more detailed description of each country's health care system follows in the next sections.

4.2 Health care in the Norwegian Context

According to Mørland et al. (2010), the Norwegian health care system is a Beveridge system as it has the characteristic of universal coverage performed by the central government and it is decentralized, as the responsibility for the system is shared between the government and the different regions of the country. "Its fundamental aim is to give residents equal access to health services, irrespective of their location, gender, age, or financial status, and to prioritize those who have the greatest need" Mørland et al. (2010, p. 399). From 2001, the Nordic patients right act set the priority for patients to receive health services according to; (i) how severe is the condition, (ii) what outcome can be expected after treatment, and (iii) an accepted cost-effective ration of the treatment (cited in Mørland et al. 2010, p 4000). Health services offered to the population according to the Health Care Services Act and the Specialist health Services Act must be responsible and solid (Lovdata, 2018), meaning that providing solid services is a continuous process that requires the company to work systematically with quality improvements.

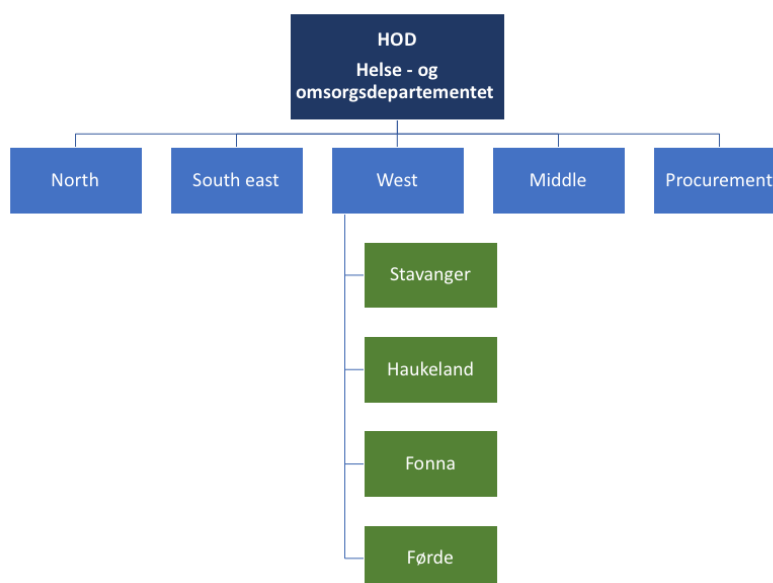
Figure 12 Overview of the Norwegian healthcare system



Source: Mørland, Ringard, & Røttingen (2010, p. 399)

On the National level, the Ministry of Health (*Helse og Omsorgdepartementet*) is the owner and responsible for the management and allocation of funds between the municipalities. The last are the four health authorities and they are responsible for the specialized care and for the hospital care of the country (Ringård et al., 2013). Oslo, Bergen, Stavanger, Trondheim, and Tromsø are the cities that have university hospitals. Just Oslo by itself is responsible for approximately 50% of all research within hospital sector in Norway. All the University Hospitals are part of a national innovation network for university hospitals which can be understood as a starting point to systematic work to implement innovation in the different hospitals of the network. According to Laudal, Bjaalid & Mikkelsen (2016, p7) the hospital of Stavanger possess a semi-autonomous authority, it can be explained as partial autonomy in the management process where the hospital employees can decide about own projects, but the organization is also managed by the health authority.

Figure 13 The organizational structure of the hospitals in Norway with focus on the West region



With the idea of presenting a big picture of how are the Norwegian health system operations size, data follows: The Norwegian Health and care services represented approximately 11.1% of the gross domestic product in 2016 that represents approximately 34 billion US dollars (SSB, 2018). The population in the country in 2017 was of 5,2 million people (SSB, 2018). Looking for the future perspectives, a Directorate of eHealth is situated under the health minister, created in January 1st. of 2016. The vision of the institution is “to digitize the health and care services to make it easier, better and more comprehensive for the residents” (National eHealth Strategy and Action Plan 2017-2022), because modern health care is dependent on healthcare professionals having access to relevant health information and other personal information through digital solutions when providing health care and that the information is processed properly in accordance with the Personal Data Act. The directorate expects that better utilization of resources will contribute to more quality for the health and care services. The interaction between patient and health services is promoted by the Directorate, as an inclusive way of developing personal healthcare treatments. It seems to be a step in the right direction of making patients more responsible for their health, allowing doctors to have a broader range of high-quality information regarding the patient’s situation when analyzing and providing treatment (National eHealth Strategy and Action Plan 2017-2022). Back to the hospital in Stavanger, which is one of the case studies in this thesis: the Stavanger University Hospital is concerned with providing safe hospital services and, at the same time, being close to the population. Also,

a comprehensive treatment and efficient use of resources, as well as being a competent organization oriented to the future (SUS, 2018).

For this study, an interview with the project manager responsible for innovations in the hospital was conducted to understand how the organization works today towards innovative initiatives. According to the interview, decisions can be taken in a top-down approach (from the Ministry of Health to the different hospitals), and the opposite also happens. Also, different hospitals most likely present similar problems, therefore, a network becomes an arena for exchange of experiences and suggestions. Moreover, that has been the starting point for the radical innovations within the hospitals. The innovation department of the hospital divides innovation types mainly between product innovation and service innovation, in the same manner as the Oslo manual (2005). Another topic of the conversation during the interview at the Hospital of Stavanger was on feedback. The hospital has implemented a system to receive from employees as a source of suggestions for innovations in the hospital. The software should be available to all employees to write suggestions to the innovation department. The innovation department includes patients in the business development phase as well. It is done in a formal way, so representatives of patients are included in parts of the process. Patients can be very different and react differently according to the circumstances, so what the innovation department does is to try to include patients with no strings attached and also include more patients in testing so they can get the best feedback on the development phase.

4.3 Health Care in the Brazilian Context

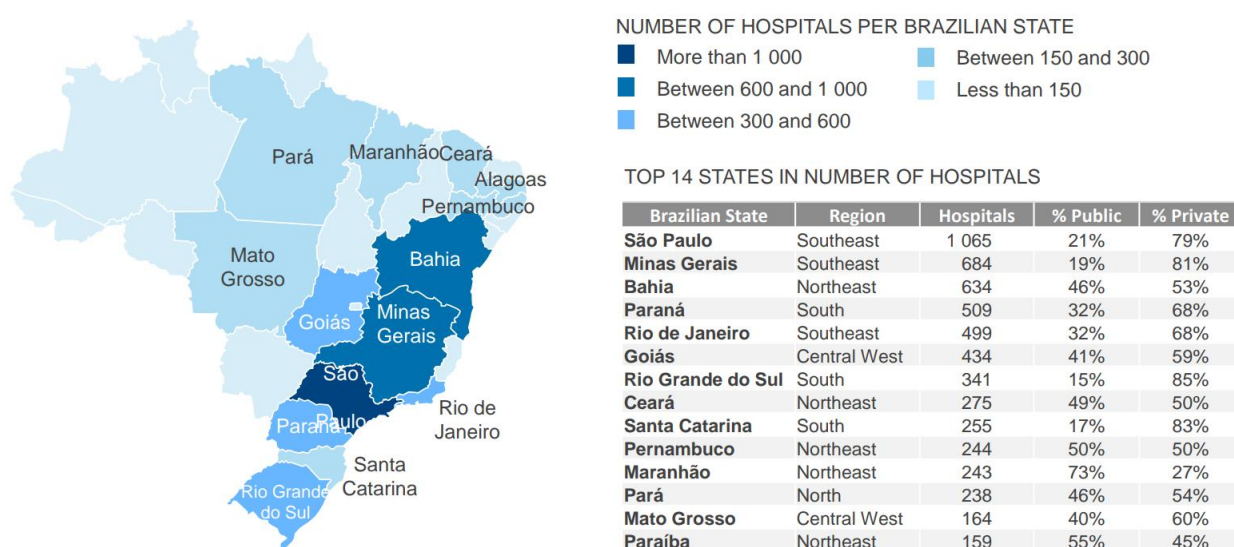
The Brazilian health care system characteristics follow the Bismarck health care system (Weale, 2015), where social insurance is a base for the system and public and private organizations are representative.

The private services are relevant within the total service. In the public service, the patients do not have to pay for an appointment with a doctor or a treatment or a surgery, all the expenses are covered by the government. However, the amount of service providers available are not enough for the size of the population and many private clinics and hospitals are also offering services. The Brazilian government has created an agency responsible for the regulation of the private sector, the National Agency for Supplementary Health Services - ANS (Agência Nacional de Saúde Suplementar). The establishment of the agency is based in the Brazilian Law

9.656 as provided for in the national constitution from 1988. According to ANS, its objectives are “the promotion of the public interest in supplementary health care, regulating sector operators, the relationship between providers and consumers, and contributing to the development of health actions in the country” (ANS, 2018).

To present a big picture, in the same manner as the Norwegian system was described, a few numbers are presented. Brazil is a large country with an estimated population of more than two hundred million people according to the Brazilian Institute of Geography and Statistics (IBGE). The health and care services represented approximately 9.1% of the gross domestic product in 2016 that represents approximately 147 billion US dollars. The total number of hospitals in the country in 2015 was close to seven thousand: 100 federal owned hospitals, 610 state owned hospitals, 1685 hospitals owned by the municipalities, 2860 owned by private companies and 1444 hospitals owned by philanthropic organizations. In the last case, the hospitals must have at least 60% of the beds available to the public coverage, in exchange, they receive tax exemption (Datusus, 2018). In figure 14 one can see how the hospitals are spread among the most populated regions of Brazil. It seems like a large coverage but till, long waiting periods for an appointment is a routine in the public and in the private services in Brazil.

Figure 14 Number of hospitals per Brazilian state



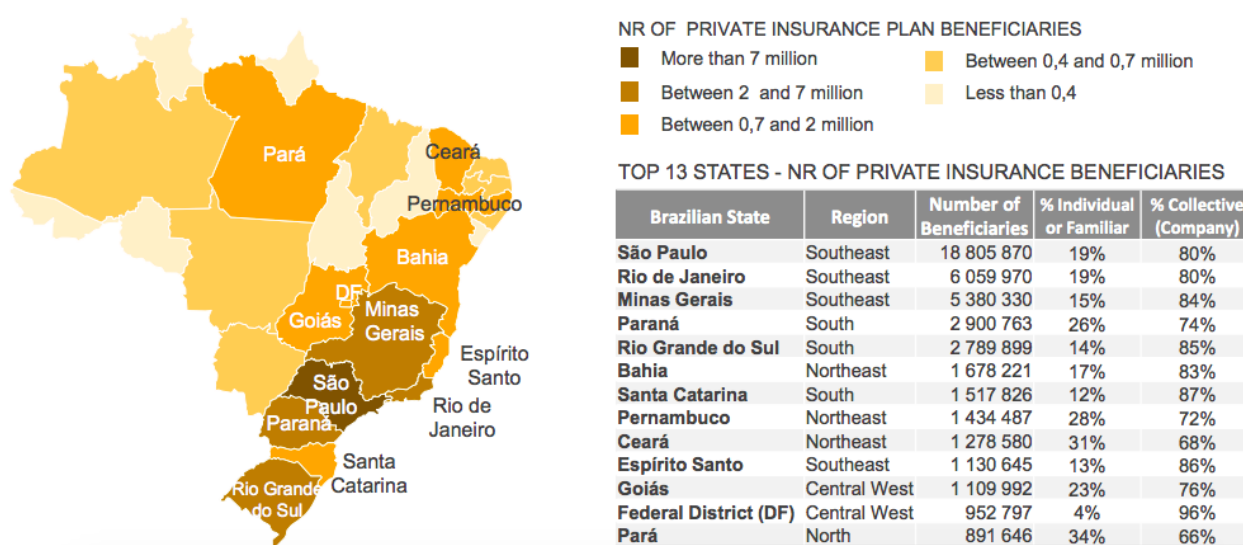
Source: Datusus

The population usually does not afford to pay the rates of private institutions but a common characteristic of the Brazilian health system is that the users of the private services are in most cases covered by an insurance plan and the majority of the people covered by insurance obtains

it through an employer. The health plan is almost like a health insurance. What differs one from the other is the fact that the health insurance system will provide reimburse of expenses with hospitals and doctors, as the health plan, will provide a network of private hospitals that will provide health and medical service without charging more than the monthly fee of the health plan. Health insurance is not cheap and companies are able to obtain it for better prices, as they represent larger groups. So most of the population under formal work conditions are covered by the supplementary health system and the part that is not covered, will hire it individually or as a family. The population that depends exclusively on the public health care system is usually the ones without employment or under informal employment conditions and, as a consequence, the ones with less availability of resources.

Figure 14 presents the number of private insurance beneficiaries per Brazilian state and how they are spread among the most populated regions of Brazil.

Figure 15 Number of private insurance beneficiaries per Brazilian state



Source: Ministry of Health and National Agency for Supplementary Health Services (ANS).

In this study, we interviewed health care professionals from a public Brazilian hospital. The public health care system in Brazil has many similarities in its structure in relation to the Norwegian system. It is divided in three levels of service: the primary level is when the patient visits a general practitioner (GP) in order to start an investigation related to some health problem. Only with a referral from the GP, one will have access to the secondary service, or the specialized service. A difference among Norway and Brazil is the fact that in Brazil no one has a GP assigned. The user of the public system will look for a doctor help in the closest health

unit of the region. If there is no availability in that unity the user will try in the neighbor area until he finds availability for the consultation. If a Brazilian is using exclusively the private system, usually they reach the specialized service without going through a GP. It is faster in some cases, but it can also lead to wrong assumptions and a specialized clinician will refer the patient to another type of specialization.

5.0 Empirical findings

To present the empirical findings, the collected data was organized according to the research question and each sub-research questions. By doing that, it was intended to provide a more structured and intuitive understanding of the findings. The master thesis aims to provide insights into the role of patients in innovation process that embrace responsibility and its dimensions. Initially, the findings for the three sub-research questions will be presented, they elaborate on the discussion around the central research question.

5.1 Sub-Research Question 1: What type of feedback healthcare professionals receive from patients?

5.1.1 Norwegian case

Different types of feedback were identified and some of them were observed as triggers to changes in the Hospital of Stavanger. Feedback was mainly related to the routines and procedures during the treatment that the patients received, an example mentioned more than once with regards to the length and of an information meeting. Other type of feedback is related to changes that patients would like to see in the hospital facilities and even different needs that they have from the equipment available in the hospital, for example, the wheelchairs available for patients in the physiotherapy department. This sub-question also identified feedback about the way the healthcare professionals handled a procedure and feedback with regards to personal preferences, medical treatment or diagnosis.

The table 6 will present the findings of different types of feedback that stimulated changes in the Norwegian hospital.

Table 6 Types of feedback that healthcare professionals receive from patients in the Hospital in Stavanger

Type of feedback	Norway Examples
Diagnosis	NI6: "Parents wanted more explanation about a medical diagnosis. They felt that it was not well explained as it was a very heavy diagnose."
Patients' records in the journal	NI5: "The parents are following the online journals, and they can even ask to change something written by the physiotherapists if they do not agree, or if there is a mistake or even a misunderstanding. Many patients are not aware that they have access to the journal online"
Equipment available in the hospital	NI2: "The patients mention that the wheelchairs and other equipment is not fully functional, therefore, the hospital employees' help patients moving around from beds and wheelchairs."
Personal Preferences	NI8: "A patient met me three times. After the third time, the patient said that he did not want to talk to me again. I thought it was a resistance, so I talked to a colleague who is a doctor who had the task of talking to the patient's parents. I asked if she could talk with this patient. We changed roles, she talked to the patient, and I talked to the parents. The patient then said, "this was better, I prefer talking to her." The patient continued his treatment".
Medical treatment	NI2: "A patient was admitted in the hospital and had a condition since he was born and which he knew a lot about. He asked for a medicine that the doctor didn't prescribe in this hospital, but the patient was satisfied with the effects of the drug from previous treatment in a different hospital. I informed the department about the request of the patient. The problem was that the doctor did not have access to all the history of that patient. The previous medical records were originated in Bergen, and Stavanger Hospital did not have access to it."
The hospital facilities	NI7: "A person had an allergic reaction to some flowers that stood in the waiting room."
Routines	NI1: "The patients always start treatment with the GP and then they are referred to the rehabilitation center. Before they had a whole day with information, but many patients reacted to the length and complained to their GP, which gave us the input to shorten the information meeting-day."
Routines	NI3: "Experienced patients have told us about a course on intestinal cancer patients. There have been two issues where the experienced patients insisted that it was a must to be part of the course, which would not be included if they had not insisted: advice on nutrition and advice on implications for sexuality."
Routines	NI1: "The patients would come for treatment with a physiotherapist. After exercising and getting sweat, they had to sit and listen to instructions from the doctors. Many patients complained to the physiotherapists that they were cold."

Routines	NI6: "One example of feedback was that young patients wanted to talk to the doctor alone before the parents would join the consultation. This input came from an organization named forandringsfabrikk (fabric of changes) and after hearing that I started to change my way of handling the patients."
Administrative procedure	NI4: "This relative said that this information was not optimal to give on the phone. We thought she needed to meet personally up here to see whom she was talking to. It became a completely different dialogue, more open than just picking it up on the phone. It made us change the routine, by offering them psychological attendance"
Compliments for treatment	NI1: "Some patients want to continue in the group-treatment as they really enjoyed it. There is an evaluation now and then, if opinions/feedback from these patients should be brought further or not, if this is practically possible or not. There is a starting point and an ending point in the treatment, then patients must work by themselves. The clinic must let them go and let them stand on their own"

It was observed different types of feedback in the first section of this chapter (table 6, above). The different types of feedback identified that reach the healthcare professionals were presented in different ways: (i) a single patient from a situation that it was given face to face during a consultation, (ii) from an organization representing a group of patients, (iii) from a healthcare professional that was located in a different healthcare unit and represented the opinion of a group of patients that have frequent visits to a hospital department, (iv) feedback that repeatedly came from different patients and was related to the same topic and given to one healthcare professional, and (v) **feedback** from close relatives of the patient (parents). A common thing in this topic is the fact that all those feedbacks were given verbally.

5.1.2 Brazilian case

In the interviews in the Brazilian hospital, informants brought up some examples of feedback given by patients: feedback related to the hospital capacity, feedback to the process of the hospital handling the patients administratively, to the behavior of the healthcare professional on the daily routines and also related to medical procedures.

On the table 7 a summary of the types of feedback are presented. The feedback that stimulate changes identified were mainly related to medical procedure and administrative procedure.

Table 7 Types of feedback that healthcare professionals receive from patients in the Hospital in Brasilia

Type of feedback	Brazil Examples
Hospital capacity	BI2: "The most common problem is that parents contact me to complain that it takes too long time to get their children to be transferred to a different hospital. I try to do my best, but it is not something that I have control."
Hospital capacity	BI3: "The situation here is of a lot of deficit. The patients are always complaining, or they are frustrated as they get surgeries canceled. They can get a call a day before the surgery canceling it, and it has happened up to four times with the same patient. There is not much that we can do when these situations happen."
Workplace conduct	BI5: "We had a satisfaction survey with the patients of the hospital. It had a positive outcome even before the published results just by the fact that it generated an improvement in the behavior of many healthcare professionals."
Medical procedure	BI5: "In the past women would have to be alone in the room while giving birth, only the healthcare professionals were allowed to participate. Patients were always asking to have company during the delivery: the father or their mother, a person that they trust in the room. It changed not only in this hospital and it happened after a lot of complaining, time and effort including third party organizations. It was a big movement all over the country discussing the humanization of delivery and birth to make this change happen. Positive effects have been observed already after the change."
Administrative procedures	BI6: "When booking an appointment with a clinician of this hospital, the patients are required to go in person to the booking department to get an appointment with the doctor within the month. The agenda was only available for the current month, and if it was full and the patient did not get the appointment, he or she would have to wait until the next month to return. It would cause a lot of frustration and patients would hang around the hospital facilities to talk to doctors between one and other consultation (...) Many people are waiting to get the chance to see a doctor in this department. The average waiting time for a patient to be called for a treatment today takes between three to four years."

In one interview, a healthcare professional stated that the financial situation is a problem for the hospital, resources such as medicines, equipment and even healthcare professionals are lacking. It was very different from the experience while performing the interviews in Norway, it was observed great difference regarding the appearance and of the premises and no comment was made by the Norwegian professionals that they have experienced any difficulties given the lack of material, equipment or personnel.

Other informants suggested that the healthcare professionals are concerned about improving the quality of the services, but when they were asked about examples of feedbacks from

patients, no concrete cases would come up. Instead, statements that showed concern with improvements were presented.

BI1: "To provide better care for patients, I took the initiative to start an epistemological study. I presented to my leader, and it is ongoing within the whole department. All the professionals within the department are gathering the data and the results and suggestions for improvement will be presented to the leader of the department and later to the director of the hospital."

From the statements, we observe that the quantity of people is frequently an issue for those healthcare professionals in that hospital. Also, it seems that one single feedback would not get their attention but they would be more concerned with feedback that are a common opinion for larger groups of patients.

The different types of feedback identified exemplified by healthcare professionals in Brazil were: (i) feedback that repeatedly came from different patients, and (ii) feedback from third party organization.

5.1.3 Summary

The findings demonstrate that there are many different types of feedback given to healthcare professionals mostly during physical interaction. Also, the evidence shows that feedback stimulates changes in various aspects. In the Norwegian case, the number of examples was higher than in the Brazilian case. It was more challenging to get concrete examples of feedback in the Brazilian case, even though we followed the same structured questionnaire. We believe that two reasons could have an impact on that:

(i) Brazilian informants were more skeptics to give detailed or specific information regarding patients during the interviews and carefully choosing words during the conversation. It was mentioned repeated times by the professionals in Brazil that the economic situation is not good enough and the hospitals should receive more investments from the government, and that was the main reason why patients are complaining so much.

(ii) While talking to a Norwegian professional about the daily routine, it was mentioned that in a full day with patients, the number of consultations would be around six, while the Brazilian professional in an equivalent position said that the number of consultations just in the morning was usually between twelve and fifteen. The fact that the workload that those professionals are facing is expressively higher and it is not an optimal condition or it is a barrier for an innovative work behavior.

The table below presents a summary of the different types of patient feedback observed.

Table 8 Summary of types of Feedback

Norway	Brazil
Medical procedure	Medical Procedure
Administrative procedure	Administrative procedure
Diagnosis	Workplace conduct
The hospital facilities	Hospital Capacity
Equipment available in the hospital	
Routines	
Personal Preferences	

5.2 Sub-Research Question 2: How do healthcare professionals treat patient feedback?

Once recognizing that the healthcare professional receives a considerable amount of feedback initiated by patients and reaching the professionals in different ways, the next step is to understand: what happen to this feedback information until they turn out into enhancement? The figure 16 presents a graphical view of one of our aims, to understand how the healthcare professionals are treating the patients' feedback in the two different cases, Brazil and Norway.

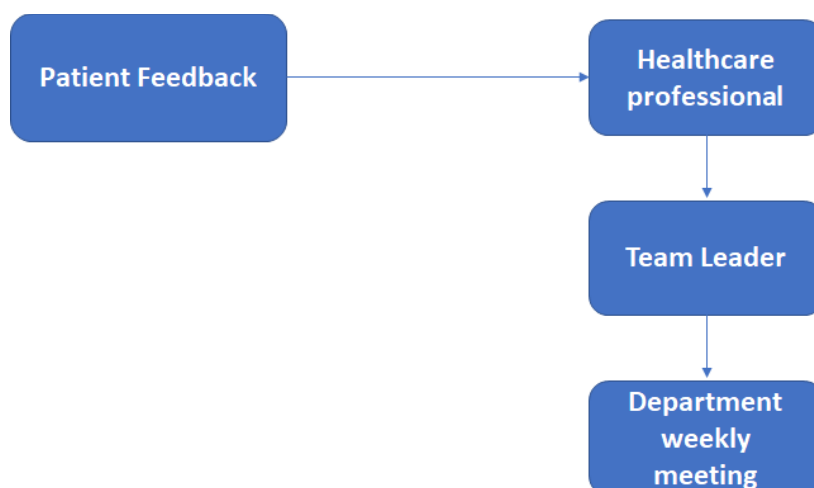
Figure 16 Information flow for patient feedback



5.2.1 Norwegian Case

In the majority of the cases, the feedback was forwarded to the team leader and then discussed with other professionals in the weekly meeting as illustrated in the flowchart below.

Figure 17 Information flow Norwegian case 1



Different statements were evidence that this is a common routine to treat patients' feedback:

NI5: "Feedback is discussed within the department on a weekly basis or the experts in the field."

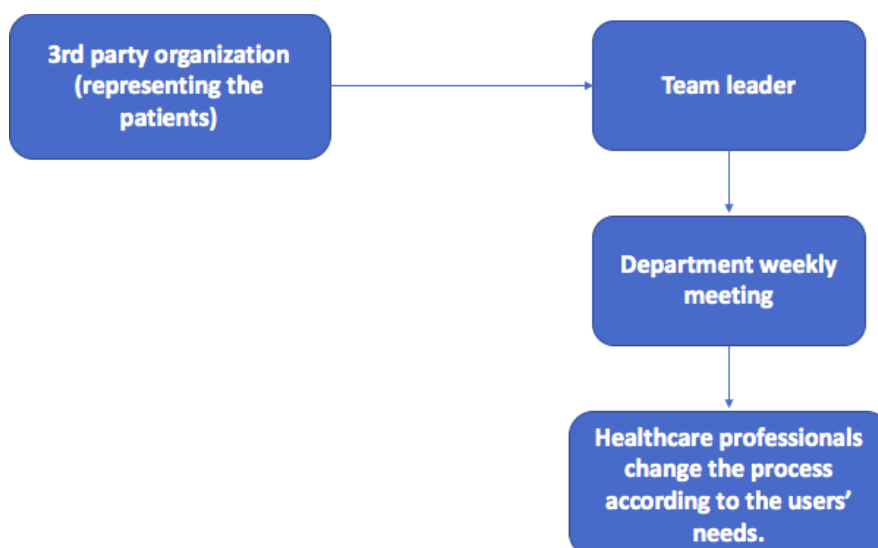
NI6: "Changes can be determined by the management or discussed with the department. We must follow ethics codes and the clinic conduct manual, but we also have autonomy to discuss with other professionals and change treatment if we are not happy".

NI7: "They have a team meeting every Thursdays and everyone in the team is present. The team discusses every patient need".

A similar treatment was given to a case of feedback regarding a routine. It came from a third-party organization and it was feedback about young patients that wanted to first talk to the doctors privately, and then, have their parents in the consultation. In that case we could understand that the flow of the information happened from the representatives of the organization (which represents the patients opinions), to a department leader. So it came from

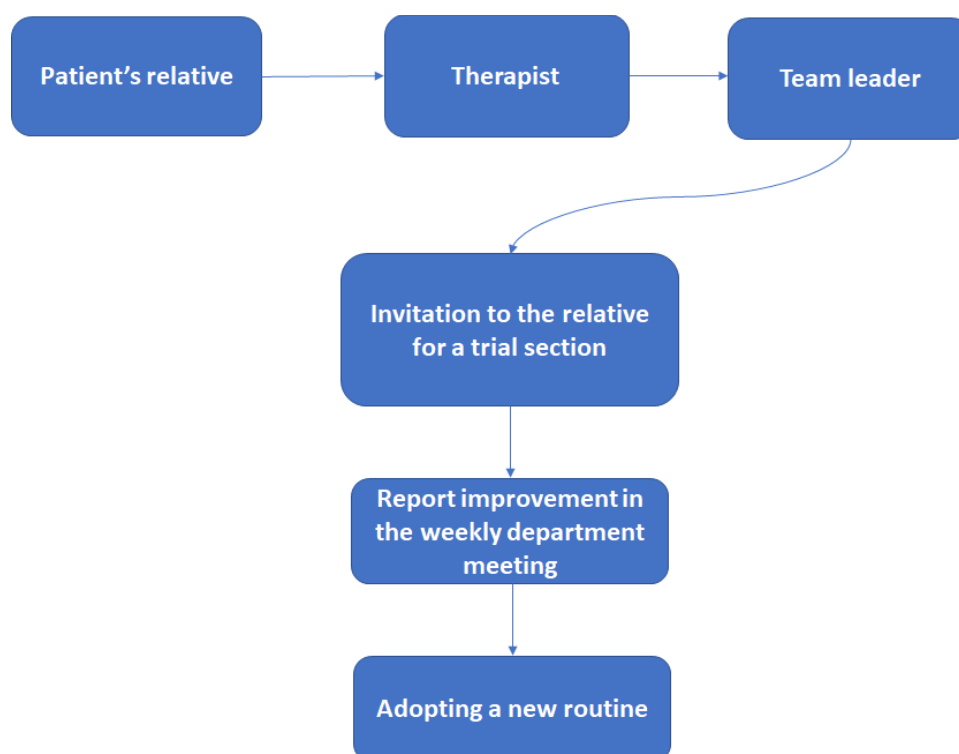
a different channel but the treatment flow of information was not different: the leader brought it up in the team meeting and the professionals agreed to do a change in the routine as a trial, and when that trial showed that the change would be better for the users (the patients), they adapted the routine.

Figure 18 Information flow Norwegian case 2



Another case was feedback also related to a routine. It was about a relative of a patient that did not appreciate having some information flow over the phone. He just mentioned it to the therapist during a routine and the therapist forwarded the feedback to the leader of the team. At that point, the leader instructed the therapist to invite the relative for a face-to-face meeting instead of following the procedure. The outcome was a more open dialogue and the whole event was presented in the weekly team meeting to the other professionals of the department. After some reflection there was an agreement of changing the routine to give the chance to patients' relatives to have the face-to-face meeting.

Figure 19 Information flow Norwegian case 3



In some cases, feedback is not related to the process in which the health professional is dealing with. The professionals are more focused on changing the process as that is achievable for them. Therefore, no actions are taken concerning change the product, but the healthcare professional change their behavior to suppress the need for different equipment.

NI2: “The patients mention that the wheelchairs, and other equipment is not fully functional, because of that, the hospital employees help patients moving around from beds and wheelchairs.”

The field research also provided some evidence that in Norway the healthcare professionals are encouraged to change, and that gives them space to improve and innovate.

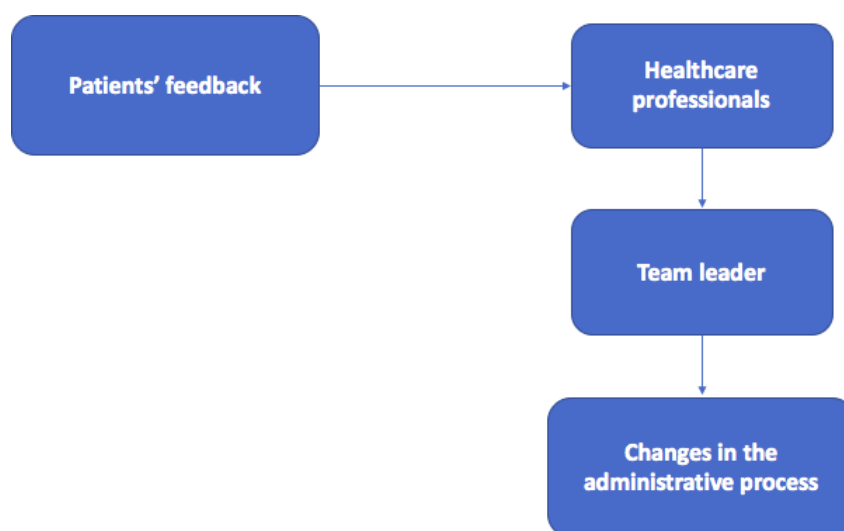
NI6: “All the professionals that work here receive the message that they are allowed to suggest changes also to complain if they are not satisfied with the way things happen here.”

5.2.2 Brazilian Case

As the number of examples was lower in the Brazilian inquiries, we could analyze two different ways on how the feedback was treated. Still, we still believe that this evidence gives some light in the topic as the first case was similar to the evidence from the Norwegian case, and the second was a new example, not comparable to the Norwegian findings.

In the case of the feedback about the booking system, after many complaints from the patients, and the comment about the inconvenience of the process in the hospital premises, there were some changes. Still, it does not seem to be good enough as it was an incremental change in the process but the route of the problem is far deep down, related to the capacity of the hospital. Therefore, the issue of too long time waiting for an appointment (up to four years) is still live.

Figure 20 Information flow Brazilian case 1



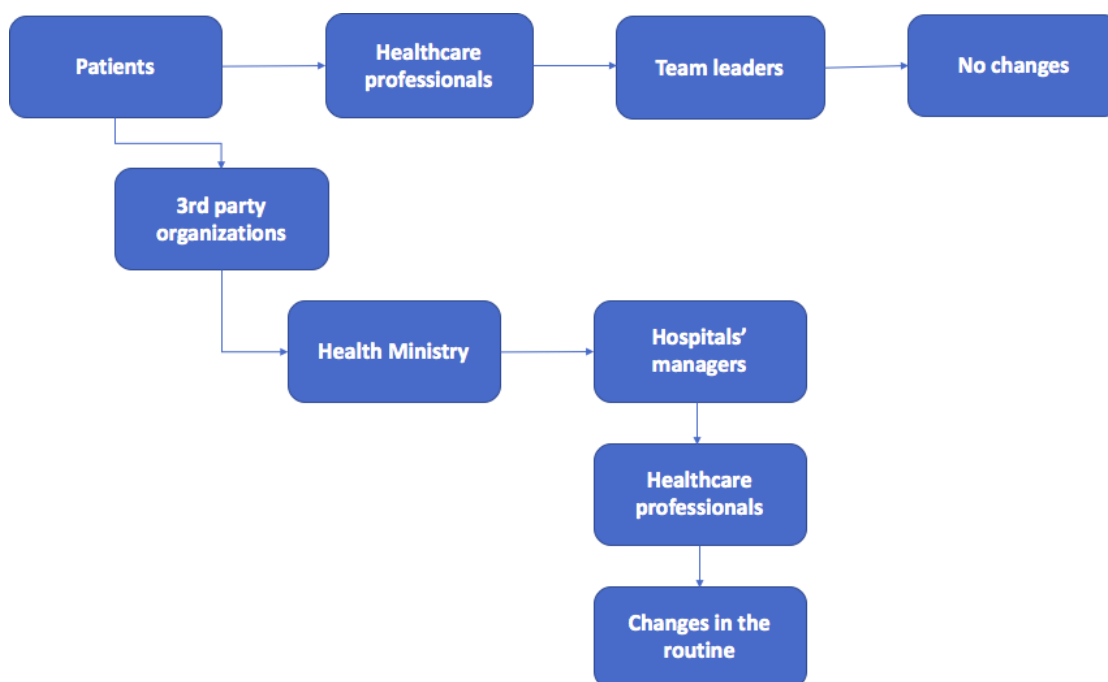
It is a fact that the volume of people in need of the healthcare service is high and having a booking system where patients need to be in person in the hospital will always present as a consequence a massive flow of people in the hospital in a daily basis. Not to forget that those patients need to be absent from their duties to travel to a hospital to get an appointment.

The action of opening one more month on the agenda might be seen as a small change. In fact, it is. The question that we keep in mind is “Why they don’t change this archaic booking

system?” A practical way would be using the phone, or even an online system where you do not need to keep a whole booking department available to organize the agendas of the healthcare professionals.

In the case of feedback from the pregnant women requesting the companion person during the delivery, we observed that a lengthy process took place until changes could happen. According to our informant, it was a recurrent feedback coming from patients, and the clinicians were forwarding the message to their leaders, but no changes were presented. As a large number of patients were unhappy, at some point, it involved third-party organizations and even social media. Those organizations have access to the health authorities, and the informant mentioned that it was still a long process until the health minister would make it a mandatory routine. The positive observation was the fact that it was not made one specific change but a complete revision of the treatment given to pregnant women, the delivery moment and procedures afterward were reviewed. So, the outcome was an extensive review of a long process to provide better services to the women having a child in Brazil. We synthesized the process in the figure below.

Figure 21 Information flow Brazilian case 2



It is not the focus of this study but by a quick research one can perceive a positive outcome for this change. Dodou et al. (2014, p1) stated that “The care provided by companions has contributed to the humanization of delivery and birth and also brought comfort, calmness and safety, thus relieving the tension of the parturient women.”

In this case, it is evidenced that the change did not happen from a bottom up approach, it was only possible to change when the instructions came from the policy makers and top management. It converges with a statements regarding the difficult to propose any changes in the hospital system, and it came up as an explanation to the lack of feedback examples.

BI3: "The environment is much regulated. To change something here, it is necessary to involve the upper management and public authorities."

5.2.3 Summary

Health care professionals must follow ethic codes, internal rules and medical procedures, but also, they have a lot of autonomy in their daily activities and, therefore, opportunity to make improvements. When asking the informants about their routines, there was consistency in the fact that all professionals, in the case in Norway and in the case in Brazil, have weekly meetings with their departments. Those weekly meetings appear to be a key tool to maintain the information flow in a formal way. In those meetings they discuss administrative routines and also medical issues, it is an arena for reflecting on the discussions and it brings diversity of opinion regarding a case, instead of one professionals taking decisions on its own.

Another possibility that was mentioned frequently was when a professional would first take it to the team leader, and together they would decide about the relevance of bringing it up to the whole team, given the time limitation of the meetings.

5.3 Sub-Research Question 3: What can contribute to a better feedback process?

This study is focused on patient feedback that encourages innovations, one of the concerns of the study was to investigate opportunities to improve feedback process. Patients are entitled to receive good quality healthcare, regardless of where they receive the help and who provides it. In many cases, it means that healthcare professionals must collaborate on assistance, either within a business or between different businesses.

5.3.1 Norwegian case

Currently, Norway adopted the electronic medical records in a way that should empower patients to better manage their health. One of the informants in this research commented on a case where information regarding a patient was not available and the healthcare professionals were just handling paperwork.

NI2: “A patient was admitted in the hospital and had a condition since he was born and which he knew a lot about. He asked for a medicine that the doctor didn’t prescribe in this hospital, but the patient was satisfied with the effects of the drug from previous treatment in a different hospital. I informed the department about the request of the patient. The problem was that the doctor did not have access to all the history of that patient. The previous medical records were originated in Bergen, and Stavanger Hospital did not have access to it.”

NI5: "The parents are following the online journals, and they can even ask to change something written by the physiotherapists if they do not agree, or if there is a mistake or even a misunderstanding. Many patients are not aware that they have access to the journal online"

Ideas about improvements were also mentioned while the interviews took place. It gives a sense of self reflection and the openness that professionals acquire:

NI4: “We don’t have a system or an election on our website where we “invite” patients/relatives to give any feedback, but this is actually not a bad idea”.

NI1: “It would be nice to check if the treatment works after a while. Does it work 1 year later, does it work 2 years later? We have not done that, but we tried it on the “Back-section” (a long term treatment for people in rehabilitation). The patient was sent an evaluation form after six months. There were very few who returned them again. People did not spend time filling them out. But we could have tried again for some evaluation”

In addition, one of the comments made reference to the length that it should take when requesting a feedback. Two different themes are being considered in this comment: feedback regarding the medical treatment, and feedback regarding the whole experience while following the treatment and having contact with the health professionals.

There were also cases where the improvement of communication between patient and health professionals were reinforced by the adjustments done by professionals due to ideas given by patients

NI7: “I take the time to listen, I must act as neutrally as possible as I am not a therapist or psychologist (I am a secretary). I tell them that I must bring it further to the main therapist, and him or her will contact back the patient. I always inform the therapists. This information never gets lost”.

NI6: “The parents wanted more explanation about the medical information. Since then, I have established a systematic feedback meeting with my patients when we end the treatment.”

Hence, it is evidenced that in the Norwegian hospital some professionals seek to moderate their attitude in order to improve their relational skills.

NI7: "...I listen and agree with them and understands the patient's frustration. I tell them that I understands what they say and mean, but I must bring it further to the main therapist, and him/her will contact the patient"

NI1: "...patients mention about good techniques they have been taught as they have not thought of before. I ask if any of the information was unclear and if I need to repeat it. This way, it gives them time and chance to ask again. Often they respond that it was perfectly fine and understandable."

5.3.2 Brazilian Case

During the interviews with the Brazilian health care professionals, it was unanimous that they deal with a high flow of people and taking time to actually listen to the patients was not a possibility for every single patient. The participants reported that education of the population assisted by the Hospital in Brasília plays a critical role, a suggestion that they would not be prepared to handle the electronic medical record was presented during the interviews.

BI6: "There is some communication on the website of the hospital where the patient can get administrative information but any medical information is given in person, verbally or written. Any medical information is given face-to-face and one of the reasons is the fact that this hospital receives people from everywhere, some people live in a suburb which evolved from the old garbage dump of the city. Many patients have such a basic level of education that we want to make sure they do not misunderstand any explanation or orientation."

BI3: "The comments from the patients are mostly complains and frustrations given the deficit situation of the hospital. Any information is given to the patient verbally, some of them have a very low level of education and we want to avoid the chance of having a misunderstanding".

The public healthcare system in Brazil is currently not using digital tools to interact with patients. The hospital in Brasília, is currently using electronic medical records and the system is integrated in a way that a healthcare professional can obtain historical information, even from different institutions, and register new information regarding a patient. The health care professionals have profiles so they can read or read and write information for the record. However, the patients do not have a profile to access the information online, they can only request a healthcare professional to have the information printed.

BI4: “All the medical records are electronic now, and it makes it much easier to understand the patient history (...) the healthcare professionals have different profiles to login in the system, some are only able to read the information, others are able to add information regarding the patient. The patient itself does not have a profile, but at any time he or she can request access to a professional who will show or print the patient’s records.”

5.3.3 Summary

The findings show evidence that professionals in the Norwegian Hospital work on their relational skills in addition to the regular professional relationship. In the Brazilian Hospital, the professionals mentioned that they have difficulties while communicating with patients and that the problem is a consequence of a lack of education.

The results of both hospitals show us that health care service is a very personalized service, and the interactions today happen mostly verbally by face to face where patients have a more open communication, and in less proportion on the phone. Informants from the Brazilian context exposed the education level as a barrier to explore more written channels of communication. Given that finding, we investigated the amount of people that is illiterate, 7,2% of the population above fifteen years old in Brazil is illiterate, according to the Brazilian Institute of Geography and Statistics (IBGE, 2017). This number represents 11,8 million people, what looks quite expressive when you consider that Norway’s population is estimated to be 5 million people (SSB, 2018). Also considering that Brazilian public health care system is mostly used by the

share of the population with lower income, it can be an indication that health care professionals see education level as a challenge for communication.

Analyzing the possibility to improve feedback process through digitalization, Norway has adopted the electronic medical record in a way that health care professionals and patients will have access to it and they can interact. It gives transparency to patients to review the records and have a better understanding of their condition. The use of the digitalization as a tool is not optimal yet as findings shows that just a few numbers of patients is using it.

In the Brazilian case, the electronic medical record has been adopted in order to provide record of the medical information to the professionals. The patients are not able access the system or review the information that is added regarding their condition and according to the responsible innovation perspective, this characteristic would be an evidence that inclusion has not been covered by the process.

6.0 Analysis and Discussion

At first sight, one can already notice dramatic differences from the Hospital at Stavanger to the hospital in Brasilia. Starting with the number of people around just waiting for their chance to see a doctor. In Brasilia, the hallways are filled with chairs, and it is no easy task to find an empty spot at nine in the morning. There are also the direction lines on the floor so one can follow to the right place, but one barely sees them, probably by the number of people that have been walking around the premises and a lack of maintenance. It was noticeable that people are not all quiet patient waiting, they were social, and they talk to each other just to kill time. We observed a bit, and we saw a patient coming with her child on her bosom. She knocked at the doctors' door, and when the doctor opened she said in a very emotional way: "Hi, I just came to say thank you for everything and to show you my child!" and when she finished, she was very close to crying. That woman has waited from 3 to 4 years to become pregnant with the doctor's help. In the hospital at Stavanger, one can meet many people walking around the corridors, but once you arrive at a waiting area, it was not common to have more than one person waiting to see a healthcare professional. The premises have all excellent standard, even if the municipality is investing in a whole new hospital for the next years. It is not an easy task

to meet a patient and just start a conversation with a stranger. Also, everything seems to flow faster but also smoothly.

How patient feedback encourages responsible innovation in Hospitals?

After studying about feedback and communication and going through all the interviews, we tend to believe that the quantity of feedback given by patients should be higher than the actual number of feedback that the professionals absorb. It happens because the professionals have limitations in dynamic capabilities (Tidd and Bessant, 2014), because they see limitations in the field that they can act (Sheard et al., 2017), because of the amount of work that they have mentioned during the interviews, and also because they are accountable for their attitudes. Therefore, the examples of feedback were all regarding situations that they tried to do something about, and that indicates that they were motivated by those feedback.

Gjelsvik (2009) pointed out the natural growth of processes is a complicated process. Couture et al. (2009) believed that the precise way to implement process redesign would be to focus on the overall needs of patients. However, how would that happen when healthcare professionals deal with the high responsibility for people's health, and besides, they work with a large volume of people on a daily basis. Can people become that high skilled to pay attention to that level of detail? The professionals follow routines that they believe are the most effective. Moreover, feedback is a way for patients to send an alert that something about that routine is not adding value (Gjelsvik, 2007). From that observation, we tend to conclude that the more the professional receive the same message, the higher is the chance the feedback will get attention, as when performing his job, his focus of attention is on following the procedure that is perceived to be the best.

The most frequent type of feedback had regards to the routines, or processes. As the professionals are part of the process and they have great knowledge about its design (Law 2016), it is reasonable to conclude that it will be easier for professionals to have insights about improving something that is in their field of domain. The Feedback with regards to medical procedures, or routines, such as the case of young patients who would prefer to talk to a doctor

before having their parents in the room is one example. It represented the significant amount of feedback and it was received through the communication with a patient organization (forandringfabrikk).

In the case of the Brazilian pregnant ladies that asked for the companion during the delivery, a higher ceiling was presented (Den Hertog et al., 2005). There was a need of changing the policy in the national healthcare system level, what demanded more time and involvement of different actors and organizations. The positive outcome in that situation was the fact that not one small improvement was done but a whole review of the situation which women were going through was considered and many aspects were covered by the new regulation (regulation 569 from the Brazilian Ministry of Health).

When patients in the physiotherapy department of the Norwegian hospital mentioned that they have problems with some equipment available. The wheelchairs and beds are not adapted to their needs. It was an indication that potential product innovations could emerge from those types of feedback. To produce changes in those equipment means to produce or change technology, and that is not the field of the domain of healthcare professionals. In that sense, we believe that those type of feedback are far out of the possibility of healthcare professionals. Therefore, lack of ownership (Sheard et al., 2017) is also not allowing motivation. But if the feedback is sent to the upper management then the power of change is present (Den Hertog et al., 2005). If the healthcare professionals do not realize that they are part of a process, the feedback will quickly fall into forgetfulness. Especially given the fact that feedback was obtained verbally and no record was kept to transform this data into information for the upper management or other actors in the process.

White (2014) emphasized that the need for better communication between doctors, patients, and their relatives has happened for a long time in history. As reviewed in the context of the study, a public good is the one that everyone has access (Nicholson W., and C. Snyder, 2012). So, everyone demands this service, and the professionals in this sector are highly demanded in a workload level that can be impressive. When we hear that Brazilian professionals deal with 12 patients to 15 patients in one morning, and when the doctors are responsible and accountable for treatment and its effects on people's health, it sounds as a great pressure while following

routines. How they still have time to listen to the patients' opinion about a procedure in a situation like that?

Another finding during the research was the observation that most of the feedback was obtained verbally, either in the Norwegian and the Brazilian cases. During our interview with the Norwegian project management, it was mentioned that the Hospital in Stavanger has implemented a solution for professionals to give feedback to the innovation department of the hospital. If this solution has been successful, it could also become a channel for the patient's feedback. In times which Artificial Intelligence is a trendy topic in the news, it seems to be an opportunity for technology to take over, develop those activities are provide to healthcare professionals a relief in their routines. It also gave a good impression to meet representatives of the Hospital of Stavanger that are working full time in developing innovations for the hospital. Unfortunately, we did not identify in the hospital in Brazil a department responsible for innovation.

As reviewed by Click et al. (2011) feedback is a driver to encourage the imagination and partnership. In the Brazilian case, there was some conflict in obtaining examples of feedback, but in the other hand, we received evidence that healthcare professionals changed their behavior for better, given that they had access to the opinion of the patients through a survey. And in the Norwegian case, it was an easier task to acknowledge that many professionals listen to individual feedbacks and those are already enough motivation to improve and also be more creative.

Radical changes can be seen as a barrier to the implementation of process innovation (Law, 2016) and it could explain the lack of innovative behavior observed in some of the interviews. In a few cases we evidence that a doctor suggested a patient continue the treatment with another professional as the healthcare professional identified some personal preference that could end up in a problem for the patient. It can be a challenge to many professionals to accept that personal differences can be a barrier to deliver a service with quality, in a sector where physical interactions must happen. It is also an evidence of professionals taking risks to perform process innovation (Nelson and Nelson 2002).

In the case which the patient had a personal preference of not continuing the treatment with a specific doctor, the doctor received feedback and took it as constructive critique. He discussed

the case with another doctor and they agreed to change roles as a trial to improve the quality of the service. After the trial, the patient agreed that it was the best, so the professionals agreed to change roles permanently in that case. Here, we can observe a challenging implementation of change (Daft and Armstrong 2009, cited in Allen 2016) that could also be seen as employee-resistance and overseeing priorities (Allen, 2016) if the doctor did not take the risk of being criticized and performed the change. Finally, the case also reminds of the “moving target” (Tidd and Bessant, 2014) characteristic of innovation, and provided user-oriented service (The Norwegian Health Directorate, 2018).

Davenport (1993) defended that Process innovation requires the understanding of the current design of the process, the perspective of the future design and implementation of desired changes and this usually happens in a scenario of “stable conditions” (Gjelsvik, 2007). In the same way, we could observe that in the examples of feedback provided by our informants, changes happened when the professionals could see the “future design” of the process. All the examples involved changes that only people were involved. Therefore, we tend to believe that incremental process innovations can easily be implemented by health care professionals. But once it moves to radical innovations, more requirements appear, such as: a lot of time, investments, and cooperation from other types of knowledge. The last can be interpreted as the dynamic capabilities (Tidd and Bessant, 2014). Further, Law’s (2016) idea that employees have their own jobs as a concern contribute to a challenge for radical or incremental process innovations.

Another evidence was the case of an experienced patient that gave a feedback to a nurse regarding a medicine prescribed by a doctor. The nurse stepped out of her work area and mentioned to the doctor that she got a feedback regarding the medication prescribed, even though it was not up to her to decide what would be the best medication for that patient. The “moral orientation” (Sheard, 2017) was high as she believed that giving notice about a different medication “was the right thing to do”. In the opposite direction, when there is low presence of “structural legitimacy” (Sheard, 2017) the professionals do not feel the empowerment needed to start a change process. In the case where a doctor needed to interact with other organizations to get patients to be transferred and he mentioned that it was something out of his control, it is possible to observe that the lack of structural legitimacy does not allow the professional to start or perform any change.

From the theory we understand that if a professional is receptive to patient feedback then he has a high normative legitimacy. In addition, if the change is in the range of his control, he will also have structural legitimacy (Sheard et al., 2017). In the Norwegian case, evidence of NL and SL were found when for example professionals received the message that they could suggest changes if they found it necessary. In the opposite direction, in the Brazilian case, professionals would argue that changes were only possible with involvement of the upper management and public authorities. Based on that, we believe that in the Norwegian case there was organizational readiness to change. While in the Brazilian case, the organizational readiness to change was not present even if the receptiveness to patient feedback they don't perceive themselves able to perform the change without external assistance (Sheard et al., 2017).

For treating the feedback, the most relevant channel was the weekly team meeting. It was interesting the finding that administrative personnel participate in those meetings with doctors, nurses and eventually, other professionals. The meetings are used to update the team members on the situation within the department, either administrative or cases of patients that need some second opinion and discussion. The participants can also bring any discussion that they perceive as pertinent, such as the case of this research, or it could be some routine that they see the need to improve, a complain or a suggestion, anything that they feel they need a second opinion can be taken on the meeting.

The evidence that patients' feedback, their relatives, GPs, debate within health professionals, third-party organizations, and others are taken into consideration, is great evidence of the inclusion dimension of responsible innovation. Also, the fact the electronical research within each healthcare system is done to conduct evaluations of single cases diagnoses is another evidence of inclusion of different actors in the decision make process, it is a right step in the process of developing user driven and responsible innovation and it is aligned with the concept of having diversity and quality obtained through different backgrounds involved in the discussion (Stilgoe et al., 2013).

The capacity of being responsible, meaning, to respond to stakeholders, public values, and circumstances (Stilgoe et al., 2013) is another dimension of responsibility. Being responsive was also observed among many interviews. From the smallest acts, as when a patient mention to a receptionist that he is allergic and promptly, she removes flower from the room, to a more dramatic case that pregnant women wanted companion while the birth delivery, but only after

a lot of effort, response was showed. It could lead to a discussion of value recognition. It could lead to a completely different study where the cultural would be considered into the analysis. That is not an easy task but it would contribute to the field as there is not “one size that fits all” (Tödtling & Trippel, 2005). Just as an example of those differences, Norway is a country where the abortion is considered legal, while in Brazil, the practice is considered a crime against human life (according to the Brazilian law 2.848).

The capacity of foresight, assess scenarios and perform horizon scanning (Stilgoe et al., 2013) refers to the anticipation dimension, it can be also linked to governance. Evidence of this behavior was also identified. When Norwegian healthcare professionals performed trials regarding feedback received before implementing changes, an assessment of scenarios was performed, what involves perceiving and anticipatory attitude. Burget et al, (2017, p 10) presented anticipation as the “the aim to envision the future of research and innovation and understand of how current dynamics help design the future”. As referred in the literature (Stilgoe et al., 2013), this can be the hardest of the dimensions and even with scenarios, not all the risks could be foresight.

With regards to the dimension of reflexivity, and the idea that awareness of the “limits of the knowledge” and self-critique, the best finding is again the arena provided by the weekly meetings in both case studies. Where the collaborative characteristic is present and different actors are reminding about their capabilities and limits.

Based on the findings and documental research, it was noticed that the changes and improvement in the qualification of treatment occurred while the patient was still present. The patient gained this benefit and experienced an increase in quality, while the staff received confirmation of the improvement. In other cases, due to schedule and activity plan, the change was not implemented until after the patient or patients which provided the input had completed the ongoing treatment. The value increase were therefore not experienced by the patients concerned and the therapists did not get any feedback on whether the change was a success or not, something that can result in a brake in the action pattern and influence attitude in behavior.

According to Caprara & Rodrigues (2004) most of patients' complaints refers to the difficulty of communicating with doctors, and not about the clinical competence. And a good relation doctor-patient contribute to the satisfaction level and quality of the services perceived as well as the health condition of the patient. In the findings, the professionals show a concern with the

improvement of these relation patient-doctor, or patient-healthcare professional. The relational skills are a part of the feedback process, people can have different level of knowledge but it is the attitude that can contribute or become a barrier in the communication process Cornwell (2015) cited in Sheard et al., (2017, p20).

Having the EMR as a reference to understand and compare digitalization stage of both countries, we observed that Norway and Brazil public healthcare system are in different level of innovation process. Once analyzing the responsibility dimensions its relevant the fact that inclusion is not being covered by the implementation of the EMR when the patients does not have a user to login in and review their information. All the informants defended that they would show the patients their records, but still, they have very short time with the healthcare professionals and it is not enabling patients to active manage their information and give a step forward in the direction of improve patient-doctor communication.

Despite the divergence in the way digitalization has happened in Norway and in Brazil regarding the implementation of electronic medical records, we cannot find evidence that digitalization is yet stimulating patient feedback in hospitals.

The experience with the healthcare professionals testified that hospital users (patients) many times visit a hospital in a situation that is not an emergency, and they do analyze all the experience. From the waiting room, the installations, the kindness of the people around, the visit to the doctor, in many repeated times. They become knowledgeable enough to provide significant input with regards to the healthcare process that they go through. We also observed how much they demonstrated care to the patients and passion for their professions, also, how demanding it is, no matter which country you are. From the innovation perspective, we believe that having an innovative mindset is already a more substantial step in the direction of providing innovative and responsible healthcare services. Also, healthcare professionals have the advantage of being highly exposed to face-to-face interactions, what gives them the opportunity for physically co-present communication. Innovation in the process seems to be a much-diluted activity and a winning way to make it happen and make life better should be by spreading the sense of responsibility with some autonomy with an innovative mindset to any field of activity. Processes are routines performed by people, and developing the innovative dynamic capability is the right way of becoming a dynamic environment.

7.0 Conclusion

The purpose of this paper has been to explore and understand how patient feedback encourage responsible innovation in Hospitals. To answer the question three sub-questions were disposed related to types of feedback, what is the flow that the information follow, or how feedback is treated, and finally, what was identified as possible contributions to improve the feedback process between patients and healthcare professionals.

This study shows that patient feedback is the recognition by healthcare professionals that patients face problems in hospitals, when those professionals perceive feedback as a guidance for doing something better, they do want to deliver a better job. Sometimes feedback can be perceived as a judgment. In those cases, resistance might appear as a consequence. The responsibility perspective was noticed in the study when changes were not done unaccountably but instead, formal and informal discussions were taken before implementation of innovation and with the concern of the “socially desirable outcomes” (Von Schomberg 2007).

The need for the smallest improvements are identified by patients while handled by healthcare professionals, but this professionals' routines are complex and demanding. It was observed that different types of feedback are given to healthcare professionals. Depending on the situation, professionals will always designate to focus on the most important demand, health. Still, they frequently discuss the routines within the departments, and they do implement changes that add value to the patients (innovations) in a responsible way. Also, much deficit was mentioned, and the observation regarding the difference in the workload was very expressive. We understand that in Norway society is more equal, while in Brazil the social inequality is high, still, there is the intention from professionals to do what is good. Patient feedback is triggering change, and we believe that there is more feedback than the capacity of the healthcare professionals to register the demand. Therefore, an opportunity for digitalization and artificial intelligence would be a possibility for exploring further patient feedback in a responsible manner that includes the patients in the innovation process, and at the same time, not demand more or even provide some relief in the routine of the healthcare professionals.

This thesis established an approach between patient feedback and the motivation of healthcare professionals to promote changes in the process. Previous work has shown that the professionals respond when they recognize the opinion of patients (Murante et al., 2014) and our empirical

research authenticates it. Our analysis further indicate that responsibility is perceived in the behavior of the professionals in different dimensions. Nevertheless, overload can be a barrier to anticipation which is probably the most challenging dimension in covering within responsibility.

This study was a “two-case” case study and therefore, results are only generalizable within each case. Also, the environments are contrasting, in the Norwegian case, the majority of comments from informants had regards to positive attitudes regarding feedback and they also mentioned that they received many compliments. In the other hand, it was a more challenge task to obtain feedback examples from informants in Brazil and they mentioned a lot of complaints and frustrations are the most common. A reason for that attitude could be the perception by the Brazilian professionals that they are not empowered to perform changes and this should get attention from the managers. A perception of own control is necessary to change this attitude. The culture background is very different among both countries, and it should have an impact in the findings. Therefore, it should also be considered in future research when trying to answer the question of how professionals react to patient feedback within each cultural context.

Another aspect is the fact that the investigation was conducted by interviewing healthcare professionals who are the secondary source of data. Ethical standards do not allow that patients would be interviewed in this case, and they would be the primary source of data. The Hawthorne effect (Adair, 1984) might have affected the findings as no patients were interviewed as a triangulation (Yin, 2014) validation. Due to the novelty of patient-feedback in innovation processes, it becomes difficult to solidly support findings without the support of other external qualitative and quantitative studies, more empirical studies should be conducted in order to give a broader empirical basis to the development of the concept.

One of the focus in this thesis was the process innovation, future studies on innovation and innovation methods in hospitals could be exploring other types of innovation such as product innovations initiated by patients, as well as researching the unexpected consequences of innovation to present a more comprehensive view of the dynamics of innovation.

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Appendix

Appendix 1

#	Questions
	Briefly about the background of the informant
1	What activities and decisions fall within your area of responsibility?
2	Can you briefly describe what a typical workday/workweek contains, of tasks and events?
	General about contact with patients
3	Can you briefly describe what kind of contact you have with patients at hospital – both oral and written?
4	How often are you in contact with patients; oral, written by letter, by email, or by other means online? (Daily/Weekly)
	Identification of patient feedback – possibly via employees – with the potential for an improvement/new solution
5.0	When you think of all the contacts you have with patients here at SUS in recent months, do you remember anything they have said/mentioned in writing, which you perceived as a valuable input, possibly associated with health conditions at the hospital in general? It may be a complaint, an idea, or an input for a change or a suggestion for a new solution/improvement. (NOTE: we do not want the patient's name – or to identify the patient in any way.)
	If an input is mentioned in «5.0»:
5.1	Can you tell me what this was about? <The project employee notes here: a) The information channel (physical meeting/letter/email/network contact/other) b) Contact scope in time (physical meeting), text length in lines/pages (written) and frequency (written correspondence)>
5.2	If this was about the patient's health condition, had this to do with a) patient symptoms? b) Patient's interpretation of journal/diagnosis? c) The patient's view of something that has to do with the treatment process? (appointment times, waiting times, processing times, etc)
5.3.0	Did this input from a patient lead to any particular follow-up from your side, possibly from another employee at the department/hospital? <The project employee notes here: a) Was there a note about this recording in some system at the department/hospital? b) Was this input discussed, or mentioned in a meeting, between employees at the department/hospital? c) Led the input (directly or indirectly) to discuss changes in routines/thinking sets or in treatment procedures or other, at the department/hospital? d) Was the information about this input communicated to other units, possibly to managers, at the department/hospital? e) What is the status now for the follow-up of this input?>
5.3.1	If «yes» on 5.3. b: Who was involved in the discussion (patient, relatives, hospital staff, suppliers, others...) If «yes» on 5.3. c/d: Have you registered any reactions to changes that have been made? Has the change been evaluated in any way?
	IF AN INPUT IS MENTIONED: BACK TO 5.0.
	Additional Topics
6	Has it been necessary to involve external parties outside the hospital sector to follow up the patient inputs you have heard about?
7	How do you think that the journals and other network communication with patients affect the amount of feedback from patients? If so, in what way?
	The end
	Thanks for your help!

Appendix 2

Hospital beds												
Per 100 000 inhabitants												
geotime	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU (28 countries)	592,38	583,86	573,63	564,43	558,82	550,3	537,41	533,08	527,4	522,43	519,01	514,54
Belgium	747,34	742,45	670,4	663,12	657,42	650,81	642,57	634,86	629,32	625,42	623,82	618,49
Bulgaria	613,13	641,17	619,81	636,43	649,41	659,72	655,37	644,92	661,22	681,64	712,98	723,5
Czech Republic	763,55	755,28	742,47	730,61	718,74	711,41	702,56	683,59	666,12	645,67	645,46	648,51
Denmark	397,11	385,69	379,11	369,12	357,05	349,37	349,79	312,95	:	307,06	268,88	253,01
Germany	857,78	846,74	829,71	823,91	821,36	823,95	824,77	822,24	818,29	820,16	822,82	813,31
Estonia	569,93	541,71	556,44	547,75	561,66	534,67	523,97	530,92	552,58	500,53	500,55	495,97
Ireland	564,12	545,95	527,47	514,61	492,33	287,36	275,16	262,39	254,9	257,42	259,66	260,2
Greece	468,92	472,9	481,69	481,45	477,45	484,85	440,66	439,75	442,63	424,16	423,78	424,6
Spain	341,7	336,1	331,49	327,19	322,54	318,7	315,18	308,91	299,3	296,34	296,63	297,9
France	739,04	722,49	711,11	706	690,27	666,11	642,8	635,66	634,13	628,5	620,58	612,76
Croatia	552,55	545,08	545,63	548,61	547,42	537,33	561,92	568,2	588,63	586,04	591,02	556,3
Italy	398,65	399,91	393,9	384,48	372,73	362,61	357,09	343,94	342,16	331,17	321,09	319,55
Cyprus	:	375,04	369,69	371,95	375,38	376,23	356,62	351,17	346,09	340,86	341,58	341,53
Latvia	774,42	769,22	760,81	757,13	746,09	640,14	551,47	588,43	588,5	579,98	565,71	569,45
Lithuania	743,71	708,78	688,82	688,26	683,66	680,32	695,43	742,89	743,23	728,2	722,15	696,61
Luxembourg	639,39	578,51	565,13	566,88	556,84	546,62	536,74	527,83	515,31	505,37	493,6	482,09
Hungary	788,77	791,45	797,72	718,59	710,51	714,38	718,18	718,72	700,07	703,73	698,43	699,41
Malta	745,64	744,61	754,91	780,34	734,31	481,41	451,46	437,76	471,33	480,43	466,58	472,59
Netherlands	447,15	445,46	478,03	474,19	469,85	465,69	:	:	424,52	418,4	:	:
Austria	773,45	768,71	766,2	774,71	767,88	765,89	762,93	764,72	767,39	764,5	758,82	754,51
Poland	666,81	652,06	647,2	642,38	661,95	665,28	655,71	654,69	662,98	660,84	662,7	663,47
Portugal	358,29	354,26	345,84	341,43	337,05	335,15	336,13	337,23	340,61	339,27	331,91	340,05
Romania	673,72	677,3	674,13	653,87	656,92	662,01	628,49	612,44	659,6	667,31	671,15	679,13
Slovenia	479,92	483,19	476,71	468,28	474,25	460,32	457,24	462,43	454,46	455,2	453,74	451,41
Slovakia	689,82	677,02	671,16	675,32	655,71	650,5	644,33	605,05	591,08	580,34	578,52	574,73
Finland	709,94	705,29	698,65	673,3	656,83	625,23	585,38	552,14	529,83	487,21	453,01	435,33
Sweden	301,19	293,24	288,78	286,35	280,51	275,88	272,61	270,56	261,86	259,42	253,83	243,74
United Kingdom	386,52	373,41	355,66	340,71	335,5	328,95	295,21	289,37	280,75	275,68	272,89	261,01
Iceland	:	:	:	411,79	390,97	369,86	358,44	329,14	324,59	320,6	315,22	311,35
Liechtenstein	272,88	270,48	242,6	241,05	239,62	195,85	216,54	214,81	212,78	164,94	163,77	160,03
Norway	524,53	516,1	502,65	486,41	463,51	452,29	430,41	419,5	397,26	385,86	384,47	376,19
Switzerland	566,97	553,92	539,11	536,01	521,1	510,43	496,32	487	480,21	467,73	458,44	458,38
Montenegro	:	:	:	:	:	:	:	:	:	388,92	393,37	393,15
Former Yugoslav Republic of Macedonia, the	477,19	469,79	462,69	456,36	454,64	447,8	459,07	450,76	440,36	444,62	439,57	438,79
Albania	300,74	295,48	296,55	290,73	:	:	:	:	:	:	:	:
Serbia	:	:	554,35	534,63	533,73	535,47	538,97	541,09	544,11	549,91	552,48	:
Turkey	211,95	215,18	222,83	231,12	235,44	239,78	252,03	253,35	266,14	265,31	267,99	268,03

:-not available b=break in time series e=estimated

:

Source of Data: Eurostat
 Last update: 01.03.2018
 Date of extraction: 05 Mar 2018 10:46:03 CET
 Hyperlink to the table: <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tps00046>
 General Disclaimer of the EC website: http://ec.europa.eu/geninfo/legal_notices_en.htm
 Short Description: Hospital beds provide information on health care capacities, i.e. on the maximum number of patients who can be
 Code: tps00046

Appendix 3

% Change year over year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Gjennomsnitt
EU (28 countries)	-1,44 %	-1,75 %	-1,60 %	-0,99 %	-1,52 %	-2,34 %	-0,81 %	-1,07 %	-0,94 %	-0,65 %	-0,86 %		-1,27 %
Belgium	-0,65 %	-9,70 %	-1,09 %	-0,86 %	-1,01 %	-1,27 %	-1,20 %	-0,87 %	-0,62 %	-0,26 %	-0,85 %		-1,67 %
Bulgaria	4,57 %	-3,33 %	2,68 %	2,04 %	1,59 %	-0,66 %	-1,59 %	2,53 %	3,09 %	4,60 %	1,48 %		1,54 %
Czech Republic	-1,08 %	-1,70 %	-1,60 %	-1,62 %	-1,02 %	-1,24 %	-2,70 %	-2,56 %	-3,07 %	-0,03 %	0,47 %		-1,47 %
Denmark	-2,88 %	-1,71 %	-2,64 %	-3,27 %	-2,15 %	0,12 %	-10,53 %			-12,43 %	-5,90 %		-4,60 %
Germany	-1,29 %	-2,01 %	-0,70 %	-0,31 %	0,32 %	0,10 %	-0,31 %	-0,48 %	0,23 %	0,32 %	-1,16 %		-0,48 %
Estonia	-4,95 %	2,72 %	-1,56 %	2,54 %	-4,81 %	-2,00 %	1,33 %	4,08 %	-9,42 %	0,00 %	-0,91 %		-1,18 %
Ireland	-3,22 %	-3,38 %	-2,44 %	-4,33 %	-41,63 %	-4,25 %	-4,64 %	-2,85 %	0,99 %	0,87 %	0,21 %		-5,88 %
Greece	0,85 %	1,86 %	-0,05 %	-0,83 %	1,55 %	-9,11 %	-0,21 %	0,65 %	-4,17 %	-0,09 %	0,19 %		-0,85 %
Spain	-1,64 %	-1,37 %	-1,30 %	-1,42 %	-1,19 %	-1,10 %	-1,99 %	-3,11 %	-0,99 %	0,10 %	0,43 %		-1,24 %
France	-2,24 %	-1,58 %	-0,72 %	-2,23 %	-3,50 %	-3,50 %	-1,11 %	-0,24 %	-0,89 %	-1,26 %	-1,26 %		-1,68 %
Croatia	-1,35 %	0,10 %	0,55 %	-0,22 %	-1,84 %	4,58 %	1,12 %	3,60 %	-0,44 %	0,85 %	-5,87 %		0,10 %
Italy	0,32 %	-1,50 %	-2,39 %	-3,06 %	-2,72 %	-1,52 %	-3,68 %	-0,52 %	-3,21 %	-3,04 %	-0,48 %		-1,98 %
Cyprus		-1,43 %	0,61 %	0,92 %	0,23 %	-5,21 %	-1,53 %	-1,45 %	-1,51 %	0,21 %	-0,01 %		-0,92 %
Latvia	-0,67 %	-1,09 %	-0,48 %	-1,46 %	-14,20 %	-13,85 %	6,70 %	0,01 %	-1,45 %	-2,46 %	0,66 %		-2,57 %
Lithuania	-4,70 %	-2,82 %	-0,08 %	-0,67 %	-0,49 %	2,22 %	6,82 %	0,05 %	-2,02 %	-0,83 %	-3,54 %		-0,55 %
Luxembourg	-9,52 %	-2,31 %	0,31 %	-1,77 %	-1,84 %	-1,81 %	-1,66 %	-2,37 %	-1,93 %	-2,33 %	-2,33 %		-2,51 %
Hungary	0,34 %	0,79 %	-9,92 %	-1,12 %	0,54 %	0,53 %	0,08 %	-2,59 %	0,52 %	-0,75 %	0,14 %		-1,04 %
Malta	-0,14 %	1,38 %	3,37 %	-5,90 %	-34,44 %	-6,22 %	-3,03 %	7,67 %	1,93 %	-2,88 %	1,29 %		-3,36 %
Netherlands	-0,38 %	7,31 %	-0,80 %	-0,92 %	-0,89 %								0,87 %
Austria	-0,61 %	-0,33 %	1,11 %	-0,88 %	-0,26 %	-0,39 %	0,23 %	0,35 %	-0,38 %	-0,74 %	-0,57 %		-0,22 %
Poland	-2,21 %	-0,75 %	-0,74 %	3,05 %	0,50 %	-1,44 %	-0,16 %	1,27 %	-0,32 %	0,28 %	0,12 %		-0,04 %
Portugal	-1,12 %	-2,38 %	-1,28 %	-1,28 %	-0,56 %	0,29 %	0,33 %	1,00 %	-0,39 %	-2,17 %	2,45 %		-0,46 %
Romania	0,53 %	-0,47 %	-3,01 %	0,47 %	0,77 %	-5,06 %	-2,55 %	7,70 %	1,17 %	0,58 %	1,19 %		0,12 %
Slovenia	0,68 %	-1,34 %	-1,77 %	1,27 %	-2,94 %	-0,67 %	1,14 %	-1,72 %	0,16 %	-0,32 %	-0,51 %		-0,55 %
Slovakia	-1,86 %	-0,87 %	0,62 %	-2,90 %	-0,79 %	-0,95 %	-6,10 %	-2,31 %	-1,82 %	-0,31 %	-0,66 %		-1,63 %
Finland	-0,65 %	-0,94 %	-3,63 %	-2,45 %	-4,81 %	-6,37 %	-5,68 %	-4,04 %	-8,04 %	-7,02 %	-3,90 %		-4,32 %
Sweden	-2,64 %	-1,52 %	-0,84 %	-2,04 %	-1,65 %	-1,19 %	-0,75 %	-3,22 %	-0,93 %	-2,15 %	-3,98 %		-1,90 %
United Kingdom	-3,39 %	-4,75 %	-4,20 %	-1,53 %	-1,95 %	-10,26 %	-1,98 %	-2,98 %	-1,81 %	-1,01 %	-4,35 %		-3,47 %
Iceland				-5,06 %	-5,40 %	-3,09 %	-8,17 %	-1,38 %	-1,23 %	-1,68 %	-1,23 %		-3,40 %
Liechtenstein	-0,88 %	-10,31 %	-0,64 %	-0,59 %	-18,27 %	10,56 %	-0,80 %	-0,95 %	-22,48 %	-0,71 %	-2,28 %		-4,30 %
Norway	-1,61 %	-2,61 %	-3,23 %	-4,71 %	-2,42 %	-4,84 %	-2,53 %	-5,30 %	-2,87 %	-0,36 %	-2,15 %		-2,97 %
Switzerland	-2,30 %	-2,67 %	-0,58 %	-2,78 %	-2,05 %	-2,76 %	-1,88 %	-1,39 %	-2,60 %	-1,99 %	-0,01 %		-1,91 %
Montenegro										1,14 %	-0,06 %		0,54 %
Former Yugoslav Republic of Macedonia, the	-1,55 %	-1,51 %	-1,37 %	-0,38 %	-1,50 %	2,52 %	-1,81 %	-2,31 %	0,97 %	-1,14 %	-0,18 %		-0,75 %
Albania	-1,75 %	0,36 %	-1,96 %										
Serbia			-3,56 %	-0,17 %	0,33 %	0,65 %	0,39 %	0,56 %	1,07 %	0,47 %			
Turkey	1,52 %	3,56 %	3,72 %	1,87 %	1,84 %	5,11 %	0,52 %	5,05 %	-0,31 %	1,01 %	0,01 %		2,17 %

Appendix 4

Hospital bed density in Brazil

Country	Year	Hospital beds (per 10 000 population) ⁱ
Brazil	2014	22 ⁱ
	2013	23 ⁱ
	2012	23 ⁱ
	2011	23 ⁱ
	2010	24 ⁱ 24
	2009	24 24 ⁱ
	2005	24 ⁱ

Source: World Health Organization, 2018.

Available at: <http://apps.who.int/gho/data/node.main.HS07?lang=en>

Access on: 05.03.2018